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An investigation into the evaluation of jobs in a large heterogeneous group of African workers

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Work motivation among primitive tribesmen does not appear to have risen much above the subsistence level. They work for food and to maintain the family and clan organisation. Commenting on this aspect of tribal life, Glass (56) adds that, initially, work organization was based, almost entirely, on the household unit of the extended family. "The cohesion of this group was maintained through a set of reciprocal duties... Since acceptance of, and compliance to, the group were the norms of valued behaviour, this was not an economic situation which rewarded initiative and difference". In such a situation, work discipline was determined by the agricultural seasons and the pastoral routine. This meant that except for milking, work discipline was exceedingly lax.

Biesheuvel considers next the migrant worker who retains strong associations with his tribal community. He adopts a migratory work pattern because it disturbs least his traditional way of life. "This life (of contracting to work on a mine for a limited period of time) provides many opportunities for the leisurely tribal activities... after minimal material needs have been met". Biesheuvel stresses the importance migrant labour attach to leisure, and mentions that loss of leisure is a major deterrent against continuous employment in White areas.

There is at present no evidence which will explain how the transition between casual migrant labour and full-time urban employment takes place. He assumes that the process is a gradual one and depends on the weakening of the migrant labourer's kinship ties and an increasing confidence in his ability to handle his own affairs. The development of secondary industry, the fact that could not bear the costs of training fresh migrant labour at regular intervals, and accelerated rural impoverishment are additional factors which may have precipitated this transition.

Attitudinal studies of the established industrial worker reveal that he no longer looks upon work as an interruption of the more meaningful and satisfying life of the African areas. "He sees workers committed to their daily tasks, experiencing needs beyond those of a mere subsistence level. This group does not show, however, a high degree of social cohesion. This is probably due "to the recency of their association with a paternalistic tribal society, the relative coarseness of occupational stratification in their urban communities, and the absence of any labour organization".

When he moves to higher occupational groups, Biesheuvel finds that they do not lack any of the specific work motivations which characterizes Western industrial people. Africans, however, differ outstandingly in the high social value attached to work. He feels that this may be due to the need experienced by many Africans to restore a sense of belongingness which was lost with the break up of the tribal societies. That in fact, individualism is often more prominent in African occupational behaviour than social service, he accepts "in view of the many socio-economic pressures and statutory disabilities to which the individual is exposed, and the absence of a realistic and generally approved plan whereby actions could be guided and inspired".

He finds too that the theme of self-realisation - "being something, making something of myself" - is quite prominent among the African middle class. He quotes a study of Allport and Gillespie (1) which found that this theme of self-realisation was expressed far more frequently by African students than by students from any other nation. He considers that this attitude is not necessarily in conflict with the desire to place interest of group before self, because there is little the individual can do on behalf of his group without having received adequate vocational or professional training. He considers that "because of the effort Africans have to make with the limited resources at their disposal, to reach Western standards of competence and to acquire Western habits of conduct, that this motive is so much stronger among them than among their American counterpart".

Comparing their attitudes to work with those of industrial operatives, Biesheuvel finds that in keeping with similar occupational groups elsewhere, the African middle class expects to derive much of the meaning in their daily task from job interest or dedication motive. He concludes that "the more deeply Africans are drawn into that essentially Western culture, the world of work, the more thoroughly do they acquire the personalities functional for that culture".

This survey is very pertinent to the field of job evaluation. By indicating that the attitude to work varies as one moves along the occupational spectrum, it questions the assumption made by Jaques (85), i.e. that all occupational groups base their evaluation of work on one single dimension.

Biesheuvel and Glass have each pointed out how attitudes to work are largely predetermined by the culture which the individual has acquired. The African being in a state of cultural transition may have in consequence varying conceptions of the bases on which work must be remunerated. If we were to use the terminology of Lamont, we would say that the "common demand" experienced by various occupational groups varies as we move from one group to another.

A number of independent writers have come to the conclusion that this is in actual fact the case. Biesheuvel suggests it when he considers the varying satisfaction derived from work by executives and operatives. Executives derive a keen interest from the work they do, and appear to labour under some compulsion to give increased mental effort to it. Operatives, on the other hand, derive their satisfaction mainly from group association. Otis and Leukart (135) write that both management and workers each have their own ways of classifying jobs. Management is largely directed by the scarcity of labour, the learning time required, and the amount of responsibility involved. Workers evaluate differently. They are guided primarily by the pleasantness of the job, i.e. whether it is desirable or undesirable, the difficulty or ease of the job, and whether it requires a great deal of effort. Sayles (155) writes that his experience in job evaluation has made him conclude that the way workers "see" and compare jobs requires an analysis of complex interests and forces which must be considered in addition to the formal evaluation of job content. Otis and Leukart, and Sayles fail, however, to present any experimental evidence for the conclusions they have reached.

We devised, therefore, and carried out, an experiment which would formally test the assumption that the manner in which work is valued varies in actual fact as we move from one occupational group to another. The experiment was designed with particular reference to work done by Africans.

3. Rationale and model of experiment.

The hypothesis we propose to test was formulated as follows:

> "That the concepts used in the evaluation of jobs and the relative importance attached to them are the same for a sample of European management officials as they would be for Africans at various occupational levels".

We are concerned in this experiment solely with the evaluation of jobs currently done by Africans. We shall examine how these jobs are viewed by European managers and by Africans at various occupational levels. This is a twofold task: we must not only determine the concepts used by these various groups in their evaluation of jobs, but also to establish the relative importance attached to these concepts.

A brief survey of psychological experiments reveals that techniques to measure empirically values, have not progressed very far. Dukes (39) ascribes the difficulties psychologists have encountered to the controversy which Titchener initiated in 1915, when he excluded the study of values from the science of psychology. There are moreover, he writes, a number of difficult problems involved in the measurement of values. The definition of values must remain essentially subjective. Value judgments are in consequence highly conditional. Dukes mentions, in addition, the apparent lack of transitivity in some evaluations, and the question of a common denominator for the possible approaches to values. The various techniques which have been developed to measure values are essentially based on the straight answer. Even though a number of standardized tests of value are available, the large majority of investigators employ the Allport-Vernon Scale of Values.

The measurement of the value of work has essentially been based on the common sense dimensions found in job evaluation systems. These dimensions vary, as we indicated, according to the system used. Jaques (85) bases his evaluation on the time span of discretion. Job ranking methods depend on the manner in which a committee views the relative importance of jobs. The method of classification relies on the definition of grades in which a number of dimensions are compounded.

The points and the factor comparison system are based on the concept of the factor. Five factors keep recurring in most systems. We shall discuss them at length as they come nearest to defining the basis on which work is evaluated.

There is, first of all, the broad concept of knowledge. In this is incorporated all that the person needs to know in order to perform his functions satisfactorily. This would include the education he has received, any training he may have been given on the job, and the experience he may have gained in a similar or related job. The knowledge which a person acquires is essentially conceptual; it may be used directly in the day-to-day work; it may, on the other hand, form the background against which current problems are perceived or solved. Knowledge is therefore valued, not only because of the actual use the incumbent makes of it, but also because of the potential use he may make of it at some future date.

The second concept is skill. Though it initially meant the ability to distinguish or separate (skill is derived from the Old Norse SKILJA meaning to separate) it is now used in the sense of "being able to do things". Under this factor would be included the dexterity, motor controls, and special knacks involved in essentially physical, and therefore, visible tasks. We may, however, speak of mental skills meaning by that, intelligence, but skill as currently used in job evaluation, has entirely physical connotations. Skills are related to knowledge, and the two are often difficult to separate; the expression of skill is most clearly seen in the completion of a mechanical task which involves the use of hands and fingers, aided by tools. Skill is also used to denote the ability to achieve certain concrete results. We call a person a skilled interviewer because he can extract information and can apply involved interviewing techniques. The emphasis here is on the doing, rather than the knowing.

The third concept is responsibility. We enter here perhaps into the most complex and contraversial area in job evaluation. Jacques (85) summarily dismisses the ambiguities of the concept by stating that in any business organization, the board is ultimately responsible for the activities of their employees. The responsibilities of an individual are to him simply the particular activities he must carry out in his job. Writing specifically of the nightwatchman, Jaques

states "If he carries out his job, he contributes to the security of the factory; but he cannot be said to be responsible for it". A person, according to him, has responsibilities only to the extent that he is called upon to contribute to some aspect in the work of an organization.

Jaques' argument is based essentially on the strong relationship which exists between factors in job evaluation. In a way, his argument gains strength from the fact that responsibility and wages have a common etymological meaning. Wages are derived from the old French GAGE, meaning a pledge. They share a common root with wager, to wage, meaning primarily to hazard into a conflict. The connotation is clear: one stakes something of value as a pledge for a probable return. Ancient wisdom may well have placed the payment of wages, the returns of labour into as hazardous a category as the throwing of dices or the waging of war. Responsibility is derived from the Latin spondere, which means promise, to speak; the prefis re, means to promise back, to speak back. Murray (130) writes of the original Latin root spond: "There is something final in this word, like the FIAT (let it be done) of an emperor, or the IMPRIMATUR (let it be printed) of a pope. For this word means SPOKEN! from the Latin spondere, spons: to speak to pledge". We have from the same root, the words spouse, sponsor, and even response which meant initially that which is spoken back. Murray traces further the root of the word spondere to the Greek "sponde" which meant a libation made on a solemn occasion, such as the agreement of a truce, and the Hittite word "sipand" which meant to pour a libation.

This long deviation into the etymology of the word responsibility may well explain the many popular connotations of the word. A sense of responsibility is to modern society the acid test of maturity and the freedom to exercise choice. When we speak of responsibilities of a job, we imply primarily as Jaques points out the activities of a job. We go, however, beyond these activities, and take into account not only direct visible action, but restraint from certain lines of action which we do not value. When we speak of the responsibility of a watchman, we mean primarily as Jaques does, that the man remains wide awake on his job and carries out his rounds of visits. But we also allude to a number of negatives: that he will not be rude to the public, that he

will not be open to bribery. Some responsibilities in a job are expressed essentially in negative terms. Responsibility for the safety of others means that the worker will prevent certain lines of action which will injure his fellow workers. Responsibility for material and equipment means that the worker will avoid operating the machine or use material in a manner which will damage them. Other job responsibilities are expressed in positive terms, i.e. responsibilities for supervision, for personal contact where a given line of action is prescribed or expected.

The crux of the meaning of responsibility therefore is that the person holds himself accountable for certain results. There is implied in this all the solemnity of an oath-taking ceremony. The individual in exchange of a definite undertaking, e.g. to be paid a wage, promises to achieve certain results both in actively pursuing a line of action, and in avoiding to follow some opposite course. The stress we have placed on the negative aspect of responsibility is quite important. For no activity, whether it be work, or a truce at war, has controls which do not force us to depend on the discretion of some other person when we talk in terms of responsibility at work, this means that we have given a person a certain amount of discretion, that we cannot keep rigid controls over him and that we shall hold him accountable for certain results.

The fourth concept is that of effort. A distinction is made here between mental effort, i.e. the need to apply oneself to certain forms of mental activity, and physical effort, generally related to muscular movement. The connotation which is common to both mental and physical effort is the tempo, the pace with which a person works. In all forms of work, activities can be carried out with a pace which ranges from the frankly leisurely to that degree of high pressure which we associate with American executives. Related to this, however, is some judgment of the expenditure, either at the muscular or mental level, the individual has to make to achieve results expected of him in the course of his normal work. Effort connotes therefore some combination of motivation with the degree of force the individual judges must be exerted.

The fifth concept covers all aspects of the environment in which work is carried out. This implies the actual physical surroundings, and some measure of the hazards inherent in them.

The largest number of job evaluation systems endeavour, as we indicated, to measure the value of work in terms of these five factors. But such factors are in reality quite complex as they try to encompass a large number of specific situations. We could not, therefore, use directly these five in the context of our experiment. We wanted managers and workers to evaluate jobs, but to ask them to evaluate jobs in terms of these specific factors would have presented us with an insuperable methodological problem. We could not define these factors in a manner which would cover all possible connotations various occupational groups gave to them. Difficult enough as it would have been to ensure their uniform interpretation, their use at the outset of the experiment would have run counter to one of its major aims. Asking our subjects to evaluate jobs in terms of these factors meant that we assumed that they would use these factors anyway. We could use the factors as a model to categorize the various judgments subjects made, but we could not ask them to make their judgments in terms of the factors.

Our experimental design was in essence quite simple. We showed our subjects pictures of jobs and asked them to make a choice. Biesheuvel (12) used a similar method of pictorial presentations when he investigated the presence of Western values among tribal groups. Pictures were also used by Goldshmidt and Edgerton (58) in their study of values among the Menomini of Wisconsin. In both studies, subjects were shown pictures which described various situations. They were either asked to comment directly upon them, or else to choose from a number of alternatives, a desirable line of action. In each case, the picture would act as a stimulus for the formulation of a value judgment, i.e. choosing between alternatives.

The pictures we presented our subjects represented certain facets of well-known jobs. Though the job would, in reality, involve much more than could be conveyed by a static picture, we expected subjects to elaborate the stimulus material presented to them, and to arrive at a value judgment.

We held a number of discussions with the team of job analysts and with officials from the City Council to select jobs suitable for this study. The prime criterion these jobs had to meet was that they would be well-known to Europeans and Africans at all occupational levels in the City Council. The purpose of the experiment would have been defeated if either European or African subjects were presented with pictures of jobs they knew vaguely or not at all. The jobs moreover had to be of such a nature that the major activity in each one of them could be represented by a photograph; we also wanted jobs which involved a number of easily identifiable features, which again could be incorporated in the composition of a picture. Jobs finally had to range from skilled to unskilled. We short-listed 34 jobs, and photographed ultimately twenty of them.

We carried out next a small pilot study in which 40 subjects, taken at random from one of the municipal compounds, were shown the 20 photographs. They were asked to identify the jobs and describe the various activities the picture suggested to them. We purposely selected labourers as subjects because we argued they would be least informed about jobs in the Council. After the pilot study had been completed, we chose nine pictures which subjects identified readily, which elicited most comments, and which showed jobs ranging from skilled to unskilled.

The nine job, whose photographs appear on the plate in the following page, were as follows:-

1. Pneumatic drill operator. The operator is shown holding a drill over a broken road surface, and working in a heavy oil jacket. The picture was intended to convey the notion of physical effort in holding a heavy implement (the operator stands with both feet apart and leans over the machine), and the skill required to operate a drill through a variety of surfaces. A spanner was placed in the foreground to denote that he used tools to connect and disconnect the hose. Loose rock and dust suggest hazards and open work surroundings.

2. Medical orderly. A male clinic orderly is shown in a dressing station bandaging the hand of an African worker. In the background is a tray with surgical instruments partly uncovered. The orderly wears a white coat. The job was intended to convey the impression of skill and know-how, as well as the specific responsibilities involved in the job, i.e. to be clean, to look after the welfare of others, etc....

VALUE STUDY PICTURES



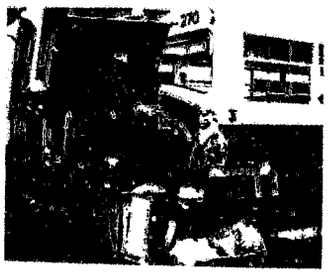
Pneumatic drill operator



Medical orderly



Clerk/Scribe



Artisan's hand



Policeman



Pick-and-shovel labourer



Refuse remover



Painter



Boss boy

3. Clerk - scribe. As there are a wide variety of clerks in the City Council, we chose to represent in the picture the essence of all clerical jobs, i.e. the ability to write. The clerk is shown sitting at a desk in an office, with a telephone exchange nearby. He writes on a file, checking some information from a book. Files and papers are placed on the desk. Mental effort is suggested by the concentration on the face of the clerk, and the fact that he holds his finger on an item of information lest he loses it.

4. Artisan's hand. The European artisan gives his back to the camera, and the focus is on his assistant who hands him a tool from a tray. Tool box, waste cotton are prominently displayed. The picture gives the impression that the artisan's hand has given a tool and now looks for the next one to be used by the artisan. It conveys the training the artisan's hand has received in the knowledge of various tools and the sequence in which they will be used.

5. Municipal policeman. He is shown separating two African quarrelling; a bicycle is in the foreground. One African shelters behing the policeman, to convey the impression that the policeman protects the public. The second African has thrown a punch. Though the policeman is exposed to danger of assault, he gives the impression of being well able to take care of himself. He holds the African firmly at arm's length and appears to have thrown him off balance. He is armed with a knurled stick which he has raised and which appears much more threatening then a badly thrown punch.

6. Pick and shovel labourer. A line of labourers are swinging picks on the side of a road. In the background is a view of the townships and a steamroller. The labourers are bending down, some to bring the pick down, others to disengage it. The picture conveys the physical effort involved in the job and the fact that it is carried out in the open.

7. Refuse remover. He is shown carrying a full bin on his shoulder and trotting to the back of a refuse vehicle. Effort is shown by the tenseness of the muscles of his forearm and the fact that he is leaning forward to balance the weight as he runs. The picture represents an everyday scene in the

townships and European districts. Though the picture was taken in a European residential district, it could easily have represented a scene in one of the more select residential areas of African townships.

8. Painter. He is shown standing on a short ladder, painting the eaves of a house. The picture intended to convey discreetly hazards of fall; the shortness of the ladder suggested that the fall would not be great. The picture is the only one in the group of an African artisan. He uses a brush and holds a pot of paint. We wanted this to suggest the apprenticeship the man had served, as well as the knowledge of paints he has acquired.

9. Bossboy. An African supervisor is shown directing a gang of labourers shovelling earth from a trench. The task supervised is not skilled, the bossboy appears in the well-known role of an overseer pressing labour.

Values about labour could be elicited in three possible ways. We could present each picture in turn, ask what the person doing the job should be paid, and why. We could ask the subjects to rank the nine jobs in some order of merit and explain the basis on which the rank order had been derived. We could present the 9 jobs in pairs, ask which of the two men should be paid more, and the reason for this choice.

We rejected straightforward ranking because the approach would present our subjects with a great deal of material at once. They would not only be required to remember the nine jobs they were ranking, but also to elaborate the content of jobs from the nine pictures, and remember the elaboration made for each job. We rejected the presentation of each single job because the subject would develop a standard of judgment as he went along, and would possibly evaluate the last jobs presented differently than the first ones. We favoured the paired comparison approach because the subject had to judge only two jobs at a time, which he could span in turn. He would moreover formulate each judgment strictly in a relative manner, and would not have to formulate an a priori a scale of pay on which jobs would be placed.

As paired comparisons indicate quite clearly where ambiguities in ranking lie, the method is superior to straightforward ranking. Paired comparisons would in addition supply us with a measure of distances between rank orders. As these distances were computed from the preference matrix, we preferred them to distances on a scale which the subject would need to formulate consciously with indefinite or variable reference points.

The paired comparison technique presents, however, a major disadvantage in the relatively high number of judgments it generates. Nine pictures would require each subject to formulate 36 judgments. If, in addition, every subject were to explain the basis on which his judgment had been made, we would require substantially more time. We calculated that this would take on an average 2½ hours per subject. African labourers and most of our subjects would lose interest after the first hour; they would fail to see the need to continue the experiment and would repeat the same reasons over and over again.

The incomplete block design reduces appreciably the number of judgments each subject has to make. We chose a design Bose (147) developed for nine variables. Each subject was asked to make only 9 judgments and could expand at will on the reason behind each judgment. This would take on average 45 minutes per subject, and enable us to interview 588 Africans and 196 European subjects.

The design which Bose developed required of us to present the comparisons according to a rigorous plan which ensured a balanced presentation of all possible pairs. We were required to work in groups of 28 judges or multiples of 28. The incomplete block design forces the assumption of judge homogeneity. As no judge is shown all possible comparisons, there is no way of measuring his consistency. Data were analysed by means of the Bradley-Terry technique (14, 15), on an electronic computer.

The following African occupational groups were represented in this study. Each group comprised initially 28 judges; but where the group was particularly well-represented in Council, we increased it by multiples of 28. Subjects included in this study were randomly selected from the central staff records.

Group AA (N = 28) - Female nurses from the City Health Department. Most of them are married, over 25 years old, and with a standard of education of J.C. or better. 60% of the sample are still undergoing their training. The remaining 40% have completed courses for general nursing and midwifery.

Group AB (N = 28) - Semi-professional staff of a senior level. These are social workers, sports organizers, cultural assistants, teachers, health visitors and health inspectors. They are all male and hold senior positions in the City Council, being generally responsible for the supervision of professional but more junior personnel. Subjects in this group are over 25 years of age, and have acquired additional qualifications to that of matriculation or school-leaving certificate, e.g. a teaching certificate, diploma in social work. This is the most occupationally advanced African group included in this study. It is the best educated group and has the fewest number of dependents.

Group B (N = 56) - Senior clerical and technical personnel. This includes senior clerks, and technical personnel who would have less advanced qualifications than subjects in group AB. There are in this group, clerk cashiers, building inspectors, beerhall supervisors. They have received for the most part, their training on the job. They have completed their J.C., but hardly any have gone further in their studies. Though a large number in the group are single, the average number of dependents they support is between 4 and 5. This would include parents as well as relatives and children.

Group C (N = 56) - Clerks. They are junior in status to clerks in group B. They are involved in routine clerical tasks and are employed in administrative departments, offices and out-patients clinics. The clinic clerk described in the previous chapter characterizes this group. Almost all of them are married, have to support from four to five dependents, are over 25 years old, and did not study further after leaving school, usually on completion of the junior certificate.

Group D (N = 56) - Artisans. These are men who have completed an apprenticeship, in one of the trades listed in the Native Building Workers' Act (Act No. 27 of 1951). Included in this sample are carpenters, plumbers, bricklayers and drainlayers. They are for the most part, over 25 years old, their education ranges from near illiteracy to standard IX. The majority in the group have not gone beyond primary education. They were trained by the Municipality and excepting for one subject, none have continued with studies after completing their apprenticeship. Over 70% are married and support on average five dependents.

Group EA (N = 28) - High-grade African supervisors. These are men who have acquired specialist training and supervise skilled workers. There are in this group, road makers, district overseers responsible for the removal of refuse and its disposal in a large area, trade chargehands, and workshop foremen. They are over 25 years of age, and range in education from near illiteracy to standard ten. The majority have not gone beyond primary education. They were trained by the Municipality, did not study further after they had acquired a competence in their trade. 90% are married, and support on average five dependents.

Group EB (N = 28) - Low-grade African supervisors. These are supervisors currently known as "bossboys". They supervise labourers and may often work alongside them. Promotion to the status of bossboy depended at the time of the study on the opinion of the European overseer. Some were promoted because of their leadership qualities, others as a reward for long service or simply because of favouritism. The manner in which they function varies according to the European overseer, who rigidly controls the degree of authority they will exercise. The majority of bossboys in this group were over 35 years old, and had been with the Council for more than 5 years, making this group the one with the longest service. The level of education is low; 75% are either illiterate or have gone half-way through primary school. They are all married and support on average five dependents.

Group F (N = 56) - Semi-skilled workers. This group includes semi-skilled workers who were for the most part trained in an ad hoc manner on the job. There are drivers, machine operators, and half the group consists of artisan's hands. They are all over 25 years old, few have completed primary school education, and just under 50% are illiterate. Most of them are married and support on an average 6 dependents.

Group G (N = 56) - Municipal policemen. These are policemen privately employed by the City Council to guard property in European districts and to enforce municipal by-laws in the townships. They are over 25 years old, few have completed secondary school, but most have gone half-way through primary school. They are all married and support on an average five dependents. They were trained by the Municipality, none have studied further.

Group H (N = 84) - Labourers - unpleasant conditions. These are labourers employed in jobs which are generally accepted as unpleasant and are paid slightly more than unskilled labourers. Included in this group are refuse removers, night soil removers, sewer cleaners, and labourers working in the basement of power houses. The majority are over 25 years old, and illiterate. They are for the most part married and support five dependents.

Group K (N = 112) - Labourers - lowest wage grade. This group was sampled from the largest labour group in the City Council, which included over 40% of the total labour force. They all earn the statutory minimum wage of R24.23 a month. They are employed in tasks which require no skill and involve brief periods of on-the-job training. They are for the most married and support five dependents. They all live well below the poverty datum line as indicated in a report from the National Institute for Personnel Research (31).

The European group comprised 196 municipal officials. This is in the nature of a total sample as all municipality officials above a certain level were included in this study. We incorporated in this sample all departmental heads and their deputies. The Municipality is functionally divided into a number of departments, each managed by a departmental head. Major departments are divided into branches each under the control of a branch head. The deputy is appointed

at the same time as the head of a department or a branch, and replaces his chief automatically when he is transferred, promoted or retired. As there are 23 departments in the municipality serving a variety of functions, the backgrounds of the various officials interviewed varied markedly. There were engineers, accountants, medical officers, librarians, work study consultants and various categories of professional administrators. As each sub-category would be too small to comprise a full group of 28, it was decided to group all European subjects together and consider them as having the managerial function in common.

4. Analysis of the data.

Preference matrices were drawn up for each of the eleven African occupational groups and for the group of European officials. Scale values were computed for the nine jobs by means of the Bradley-Terry method (14, 15). Jobs were plotted using scale values as distances.

The point of origin for each scale is not absolute, but relative to the pattern of the preference matrix. Any direct and detailed comparison between scales is not permissible. If the distance, for example, between two jobs on one scale is .4, and on another is .8, we cannot say that the distance between the jobs on one scale is twice that on the other. A broad comparison is permissible, however, if we base it on the manner in which jobs cluster near each other and are spread over the scale.

Product moment correlations were computed between the scale values each of the nine jobs obtained for the twelve occupational groups. The correlations were computed to give us some rough measure of agreements between scales. They are permissible if we do not seek to test their significance (we would be assuming otherwise that the scale values are distributed normally) and if we remember clearly what it is that we are correlating, i.e. a rank order and scalar distances determined by a preference matrix.

Test of significance were computed for each scale. Where the value of the test is significant, this means that the scale of jobs obtained from the preference matrix is significantly different from one which would be derived by chance. Tl test measures the significance of scales where

the group has 28 subjects. It assumes that subjects are consistent with themselves and with each other. As we used an incomplete block design, there is no way of testing this consistency. T4 tests measure the significance of scales for occupational groups comprising a number of sub-groups. The consistency of sub-groups forming a major occupational group was tested by T5 tests.

The assumptions of consistency we have made are permissible when we consider the limitations inherent in the experimental model. Judgments elicited by a paired comparison of job photographs are hard to control experimentally. The subject is shown a picture with a great number of cues. He could presumably use different cues at different presentations. He could weight the cues differently as different pairs are shown.

The incomplete block design we used precludes any measurement of judge consistency. A judge would see, for example, the picture of the clerk paired with that of the medical orderly, the medical orderly paired with the bossboy, but will not see the picture of the clerk paired with that of the bossboy. As we are unable to measure judge consistency, it is difficult for us to explain lack of consistency between subgroups, when this occurs.

The advantages of the approach we used were, however, many. We were able to use a technique which could be applied with equal facility to literate and illiterate judges. We were able to encompass in this experiment - the first of its kind - a great many occupational groups. Subjects were asked to make fewer comparisons but explained in each case the reasons for their preferences. The cost for all this, however, was an experimental design which lacked fine controls.

We feel therefore that the results of this experiment can only be considered on a broad basis, indicative of trends rather than providing fine measures of behaviour. Commenting on paired comparison experiments as the one we have carried out, Guilford (62) writes that "the amount of reduction an investigator will accept depends upon how much loss of accuracy he is willing to tolerate". We chose to tolerate a fair amount of error because of the advantages we have just enumerated.

Verbal comments were analyzed in two stages. We defined, in the first stage, categories into which the various comments made by Africans and Europeans could be grouped. In the second stage, we drew up frequency distributions of the comments occupational groups made on each job.

5. Results of the experiment.

The results of this experiment are based on the analysis of 7,056 judgments and 17,919 comments made by 784 judges, belonging to 12 occupational groups and with reference to 9 jobs. The extensive material which has been generated could be presented in a variety of manners. We could present, for example, at one time, all the material generated by one occupational group. We would examine the scale produced by judges in that particular group, and interpret it with reference to the comments they made. We could examine, on the other hand, each job separately and discuss how each occupational group perceives it.

We must remember, however, that we are primarily concerned with testing the hypothesis that various occupational groups evaluate jobs in the same manner. Because of the complexity of the material we have accumulated, we propose to examine the hypothesis in two separate stages. The examination in each stage will be determined primarily by the material analysed and the technique of analysis used.

We shall start by examining the preferences expressed by the various occupational groups. We shall examine the manner in which they have scaled the 9 jobs, and study how different scales are related to each other. This is the manner in which data would be examined after a straightforward paired comparison experiment. We propose to speculate, at this stage, simply on the preferences expressed and without any reference to the verbal comments.

In the second stage, we shall examine the hypothesis with reference to the verbal material. We shall also relate the preferences examined in the first stage, to the results of the content analysis of the verbal material. We shall ask three related questions: What concepts are used by African and European judges to justify their own evaluation of jobs? Are the jobs perceived in the same manner by the various occupational groups? And how do the frequency distribution of comments made explain the manner in which the jobs were scaled? The last two questions will be examined simultaneously.

5.1 Bradley-Terry scales for various occupational groups.

The scale values computed for the 9 jobs from the preference matrices of the 12 occupational groups appear in Table IXa. We also included in the table, the average current wage paid in the Johannesburg Municipal area, by other employers of African labour. The figures were obtained from a survey of current wages paid to Africans (31). We wanted to compare the rank order and scaling of jobs from various occupational groups with that dictated by economic or market considerations. We must point out, with reference to Table IXa, that the job which ranks first in any scale has the smallest value, and the one which ranks last has the highest value. This is due to the fact that all scale values are negative.

The results of the tests of significance - T1 and T4 - for the Bradley-Terry scales are shown in Table IXb. T1 tests are computed for groups of 28 judges and assume judge consistency within a group. T4 tests are computed for groups comprising two or more subgroups of 28 judges. Group D, for example, consists of two subgroups of 28 judges each, Group K of 4 subgroups, and the European group has seven such subgroups. The test assumes that all subgroups are consistent with one another, and that the judges within each group are consistent with themselves. T5 tests were computed to test the assumption of consistency made by T4 tests. We shall discuss the results of the T5 tests only after an examination of the scales generated by the preference matrix of an occupational group taken in toto.

When commenting on the manner in which jobs are scaled, we shall use our own assessment of the demands these jobs would make on an average job incumbent. The assessment is primarily a common sense one, guided by our own experience of these jobs, and by the job descriptions which were subsequently drawn up by job analysts.

5.1.1 The European officials (N = 196). The manner in which they have scaled the 9 jobs is shown in Table X. The rank order indicated by the scale is quite definite, except for two jobs clustering in the centre. Topmost job is that of the clerk, followed by the medical orderly. Two jobs with prevalent responsibilities adjoin each other. These

TABLE IXa. Bradley Terry scores for 9 jobs; external wages.

Jobs \ Occupational Groups	European Officials	AA	AB	B	C	D	EA	EB	F	G	H	K	External wage (monthly)
1. Pneumatic drill operator	4.132	1.796	3.270	2.733	3.675	1.710	2.245	1.620	1.347	2.430	1.470	1.310	R37.00
2. Medical orderly	1.474	1.524	1.403	1.395	1.571	2.104	2.096	2.048	1.858	2.096	2.080	2.080	R58.00
3. Clerks	.534	1.003	.741	.873	.469	1.228	.952	1.981	1.931	1.726	2.155	2.064	R78.00
4. Artisan's hand	5.048	3.612	4.200	3.730	4.605	3.650	4.017	3.612	3.612	4.510	3.730	3.324	R34.00
5. Policeman	2.766	3.057	2.847	2.617	2.996	2.617	2.172	2.733	2.217	.760	2.764	2.764	R38.50
6. Pick and shovel labourer	7.155	2.749	4.135	3.575	4.962	2.764	3.540	2.323	2.397	3.506	2.003	1.749	R30.00
7. Refuse remover	5.651	3.442	4.269	3.730	4.829	3.244	2.830	2.733	2.293	3.612	1.444	2.323	R32.00
8. Painter	3.339	2.900	2.313	2.386	2.996	1.749	2.538	2.112	2.501	2.996	3.101	2.674	R67.00
9. Bossboy	2.814	3.689	3.411	3.575	4.423	3.506	2.465	1.839	3.340	3.649	3.612	3.244	R38.50

TABLE IXb. Tests of significance (T1 and T4) for Bradley Terry scales.

Groups	T1 N = 28	T4 N > 28
1. European officials		*1274.4
2. African nurses (Group AA)	* 80.7	
3. Senior semi-professional staff (Group AB)	*110.1	
4. Senior technical and clerical staff (Group B)		* 173.7
5. Clerks (Group C)		* 267.8
6. Artisans (Group D)		* 137.2
7. High grade supervisors (Group EA)	* 67.6	
8. Low grade supervisors (Group EB)	* 38.1	
9. Semi-skilled workers (Group F)		* 106.6
10. Policemen (Group G)		* 201.7
11. Labourers - unpleasant conditions (Group H)		* 429.8
12. Labourers - lowest wage grade (Group K)		* 184.8

* Significant at 1% level

X^2 (8 degrees of freedom) = 20.90.

TABLE X. How the 9 jobs were scaled by European Council Officials - N = 96.

0

Clerk (1)

10

Medical orderly (2)

20

Policeman (3)
Bossboy (4)

30

Painter (5)

40

Pneumatic drill operator (6)

50

Artisan's hand (7)

Refuse remover (8)

60

70

Pick and shovel labourer (9)

80

90

are the policeman with his responsibility of maintaining peace and order, and the bossboy who must supervise the work of others. These two jobs are followed by the painter - a skilled job, the pneumatic drill operator - a semi-skilled job involving physical effort, the artisan's hand - a semi-skilled job involving less physical effort, the refuse remover - a labouring job with unpleasant features, and the pick and shovel labourers - a straightforward labouring job.

The scale suggests that the European group categorizes jobs in levels, and that though the distinction between levels is clear to see, the distinction within some levels is not so clear. The first level would include jobs ranked on the basis of education. Jobs requiring education are placed at the top of the scale. The next level involves jobs requiring patent responsibility, but the distinction between them is not at all clear. The remaining jobs appear to be ranked on a decreasing demand for skill. When two jobs appear to belong to the same broad category, then additional factors, e.g. physical efforts may be taken into consideration to place one job over another. The pneumatic drill operator and the artisan's hand may have been assessed as semi-skilled, but the pneumatic drill operator does the more fatiguing job and is placed higher.

5.1.2 African nurses (Group AA, N = 28). The scale for this group is shown in Table XI. Jobs fall into four levels. The clerk stands unequivocally on his own as the job which should receive most money. It is followed by the medical orderly and pneumatic drill operator, distinctly scaled, but relatively near each other. They are followed at quite some distance by the pick and shovel labourer, the painter and the policeman. At the bottom of the scale is the fourth cluster containing the job of the refuse remover, the artisan's hand and the bossboy. Though the two jobs which require most education appear first and second, we note that jobs with patent responsibilities, such as the policeman's and the bossboy, appear quite low in the scale. The bossboy ranks last, and the policeman ranks last in the third cluster. If physical effort were prized by this group, then the refuse remover should rank higher than the pick and shovel labourer. This group appears to group jobs into two categories - jobs requiring education, but with these is grouped the pneumatic drill operator, and the rest which includes labouring and skilled jobs lumped together with little distinction made

TABLE XI. How the 9 jobs were scaled by 28 Bantu Nurses (Group AA)

0

5

10 Clerk (1)

15 Medical orderly (2)

Pneumatic drill operator (3)

20

25

Pick and shovel labourer (4)

Painter (5)

30

Policeman (6)

Refuse remover (7)

35

Artisan's hand (8)

Bossboy (9)

40

45

50

55

between them. Included in this last group are jobs with patent responsibilities. The artisan's hand and bossboy cluster together at the end of the scale. These are two jobs where the African comes into very close contact with the European but acts only as an additional pair of hands or as his voice.

5.1.3 Senior semi-professional staff (Group AB, N = 28). The jobs were scales as shown in Table XII. The jobs are spread much more clearly, excepting for the last three jobs which cluster together. The clerk is unequivocally placed first, followed by the medical orderly and the painter. These are all jobs which require extensive preparation before the person can do the work. They are followed by the policeman, a job with patent responsibility, and the pneumatic drill operator, which is preferred to the bossboy. At the bottom of the scale are placed the two labouring jobs and sandwiched between them that of the artisan's hand. This group appears to favour first of all, jobs which require extensive preparation, then jobs with patent responsibility, but in between a semi-skilled job which require extensive effort, and at the bottom of the scale, unskilled jobs lumped with a semi-skilled job, little distinction made between them.

5.1.4 Senior clerical and technical personnel (Group B, N = 56). Their scale appears in Table XIII. The first two jobs, i.e. clerk and medical orderly, stand out clearly from the rest, three jobs cluster in the centre of the scale, i.e. painter, policeman and pneumatic drill operator. The remaining four jobs cluster at the end of the scale. This group favours first of all, status jobs: in the City Council, both clerks and medical orderlies are on the graded staff which is a privileged white-collar group. In the centre are grouped together jobs with some outstanding characteristics, the painter is the only job requiring an apprenticeship, the policeman has a responsible and hazardous job, the pneumatic drill operator a semi-skilled but physically strenous job. It is surprising to note that little distinction is made between labouring jobs and jobs which involve patent responsibilities or require a modicum of skill. This group rates these two jobs as low as the nurses do. It is interesting to see that whereas the European group made little distinction between the patent responsibilities of the policeman and the bossboy, this group clearly distinguishes between them.

TABLE XII. How the 9 jobs were scaled by top semi-professional Bantu employees (Group AR - N = 28)

0

Clerk (1)

10

Medical orderly (2)

15

20

Painter (3)

25

Policeman (4)

30

Pneumatic drill operator (5)

35 Bossboy (6)

40

Pick and shovel labourer (7)

Artisan's hand (8)

Refuse remover (9)

45

50

55

TABLE XIII. How the 9 jobs were scaled by senior technical and clerical Bantu personnel (Group B - N = 56)

0

5

Clerk (1)

10

Medical orderly (2)

15

20

Painter (3)

25

Policeman (4)

Pneumatic drill operator (5)

30

35

Pick and shovel labourer and Bossboy (6)

Refuse remover and artisan's hand (8)

40

45

50

55

5.1.5 Clerks (Group C, N = 56). Their scale appears in Table XIV. As has been the case so far with the other groups, the top two jobs are those of the clerk and the medical orderly. The policeman and painter share third place; they are followed by the pneumatic drill operator. The remaining four jobs cluster at the bottom of the scale but some distinction appears to be made between the two labourer's jobs and those the bossboy and artisan's hand. This group clearly favours its own job and places it unequivocally first. The responsibility of the policeman is seen as equivalent to the skill of the painter. As was the case with group B, we find that the patent responsibility of the policeman is clearly distinguished from that of the bossboy.

5.1.6 Artisans (Group D, N = 56). Their scale appears in Table XV. The jobs are not as clearly distinguished from each other as they were in the previous scales. They seem to fall into four clusters. The clerk still retains first place, but the pneumatic drill operator which has been hovering around the lower end of preceding scales now comes to the second place and is placed very near the painter. It seems as if a skilled job to this group is seen as equivalent to a semi-skilled job demanding great physical effort. The medical orderly falls between this cluster and the next which contains the policeman and the pick and shovel labourer. Physical effort is seen again as important, just as important as the responsibility of the policeman. It is interesting to note that the refuse remover appears at the top of the last cluster possibly because the job involves only pure physical effort and not the use of any tools. The jobs of bossboy and artisan's hand are placed last.

5.1.7 High-grade African supervisors (Group EA, N = 28). The scale for this group is shown in Table XVI. We find once again, that the jobs are not clearly scaled. The clerk is placed clearly at the top; it is followed by a cluster at the centre of the scale containing six jobs, followed by the pick and shovel labourer. Lastly comes the artisan's hand. Some gradation may be seen in the central cluster, the medical orderly, policeman and pneumatic drill operator are placed together. They are followed by bossboy and painter, and lastly by the refuse remover. Though some distinction between jobs is made, the basis on which this distinction is made is not clear. A job which requires

TABLE XIV. How the 9 jobs were scaled by Bantu Clerks (Group C - N = 56)

0

5 Clerk (1)

10

15 Medical orderly (2)

20

25

30 Policeman and Painter (3)

35

Pneumatic drill operator (5)

40

Bossboy (6)

45

Artisan's hand (7)
Refuse remover (8)

50 Pick and shovel labourer (9)

55

TABLE XV. How the 9 jobs were scaled by Bantu Artisans (Group D - N = 56)

0

5

10

Clerk (1)

15

Pneumatic drill operator (2)

Painter (3)

20

Medical orderly (4)

25

Policeman (5)

Pick and shovel labourer (6)

30

Refuse remover (7)

35 Bossboy (8)

Artisan's hand (9)

40

45

50

55

TABLE XVI. How the 9 jobs were scaled by High grade Bantu supervisors (Group EA, N = 28)

0

5

Clerk (1)

10

15

20

Medical orderly (2)

Policeman (3)

Pneumatic drill operator (4)

25 Bossboy (5)

Painter (6)

Refuse remover (7)

30

35 Pick and shovel labourer (8)

40 Artisan's hand (9)

45

50

55

education comes top, a job which gives the man little discretion but to act as an assistant to a European comes last. Between these two jobs, unequivocally placed, the other jobs are gradated on not too distinct a basis. Labouring jobs are at the bottom, they are followed upward by a skilled and a supervisory job, above that is a mixed bag including a semi-skilled but strenuous job, a responsible job, and a job requiring training.

5.1.8 Low grade African supervisors (Group EB, N = 28). The jobs were scaled as shown in Table XVII. What is clear about this scale is the fact that the artisan's hand is placed last. The remaining eight jobs appear in a diffuse cluster which shows some traces of gradation. The pneumatic drill operator is shown for the first time at the top of the scale, a place held so far by the clerk. Their own job - that of the bossboy is placed second, the clerk and medical orderly are contiguous and are followed by the painter. We have here a group of jobs which "matter" for one reason or another. Their own job, educated jobs, and a skilled job. The pick and shovel labourer follows near these other jobs; its importance is possibly due to the fact that it is a job which they personally supervise. The refuse remover and the policeman share 7th place and are seen as equivalent for pay purposes.

5.1.9 Semi-skilled workers (Group F, N = 28). Their scale appears in Table XVIII. It is important to note that though half of this group consisted of artisan's hands, this job is placed last just below the job of the bossboy. These two jobs are in a cluster, clearly set at the bottom of the scale. The pneumatic drill operator appears clearly at the top of the scale and stands on its own. It is followed by two clusters distinct from each other, but both filling the centre of the scale. The medical orderly and clerk form the first cluster, the two labouring jobs, the policeman and the painter, form the second cluster. Though some distinction is made between staff jobs and the others, little distinction is made between labouring jobs and jobs either requiring skill or involving the worker in patent responsibilities.

TABLE XVII. How the 9 jobs were scaled by Bossboys (Group EB - N=28)

0

5

10

15

Pneumatic drill operator (1)

Bossboy (2)

Clerk (3)

20

Medical orderly (4)
Painter (5)

Pick and shovel labourer (6)

25

Policeman and refuse remover (7)

30

35

Artisan's hand (9)

40

45

50

55

TABLE XVIII. How the 9 jobs were scaled by semi-skilled Bantu Workers (Group F, N = 56)

0

5

10

Pneumatic drill operator (1)

15

Medical orderly (2)

Clerk (3)

20

Policeman (4)

Refuse remover (5)

Pick and shovel labourer (6)

25 Painter (7)

30

35 Bossboy (8)

Artisan's hand (9)

40

45

50

55

5.1.10 Municipal policemen (Group G, N = 56). Their scale appears in Table XIX. This group has placed its own job unequivocally at the top of the scale. The remaining eight jobs are fairly clearly spaced. With the exception of a small cluster of three jobs appearing before the last job, the remaining jobs are placed at a distance from each other. The clerk, the medical orderly, the pneumatic drill operator and the painter are ranked in decreasing importance. They are followed by a cluster containing the two labourings jobs and the bossboy. The artisan's hand is placed at the bottom of the scale. If we ignore the preference for their own jobs, we find that the remaining jobs are rated on a pattern similar to that of the high-grade supervisors, of the senior technical and clerical personnel, or that of the senior semi-professional employees. Jobs requiring education are placed first, then a skilled job and lastly labouring jobs judged slightly more important than jobs which give the African little initiative for action.

5.1.11 Labourers - unpleasant conditions (Group H, N = 84). The jobs were scaled as shown in Table XX. Their own job or a job similar to the one they perform is clustered at the top of the scale with that of the pneumatic drill operator. The second labouring job appears in the second cluster with that of the medical orderly and the clerk. These are followed by the policeman, and at some distance, the painter. The bossboy and the artisan's hand are clustered at the end of the scale. Though this group concedes the importance of jobs requiring education, it does not rate highly a job requiring skill. It appears to be heavily influenced by the importance of physical effort in jobs. The jobs of refuse remover and pneumatic drill operator have this factor in common, and are placed at the top of the scale. The pick and shovel labourer also requiring physical effort, appears in the next cluster and is made equivalent to jobs requiring education.

5.1.12 Labourers - lowest wage grade (Group K, N = 112). Their scale is shown in Table XXI. The pneumatic drill operator is placed at the top of the scale. It is followed by either their own job, i.e. the pick and shovel labourer, or a job similar to the one they are doing. Next come the two status jobs closely clustered together, followed by the second labouring job. The painter and the policeman

TABLE XIX. How the 9 jobs were scaled by Bantu Policemen (Group G - N = 56)

0

5

Policeman (1)

10

15

Clerk (2)

20

Medical orderly (3)

Pneumatic drill operator (4)

25

30 Painter (5)

35 Pick and shovel labourer (6)

Refuse remover (7)

Bossboy (8)

40

45 Artisan's hand (9)

50

55

TABLE XX. How the 9 jobs were scaled by Bantu Labourers working under unpleasant conditions (Group H, N = 84)

0

5

10

Refuse remover (1)

15 Pneumatic drill operator (2)

20 Pick and shovel labourer (3)

Medical orderly (4)
Clerk (5)

25

Policeman (6)

30

Painter (7)

35

Bossboy (8)
Artisan's hand (9)

40

45

50

55

TABLE XXI. How the 9 jobs were scaled by Bantu Labourers in the lowest wage group (Group K - N = 112)

0

5

10

Pneumatic drill operator (1)

15

Pick and shovel labourer (2)

20

Clerk (3)
Medical orderly (4)

Refuse remover (5)

25

Painter (6)

Policeman (7)

30

Bossboy (8)

Artisan's hand (9)

35

40

45

50

55

are clustered together. The bossboy and the artisan's hand cluster at the end of the scale. Though this group is set on favouring its own type of job, it places the drill operator at the top of the scale, and attaches some importance to status jobs. It does not attach much importance however, to the two jobs which are viewed with disfavour by the other occupational groups.

5.1.13 Limitations in the interpretation of scales. T5 tests measure the degree of consistency between subgroups in the larger occupational groups. The tests assume, however, judge consistency within each subgroup. Each test produces a X^2 value whose degrees of freedom equal (g-1)(t-1) where g = the number of subgroups of 28 judges in the occupational group, and t = the number of pictures compared. The number of cards compared remained nine for all occupational groups. The number of subgroups ranged from seven, for the European group, to two, for a number of African groups.

The results of the T5 tests are shown in Table LIX. They are significant in four of the larger groups, and not significant for the remaining four groups. It is interesting to note that the tests are significant with four white-collar groups (if policemen could be considered as white-collar), and not significant with the four blue-collar groups. If we were to exclude for the moment the policemen and artisans, we would notice that the tests are significant for the European and African high status groups, and not significant with all the low status groups.

In an effort to interpret these results, we computed T1 tests for all subgroups. These tests are all significant whether the T5 test is significant or not (Tables LX and LXI). This means that each subgroup of 28 judges generated a scale which was significantly different from one which would be produced by chance.

We computed next the scale values of the 9 jobs from the preference matrices of each subgroup where T5 scores were significant. The results appear in Table LXII. Where a scale value is not given, this means that judges in the subgroup were unanimous in their preference or rejection of a card. For example, all judges in group CA preferred the clerk over other jobs. All European judges in group E rejected the pick and shovel labourer and placed him last in their scales.

TABLE LIX. T5 test results for group (N >28)
BRADLEY TERRY SCALES.

Groups	T5
1. European subgroups - excepting Group E ø	*64.132
2. Senior technical and clerical staff - Groups BA and BB	*30.421
3. Clerks - Groups CA and CB	*26.990
4. Policemen - Groups GA and GB	*33.376
5. Artisans - Groups DA and DB	13.566
6. Semi-skilled workers - Groups FA and FB	12.280
7. Labourers - unpleasant conditions - Groups HA, HB, HC	23.412
8. Labourers - lowest wage grade - Groups KA, KB, KC, KD	22.148

* Significant at 1% level $X^2 = (g-1)(t-1)df$

g = number of groups

t = number of items (or cards) compared.

ø Group E excluded from T5 calculations as all judges in the group placed the card of the pick and shovel labourer last.

TABLE LX. T1 results for subscales where T5 test is significant.

Results for sub-scales	T1
1. European - subgroups A	*177.7
2. " " B	*201.9
3. " " C	*152.0
4. " " D	*198.3
5. " " E (pick and shovel labourer card omitted)	*215.2
6. " " F	*189.5
7. " " G	*213.0
8. Senior technical and clerical staff - Group BA	*135.2
9. " " " " - Group BB	* 68.9
10. Clerks - Group CA (clerk-scribe card omitted)	*149.4
11. " Group CB	*145.4
12. Policemen - Group GA	*133.4
13. " Group GB	*101.7

* Significant at 1% level

X^2 (8 degrees of freedom) = 20.90.

TABLE LXI. T1 results for subscales where T5 test is not significant.

	Results for sub-scales	T1
1.	African artisans sub-group DA	*96.1
2.	" " sub-group DB	*54.7
3.	African semi-skilled workers - sub-group FA	*56.9
4.	" " " " - sub-group FB	*62.0
5.	Labourers working under markedly unpleasant conditions - sub-group HA	*71.4
6.	Labourers working under markedly unpleasant conditions - sub-group HB	*75.3
7.	Labourers working under markedly unpleasant conditions - sub-group HC	*80.5
8.	Labourers - lowest wage category - sub-group KA	*38.4
9.	" " " " sub-group KB	*64.5
10.	" " " " sub-group KC	*57.3
11.	" " " " sub-group KD	*46.7

* Significant at 1% level of significance

X^2 (8 degrees of freedom) = 20.90.

TABLE LXII. Scores of the 9 Value Jobs on Bradley Terry Preference Scales where T5 is significant.

Occupational groups / Jobs	European Subgroups							Senior Staff		Clerks		Policemen	
	A	B	C	D	E	F	G	BA	BB	CA	CB	GA	GB
1. Pneumatic drill operator	3.381	5.118	3.701	3.279	4.702	4.616	6.410	4.595	1.911	2.594	3.474	3.387	1.796
2. Medical orderly	1.396	2.216	1.319	1.058	1.682	1.156	2.616	1.938	1.415	.963	.710	2.450	1.974
3. Clerk	.649	.275	.758	.914	.410	.582	.142	.279	1.325	*	1.059	1.808	1.796
4. Artisan's hand	4.508	5.867	4.876	5.489	5.379	5.566	6.270	4.860	3.616	3.219	4.897	5.015	4.605
5. Policeman	2.444	3.293	2.429	2.385	3.005	3.265	4.155	3.897	2.293	2.137	2.665	.510	.997
6. Pick and shovel labourer	6.999	8.191	4.421	8.094	*	7.345	8.490	5.321	2.885	3.585	5.210	4.692	2.797
7. Refuse remover	5.990	6.136	5.858	6.663	6.377	5.696	7.758	5.130	3.358	3.785	4.897	4.390	3.297
8. Painter	3.485	4.518	3.214	3.163	3.841	3.027	3.771	3.219	2.365	1.211	3.583	2.646	3.649
9. Bossboy	2.759	2.640	2.429	2.695	2.760	3.835	4.155	4.685	3.445	3.308	4.414	4.110	3.649

The results in Table LXII show that all European subgroups scaled the clerk and medical orderly respectively first and second. The scale distance between these two jobs is sometimes large, e.g. group G and sometimes narrow, as with group D, but the jobs always stand in the same relation to each other. Most subgroups agree in the manner the refuse remover and pick and shovel labourer are placed eighth and ninth in the scale. Once again, distances between the two jobs may be very large, e.g. group E or quite narrow, as with group A. An exception occurs, however, with group C where the artisan's hand is placed after the refuse remover, but before the pick and shovel labourer.

Differences between European subgroups occur, however, in the manner in which the bossboy, policeman and painter are scaled in the top half of the scale; the painter usually comes after the first two jobs, though once he is put before them. The policeman and bossboy are either contiguous with each other, or else are given randomly preference over each other. The same interchange of positions occurs with the artisan's hand and the pneumatic drill operator. The latter is usually scaled above the former, excepting with group G. The distance between the two is sometimes so great that the pneumatic drill operator is almost contiguous to the painter (a skilled job). At other times, the pneumatic drill operator is placed quite near the labouring jobs.

The scale which was computed for all European subgroups (Table X), averages all these differences. We should do well to remember that the scale is based on a fair amount of uncertainty over the middle jobs. European judges confine these differences within two distinct levels. There is no question of placing the bossboy with the labourers, or the pneumatic drill operator over the painter. The distinction is clearly made between responsible and skilled jobs on the one hand, and semi-skilled jobs on the other. Groups disagree, however, on whether the responsibility and hazards of the policeman should be preferred to the organizational responsibility of the bossboy, or whether the skill of the painter is more important than these two types of responsibility. Similarly, they are not quite certain as to whether the skill and effort of the pneumatic drill operator bring him nearer the painter or the labourer. There is therefore no doubt among European judges that education and job responsibility holds pre-eminence

over any other combination of job attributes. They are also quite certain that sheer physical effort should receive the lowest wage and a combination of physical effort and unpleasant conditions should be paid more. Uncertainty shows itself where finer discriminations need to be made, e.g. is job responsibility more important than skill?

The differences between African subgroups are more difficult to interpret because in each case there are only two scales. We can compare them with each other. Groups BA and BB agree in placing the clerk and medical orderly first and second respectively at the top of the scale. The painter and policeman appear next, but alternate in precedence: group BA prefers the painter, group BB the policeman. The pneumatic drill operator fluctuates most in position. Group BA puts it at the top of their last cluster, group BB places it third in the scale. The remaining jobs are not distinctly scaled. It is significant, however, that group BA places the two labouring jobs at the bottom of the scale, whereas group BB places the artisan's hand and bossboy at the end.

We find that once again, these differences are averaged in the scale which was computed for both subgroups (Table XIII). The painter, policeman and pneumatic drill operator appear in one cluster at the centre of the scale, the clerk and medical orderly are placed clearly at the top of the scale. The remaining jobs are clustered together at the bottom of the scale, little distinction being made between labouring jobs and the artisan's hand or the bossboy. The group as a whole discriminates at three levels. There are, first of all, jobs requiring education and training. These are placed at the top. Then there are jobs which are different from the rest in that they either have an important factor, e.g. the skill of the painter, or else some combination of factors which make them stand out from the rest, e.g. the hazards and responsibilities of the policeman, or the effort and hazards of the pneumatic drill operator. And finally, there are the remaining jobs with almost random discriminations between them. The results of the two sub-scales do not therefore contradict the interpretation of the major scale (Table XIII), but show the limitations of the discriminative ability of the judges in group B.

The two subgroups of clerks also appear to discriminate at three levels: medical orderly and clerk at the top, policeman, painter and pneumatic drill operator in the centre, and the remaining jobs at the bottom of the scale. This in turn reflects itself in the manner in which the nine jobs are scaled for the two subgroups combined (Table XIV). Differences between the subgroups are confined to these three levels. Group CA places clerk over orderly, group CB reverses the order. Group CA places the painter at the top of the central cluster; group CB places it at the bottom. The pick and shovel labourer and refuse remover alternate as penultimate and last jobs in the scale.

The two policemen subgroups agree in the manner in which the top and the last jobs are scaled. Both groups place the policeman at the top of the scale, and both groups place the artisan's hand at the bottom. The remaining jobs are placed in a variable manner. The clerk and medical orderly are nearer the top of the scale, but the painter and pneumatic drill operator shift widely. The bossboy is placed by one subgroup above the labouring jobs, and below them by the other subgroup. The joint scale (Table XIX) spaces the jobs much more clearly than either of the two subgroups. Though this scale averages two widely different scales, we find it much easire to interpret than either of the two scales.

The results of the T5 tests have revealed an important limitation of this paired comparison experiment. They have shown that four of the twelve scales are based on divergent evaluating orders. We suspect that if it were possible to measure judge consistency, we would find divergent evaluating orders within the smaller groups and many of the subgroups. We must note, however, that excepting for the policemen, most of these differences are confined to particular areas of the evaluating order. It seems as if the broad evaluating pattern is firmly established, but that within it differences occur at separate levels. The more advanced the occupational group, the clearer the broad evaluating pattern becomes, and the finer the basis in which one group will differ from another. We consider therefore that we are justified in our decision of examining Bradley-Terry scales based on preference matrices for occupational groups taken in toto. The alternative approach of examining subgroups must be rejected on the further grounds that we have no information about individual judges and their consistency.

5.2 General comments on Bradley-Terry scales.

The observations and comments we made are based purely on the scales derived for the various groups. We have perforce used our own assessment of the demands made by the nine jobs, based essentially on our current experience of these jobs. A number of points emerge, however, from this preliminary examination of the scales:

5.2.1 There is no evidence that all groups evaluate jobs in the same manner. There are marked differences as one moves along the occupational hierarchy. The hypothesis that the evaluation of jobs is carried out on similar lines by different groups is not supported by a simple examination of the scales.

5.2.2 There is some evidence that some groups favour their own job, though this by no means occurs in all cases. The contention made by Shen (157), that raters do not always overestimate themselves in desirable ratings, has a counterpart in this study. When judges are called upon to assess the relative value of jobs, they do not always overestimate the importance of their own jobs, or of jobs related to their own. The clerks and the municipal policemen placed their own jobs unequivocally at the top of the scale. The other groups either failed to place their job at the top, or else as was the case with group H, made their own type of job (refuse remover) share top place with another job.

5.2.3 Two jobs, i.e. the clerk and the pneumatic drill operator, appear to focus the prevailing set shared by occupational groups. These groups could be divided roughly into two schools of thought: the one placing the job of clerk at the top, and the other preferring the job of pneumatic drill operator. Into the first school would go the European officials, the nurses, the senior semi-professional staff, the senior clerical and technical personnel, the clerks, the artisans, the high-grade African supervisors, and the policemen. Into the second group would go the bossboys, the semi-skilled workers, and all groups of labourers. These two groupings are divided essentially on the extent of on-the-job training or experience the judge requires to do his own job. Semi-skilled workers, labourers and bossboys require brief periods of on-the-job training, or prior experience, to learn their job.

The other judges require for the most part, either to be educated, or to undergo extensive training for their jobs. This is supported further by the demographic material discussed above which shows that the greatest incidence of illiteracy occurs in the bossboys, the semi-skilled workers and the labourers.

5.2.4 All African groups place the job of artisan's hand at the bottom or near the bottom of the scale. This is done even by the artisan's hands themselves. The job is important to Europeans. It is common knowledge that it is viewed by them as a significant advance from mere labouring jobs. Some view it in the same category as a theatre's nurse. The picture representing this job was framed to suggest this thought. Africans hold it, however, at a low level of worth, possibly because the job is in the nature of a "straw job", the worker achieving nothing on his own, but helping someone else to work.

5.2.5 Another job which is not highly valued by Africans is that of the bossboy. Though the European group rates this job quite high, African groups, with two exceptions, rate it at the bottom of the scale, generally with the artisan's hand. The two exceptions are made by two African supervisory groups. The bossboys place it second, the high-grade supervisors rank if fifth, below the job of the pneumatic drill operator. The reason for this persistent low rating may well be due to the fact that it too is considered as a straw job. The bossboy generally acts a mouth-piece for the European overseer and carries little authority. It is possible that though the European group stresses the importance of the bossboy, and sees in him a front-line supervisor, thus a vital link in organizational hierarchies, Africans think differently. Because of his restricted functions, he may well fail in acting as a channel for upward communications and his job not considered as important by Africans who come into much closer contact with him. The more sophisticated African groups, e.g. nurses, senior technical and clerical groups may undervalue this job because it is generally held by illiterate or ill-trained workers.

5.2.6 There are indications that various occupational groups are more influenced by one factor than they would be by others. Labourers may be influenced in their evaluation of jobs primarily by the physical effort demands. The group of artisans is primarily guided by the skill content of jobs. Clerks and senior technical personnel are guided by the educational requirements of jobs. This particular bias would be caused by the specific experience the judge has gained of work through the occupation he holds.

5.2.7 The European group is guided in its evaluation of African jobs by more than one factor. The scale shown in Table X indicates a grouping of jobs according to predominant factors which change as we go down the scale. There are to begin with, jobs which require primarily education, then jobs which involve patent responsibilities; these are followed by jobs requiring a decreasing degree of skill, and lastly come the labouring jobs. Where jobs belong broadly to the same category, then an additional factor is introduced to place one job over the other, e.g. the refuse remover and the pick and shovel labourer are both labouring jobs, but the refuse remover ranks higher, possibly because of the unpleasant features associated with their job. Evidence of similarly involved reasoning becomes less apparent as we move down the African occupational hierarchy. This may be due to two reasons. (1) Their low evaluation of, and possibly strong antagonism against, straw jobs. We would expect, for example, the group of high-grade supervisors to have a better appreciation of the job of the artisan's hand and place it nearer the middle of the scale, but find nothing of the sort. (ii) The second reason may be the increasing dependence of judges on one factor as we move down the occupational hierarchy. This results in odd groupings as shown in Table XX or XXI, e.g. the pick and shovel labourer grouped with the medical orderly and the clerk.

5.3 Product moment correlations between scales.

Product moment correlations computed between scales are shown in Table XXIII. We must remember that these correlations were computed simply to establish a means of comparison between scales, i.e. the rank order of jobs and the scale values computed from the preference matrices. The

TABLE XXIII. Product moment correlations between scales.

AA	AB	B	C	D	EA	EB	F	G	H	K	External Wage	
.5654	.8997	.8358	.8860	.5420	.8409	.4011	.2245	.6336	-.1397	-.0931	-.7810	European officials
X	.7999	.8752	.8257	.8713	.7124	.5593	.7751	.5902	.5430	.7079	-.6553	AA Nurses
	X	.9822	.9832	.7975	.8512	.4978	.4658	.6763	.0975	.2155	-.9.68	AB Top semi-professional
		X	.9904	.8447	.8298	.4539	.5827	.7119	.2300	.3415	-.8795	B Senior technical/clerical
			X	.7914	.8448	.3902	.5063	.7150	.1483	.2363	-.8834	C Clerks
				X	.7395	.6214	.7799	.6452	.4422	.6345	-.762[illegible]	D Artisans
					X	.6483	.5773	.7672	.3089	.3150	-.7209	EA Top supervisors
						X	.5288	.3659	.3720	.5545	-.3914	EB Bossboys
							X	.6669	.8518	.8824	-.2913	F Semi-skilled workers
								X	.3093	.3328	-.4328	G Policemen
									X	.8918	+.0290	H Labourers - unpleasant jobs
										X	-.0827	K Labourers - lowest wage grade

values on which the correlations were computed are shown in Table IX. As N = 9, the standard error is in every case so large that the correlation matrix can serve no other purpose than indicate broad trends and groupings. The correlations with the external wage are negative because all scale values are negative, i.e. the job with the highest rank has the smallest scale value. We shall limit our examination of Table XXIII to three facets:

1. the manner in which African scales compare with the European scale.
2. African groups with similar scales.
3. the manner in which African scales compare with the external wage structure.

5.3.1 Comparisons between European and African scales. African groups fall, with reference to the European scale, into three categories:

Category 1 includes groups which agree with it very markedly. These are:

a - semi-professional staff (Group AB) r = .90

b - clerks (group C) r = .89

c - high-grade African supervisors (group EA) r = .84

d - senior clerical and technical personnel (group B) r = .84.

Examination of the respective scales reveals that the only differences are due to the fact that African groups gave a low evaluation to the jobs of bossboy and artisan's hand, but relatively scaled higher the job of pneumatic drill operator.

Category 2 includes groups which show some agreement with the European group, though not as marked as groups in category 1. These groups are:

a - municipal policemen (group G) r = .63

b - female nurses (group AA) r = .57

c - artisans (group D) r = .54.

Examination of the respective scales indicates that the African and European groups disagree on the placement of six out of the nine jobs. The bossboy and artisan's hand are heavily down-rated. The pneumatic drill operator and the pick and shovel labourer are placed higher. The ranking of the policeman varies; the policemen place it first, the Europeans third, the nurses and artisans lower in the scale.

Category 3 includes groups which show little, if any, agreement with the European group. These are:

a - bossboys (group EB) r = .40

b - semi-skilled workers (group F) r = .22

c - labourers - lowest wage grade r = -.09

d - labourers on unpleasant jobs r = -.14.

We notice that these are all groups which require little, if any, literacy for the performance of their jobs. Examination of the scales reveals that the group of bossboys belongs in this category more than it does in the previous one. The four groups do not agree with the European group on the placement of any of the nine jobs and prefer a rank order which shows marked differences between them and the one preferred by the European group. The scales of the African groups are much more compact: jobs cluster much more frequently than they do on the European scale.

The African groups place the pneumatic drill operator, the refuse remover and the pick and shovel labourer much higher than the European group. The artisan's hand, ranked seventh by the Europeans, is ranked last by all the African groups. The clerk, medical orderly, painter and policeman are down-rated by some African groups though not in the same manner by all of them. The job of bossboy rates high with bossboys, average with Europeans, and low with all the other African groups.

5.3.2 African groups with similar scales.
Table XXIII indicates that there are two clusters of African groups with correlations of .85 or better. These are shown in Tables XXIV and XXV.

Groups	AB	B	C
AB	X	.98	.98
B		X	.99
C			X

Table XXIV. High status groups (correlations)

Groups	K	H	F
K	X	.89	.88
H		X	.85
F			X

Table XXV. Low status groups (correlations)

The scales of groups in these two clusters are very similar, both in the manner in which jobs are ranked, and the appearance of clusters along the scale. The high status groups, i.e. the semi-professionals, the senior clerical and technical workers, and the clerks, disagree only in the manner in which they place jobs at the bottom of the scales. Groups B and C distinguish less clearly the last jobs than group AB. They agree on the main in placing the clerk, medical orderly and painter as the first three jobs in the scale. These are followed, with minor changes, by the policeman, the pneumatic drill operator and the bossboy. There are some differences in the manner in which the labouring jobs and the artisan's hand are scaled, but they always cluster at the bottom of the scale.

It could be said that these three groups have placed the same relative values on jobs. They are primarily concerned with the background of training and education the person brings to his job. This is shown in the consistent manner in which the clerk, orderly and painter are placed at the top of the scale. They consider then jobs with patent responsibilities, but are awake to the presence of other factors. The policeman is distinguished from the bossboy possibly because of the hazards in the job. The pneumatic drill operator ranks higher than the bossboy, possibly because a semi-skill and physical effort are worth more than patent responsibility. It is significant moreover that the bossboy ranks higher than labouring jobs in two out of these three groups.

The scales of groups in the second cluster (Table XXV) are also similar in the manner in which the jobs are ranked and cluster on the scale. Differences between groups occur in the centre of the scale rather than at the lower end. All three groups place the pneumatic drill operator either at the top or very near the top of the scale.

The bossboy and artisan's hand cluster at the bottom of the scale. The labouring jobs are pushed to the top of the scale, the clerk and medical orderly appear in the top half of the centre, the policeman and painter in the lower half. Variations are mainly due to the relative importance attached to the labouring jobs. Group F ranks the pick and shovel labourer sixth, group H ranks it third, group K second. It is evident that job bias has affected the relative evaluation of jobs. Their agreement at both ends of the scales suggests, however, that these groups have common features in the manner in which they judge jobs. They place, on the one hand, great stress on physical effort, and possibly the performance of tasks in which the results are very tangible and less conceptual. They take cognizance, however, of the importance of jobs of a more conceptual nature and which require prior education. The clerk and medical orderly are always placed in the top half of the scale. The bossboy and artisan's hand are relegated to the bottom of the scale in an almost identical manner.

A link exists, however, between these two clusters of jobs. The semi-skilled workers give less emphasis to labouring jobs than the two groups of labourers. In consequence, the medical orderly and clerk are placed nearer the top of the scale. We placed the correlations between groups in the two clusters in Table XXVI.

	AB	B	C	K	H	F
AB	X	98	98	.22	.10	.47
B		X	99	.34	.23	.58
C			X	.24	.15	.51
K				X	89	88
H					X	85

Table XXVI. High status and low status groups (correlations)

This link becomes quite apparent as the largest correlations in the table are between the semi-skilled group and the high status groups. In an effort to determine further links between the two clusters, we expanded the matrices shown in Tables XXIV and XXV to include additional correlations. These are shown in Tables XXVII and XXVIII.

	AB	B	C	AA	D
AB	X	.98	.98	.80	.80
B		X	.99	.88	.85
C			X	.87	.79
AA				X	.87

Table XXVII. Extended high status matrix.

	K	H	F	AA	D
K	X	.89	.88	.71	.63
H		X	.85	.54	.44
F			X	.77	.78
AA				X	.87

Table XXVIII. Extended low status matrix.

The significant point to note is that groups in both clusters have additional correlations with the same two occupational groups, i.e. the female nurses and the artisans. The correlation between these two new groups and the semi-skilled workers are underlined in Table XXVIII, and appear to be quite high.

We seem to have discovered a third cluster of groups which acts as a link between the clusters of high status and low status groups. This middle cluster stresses in their evaluation of jobs the importance of education with that of physical effort. The scales of these three groups show that they agree in placing the bossboy and artisan's hand at the bottom of the scale. The pneumatic drill operator, the clerk and the medical orderly are placed at the top end of the scale with some slight variation. Labouring jobs are placed nearer the centre of the scale, a place which they share with the policeman.

Whenever we think of the African, we see him in a process of transition. This process may well be reflected in the manner in which the scales are intercorrelated. There are at the one end, those who have arrived, at the other end are the labourers still selling their manual labour but having no skill to offer. In between are those occupational groups with intermediate status and in the process of acquiring some skill. At the lower end of this group are semi-skilled workers better than labourers, but like them, still largely illiterate. At the other end are the nurses near the high status group in education but retaining sympathy for the labour of the common man. In the centre are the artisans, less educated than the nurses, but better skilled than the semi-skilled workers. All three groups in the central cluster reflect therefore aspects of the evaluative patterns of high and low status clusters.

5.3.3 Relation between African scales and the current wage scale.

The manner in which the 9 jobs would be scaled according to their current market wage is shown in Table XXII. It is important for us to examine the relation of the scales determined by preference matrices with current wages. Such an analysis acts in a way as a measure of the sense of reality possessed by the various occupational groups. It is a common sense experience that wages or salaries actually paid are a measure of the relative importance of jobs.

It is interesting to note from Table XXVII that current market practice discriminates between jobs no better than many of the African groups appear to have done. Six of the nine jobs cluster at the bottom of the scale; though some discrimination between them is evident, we gain the impression that we are dealing with two distinct wage groups.

The clerk, the painter and the medical orderly are broadly spaced in the top portion of the scale. The distinction is made primarily on the basis of education, then of skill, thirdly of a job requiring skill, but learnt essentially on the job. There appears a sort of reasoning compounded of the principles of exchange and of status prevalent in European communities. The clerk is educated and holds a position of status. The medical orderly is also educated but holds a position of lower status, almost in the nature of a servant looking after bodily needs, which he does. The painter is a relative newcomer. The determination of his wage was a compromise between wages currently paid to European artisans and those prevailing among African workers. The determination of the wage of the painter appears to have taken no account of wages paid to an elite of educated Africans.

At the bottom of the scale are the six jobs which are more characteristic of current African employment. These jobs are distinguished on the basis that responsibility is more important than skill. The simple process of additive reasoning also functions. If two jobs belong to the same broad category of work, then the job with some additional demand is paid more than the other. The drill operator is paid more than the artisan's hand, the refuse remover more than the pick and shovel labourer.

TABLE XXII. How the 9 jobs are scaled by the current monthly wage paid outside Council.

CURRENT EXTERNAL WAGE - rand per month

R80

Clerk (1)

R75

R70

Painter (2)

R65

R60

Medical orderly (3)

R55

R50

R45

R40

Bossboy and policeman (4)

Pneumatic drill operator (6)

R35

Artisan's hand (7)

Refuse remover (8)

R30

Pick and shovel labourer (9)

Reverting to Table XXIII, we notice that the closest relation between African scales and current wages is found with the three groups which formed the high status cluster. The scale of group AB correlates -.92 with the wage scale; that of group B correlates -.88; and that of group C correlates -.88. The smallest correlation is found between the three groups which formed the low status group and current wages. Group H correlates +.03, group K -.08 and group F -.29. It appears therefore that the factors which guided the high status group in their evaluation of jobs are in some concordance with those predominating in the market place. The factors used by the low status cluster are however at variance with common economic usage.

Supporting evidence comes from the correlations computed at the end of our job evaluation study between factor scores and current wages paid to Africans. The twelve factors used were those listed in the previous chapter and fully described in the J.D. 3 M. schedule. The results appear in Table XXIX. Two sets of correlations were computed, one for jobs which were monthly paid and of which 130 were identified in the City Council, and another for weekly paid jobs of which 1,090 were identified.

It is obviously not possible to relate with any accuracy the 12 factors used in our job evaluation to the concepts which guided various African occupational groups. We note, however, that the determination of wages, whether among weekly paid or monthly paid workers, is determined primarily by the education and the experience the job demands. Some recognition is given to responsibility for supervision and for personal contact. Little note is given on the other hand, to physical effort or to conditions of work, i.e. work surroundings or work hazards. There are, in actual fact, negative correlations between some of these factors and the wage. This supports therefore the explanation we gave of the relation between African scales and wage structure.

TABLE XXIX. Correlations between Factor Scores and Wages paid in the Johannesburg City Council.

FACTORS	Monthly paid jobs	Weekly paid jobs
	N = 130	N = 1,090
. Education	.566	.439
. Work Background	.365	.577
. Job Training	.258	.135
. Mental Skill	.461	.485
. Mental Effort	.236	.286
. Physical Skill	.012	.172
. Physical Effort	- .171	- .273
. Responsibility for Equipment and materials	- .010	.139
. Responsibility for Personal Contact	.359	.206
. Responsibility for Supervision	.426	.430
. Work Surroundings	.066	- .068
. Work Hazards	.032	- .017
Multiple r	.658	.656

5.4 General comments on product moment correlations between scales.

The evidence we have presented supports the observations we made initially from the Bradley-Terry scales. They reinforce the impression we had formed that different occupational groups evaluate jobs differently. We noticed it when we compared African scales to the European scale, when we examined the similarity between African scales, and when we compared them to the current wage structure. Differences are most marked between the cluster of groups we called high status, and the cluster of low status groups. These two groups are linked by a middle cluster which may have a pattern of evaluating common to the other two clusters.

We also noticed that the high status cluster scales jobs in a similar manner to the scale determined by current wages. This raises the question as to whether occupational groups were guided in their eva[illegible]on by current wages. The material we have presented so far does not allow us to speculate on this point with any certainty. There is no doubt that a strong correlation exists between the wage scale and the scales of the high status occupational groups. These groups are themselves at the favoured end of any wage or salary continuum. Whether this fact induces them to accept differentials determined by economic forces, or whether their social sophistication makes them aware of such differentials we cannot tell for certain.

5.5 Verbal comments made by European and African groups.

We enter now our second stage of the analysis of results. We shall seek an interpretation of the manner in which jobs were scaled by occupational groups in terms of the verbal comments judges made to substantiate their preferences. Judges were shown each pair of jobs and asked which of the two should be paid more. When they had indicated the job they preferred, they were uniformly asked the question "Why should this job be paid more money?" The comments we discuss in this section are the answers judges gave to this question.

We shall start our examination of the data by considering the sort of comments working people generally make when they are asked to explain why one job should be paid more than another. We shall consider these comments with reference to the European managerial group, and then with reference to the African group taken as a whole.

5.5.1 Verbal comments made by European groups.

Comments made by European judges can be classified into the following eight categories:

A. Knowledge, i.e. all that a person needs to know in order to perform satisfactorily his functions at work. Included in this category are all comments dealing with experience, training and education.

B. Skill, i.e. the ability to achieve tangible and concrete results. Whenever a judge mentions specifically the work skill, and connotes this ability to achieve at work, tangible and concrete results, the comment is categorized here. Included in this category are comments referring to clerical skills, e.g. the ability to work accurately and reliably with figures; the skill of the medical orderly in bandaging and in handling surgical instruments; the skill of the policeman in defending himself when attacked; the skill of the bossboy to determine correct levels of excavation; the skill of the painter to apply paint evenly, and of the pneumatic drill operators in drilling to limits. Mental skills are not included under this heading.

C. Responsibilities, i.e. these refer, generally speaking, to particular features of the job for which the worker is held accountable, and which the judge has considered important enough to mention. We have included in this category, broad unqualified comments stating simply "He needs to have a sense of responsibility"; "This is a more responsible job", as

well as specific responsibilities mentioned by judges, e.g. he is responsible to see that proper contacts are established and maintained with the public; the consequence of errors; the fact that the worker is not actively supervised, that he handles expensive equipment, the responsibility of maintaining law and order. In most cases, responsibilities are directly related to the specific job being considered.

D. Physical effort, i.e. the amount and nature of musculur exertion assessed to be used in the performance of a job and the sensation of physical fatigue experienced afterwards. The two jobs in this experiment where physical effort could be judged to play a predominant role are that of the refuse remover and of the pick and shovel labourer. The former carries intermittently a heavy load on his shoulder and has to trot behind a moving vehicle with it. The pick and shovel labourer uses his implements to excavate soil of varying hardness the whole day through.

E. Mental effort, i.e. the need to apply oneself to certain forms of mental activity, involving some measure of concentration and vigilance. The clerk, for example, must complete his work under pressure. He has to submit certain returns by a given date and must contend with a number of interruptions, e.g. the public, the switchboard. The medical orderly must be alert for symptoms in a patient which would escape the notice of a less observant person. The policeman must watch carefully the behaviour of large groups of people. The bossboy ensures that his workers do not run short of work, and that conditions of work are quite safe. Implied in all these examples is a combination of anticipation and vigilance. The person in

the job must direct his attention to vague aspects of his environment and learn to infer from small cues the probability that something of importance will take place.

F. Work conditions, i.e. these refer to environmental and extraneous factors in which the work must be carried out, and over which the worker has no control, e.g. working in the open, working near sewer fumes. Included in this category are all forms of hazards to which the worker is exposed, hazards which may be tangible or intangible. The medical orderly would have to deal with vomit and faeces (unpleasant wor' conditions), and is exposed to infections (intangible hazard). The policeman works irregular hours and is exposed to physical assault. The painter could fall from his ladder or be poisoned by paint.

G. Personal attributes, i.e. these are personal characteristics which judges consider important for the correct execution of the job. Comments included in this category vary from broad generalities, e.g. we need a man with the right personality for this job, to more specific attributes. The most important of these are:

(i) initiative - he must judge issues, use is own discretion;

(ii) reliability - he must be reliable, trustworthy or show integrity.

(iii) intelligence - he must reason things out, and be adaptable to a variety of situations.

Additional attributes are mentioned with reference to specific jobs. The clerk must have a good memory and be able to speak clearly. The medical orderly is often faced with the problem of whether or not to call the doctor.

The policeman must show maturity and courage and be able to control himself in provoking situations. The bossboy must show leadership qualities to be able to control his workers.

H. Extraneous factors. This category includes comments which cannot fit into any of the other categories. The comments would largely be determined by the nature of the job and the position it holds in the scale. The status of the clerk and of the medical orderly are examples of comments which would be placed into this category. Comments would stress the fact that the clerk or the medical orderly held a senior position in the municipality and had to be paid to maintain appearances. Other comments referred to the fact that orderly had to maintain a high standard of personal cleanliness as he dealt with human injuries; that the policeman needed to appear neat and smart as he represented authority; that the job was more important to the municipality; that people were not readily attracted to the type of work.

The fact that we were able to classify all the comments made by European judges into these eight categories is an important indication. It shows that when European officials are asked to explain why one job should be paid more than another, they use principally concepts incorporated in current job evaluation systems. They mention the education the person requires to do a job, the responsibilities inherent in it, and the conditions under which the job is carried out. They do this not because of any knowledge of job evaluation systems, but rather because they use common sense dimensions which have been used by a wide variety of persons for quite some time. It seems rather that the opposite could be seen to hold, i.e. that job evaluation systems were based on these common sense dimensions.

We must again point out that the five factors, common to most job evaluation systems and which we discussed extensively under the rationale of the experiment, were not forced a priori on judges explaining their preferences. Judges were shown pairs of photographs, asked to indicate which job should be paid more, and then asked merely to state in their own words, why?. Their own words we found afterwards could be related to the five common factors of job evaluation. Additional factors were brought in and a distinction made between mental effort and physical effort. We decided to separate these two aspects of effort into separate categories because each aspect was found to be related to a particular group of jobs. Mental effort predominated in jobs with marked conceptual tasks, e.g. the clerk. Physical effort, on the other hand, was associated to labouring jobs.

The comments made were in every case related to the particular pair of jobs the judge had examined, and more specifically to the job they had preferred. We noticed this particularly with reference to comments which fell into two categories, i.e. knowledge and responsibility.

As we have indicated, we included under knowledge, comments made about all things a person needs to know to do his job. These included comments referring to training, formal schooling and the extent of experience the job demanded. In most cases, these comments were adapted to the job which had been preferred. It was said of the clerk, for example, "he must be educated to understand figure work"; "he knows office routines... he knows many languages because he can interpret". The medical orderly received extensive training to understand principles which were new to him so that "he could dress a wound cleanly" or administer first aid. The policeman cannot function effectively without having learned a number of "by-laws". The bossboy had learned procedures of work and could convey instructions accurately as he knew the vernaculars spoken by his labourers. The painter had served a long apprenticeship and knew a great deal about paints. Comments about knowledge, understandably became scantier with the remaining jobs, but were made nevertheless where the judge perceived knowledge as a relevant factor to the job he had preferred. The drill operator was seen to need a modicum of technical know-how to assemble and operate his drill. The artisan's hand was said to be familiar with the tools of the artisan and the work he did. The refuse remover knew where

all the houses were and the particular location in each of the dustbins.

Comments about responsibility, particularly, were made with reference to the job discussed. Stress was placed, however, much more frequently on the negative aspects of responsibility, i.e. what the worker had to avoid doing. We were told, for example, that the clerk, the medical orderly and the policeman, did important work because they worked on their own. The consequence of error was felt to be particularly serious. The orderly could kill someone through his carelessness; the clerk could create serious administrative problems; the policeman could, through tactlessness, generate a riot. The responsibilities of the bossboy were extensively described, but here again, negative features were mentioned quite frequently. The bossboy is responsible for the safety of his men: he must make sure that working conditions are safe. He is moreover responsible for any mistakes made by his labourers. Similar comments with negative connotations were made about the remaining jobs. The painter must avoid wasting materials, and is responsible for the finish of the work. The drill operator must look after an expensive piece of equipment. The artisan's hand is responsible for the safeguarding of tools. Similarly, when personal attributes were discussed, these also referred to the negative aspect of responsibility. When the integrity reliability, of a worker was stressed, this was yet another way of stressing "that which a man must not do".

Emphasis on the negative aspects of responsibility and the use of common sense dimensions suggest that the evaluation of jobs is influenced by the particular experience the judge has gained of the work situation. It is clear that this experience is gained principally through the work the judge does himself. The factor of knowledge reflects a form of reasoning based on current knowledge of the occupational development of the individual. It is common knowledge that the average employee prepares himself for his job by going to school, and then by undergoing additional training, both formal and informal. This common sense experience was gained by European judges not merely through their observations, but through intense personal experiences. Most of the European judges in this group attained positions of authority by undergoing a similar process of development. They knew they could

not have undertaken their present tasks unless they had prepared themselves by intensive periods of study and training. If then the worth of their work was due to this preparation, it could well be that the worth of the work of others was judged in terms of the prior training and education they required.

A similar relation could be seen between the work of managers and the remaining common sense factors they used. Effort is the cornerstone of the concept of productivity. One of the frequent problems managers experience is to determine how best workers can be motivated to give more effort. The frequent reference European judges made to personal attributes reflects yet another facet of their functions as managers. They concern themselves with personal attributes when they must decide on the selection of staff or the delegation of responsibilities. Their concern with work conditions and status may reflect their own perception of the values workers attach to jobs.

The emphasis European judges place on the negative aspect of responsibility could be due to unfortunate experiences they have had by delegating responsibilities to Africans. European officials were quite keen to discuss at other occasions, instances where Africans had failed to assume the responsibilities they were given, or else had abused the discretion which was placed in them. Whether these instances are frequent enough to warrant generalizations, or whether strong social prejudices and fears are in actual fact operative, we cannot tell for certain. The fact remains, however, that notwithstanding stated policies of separate development, European officials generally view Africans with suspicion and are not altogether convinced that responsibilities should be delegated to them. Jaques (83) pointed out that managers feel very dependent on the work of their subordinates. We can assume, in consequence, that European officials are quite uneasy when they realise that they will become dependent on persons whom they have not learned to trust.

5.5.2 Verbal comments made by the African group.

African judges explain their preferences in essentially the same manner as European judges. They mention education, effort, responsibilities, personal attributes and most of the factors used by the European group. Their comments can, for the most part, be fitted into the categories we described in the previous section and which we found were applicable to the comments of the European group. This is fortunate as it enables us to make a direct quantitative comparison between African groups and the European group taken as a whole.

Any such comparison must, however, be made with an important qualification in mind. Whereas European officials were guided in their evaluation by the functions of jobs as they affected the organization, we find a more personal note in the African comments. True, the African concerns himself with such abstract issues as the education required in the job, and the responsibilities involved in it. But this concern expresses itself most frequently at a personal level. More important than having acquired education, is to have struggled for it. The clerk must not be paid more because the job requires literacy, but because "he spent his time and money training for his job and receiving education". Another typical comment stresses family relationships: "His father spend a lot of money educating him with the aim of making him able to earn money ... He must repay his father the money which was spent on him".

Comments may also refer to the relationship between the judge and the person depicted in the picture. "The clerk has education ... he can help illiterates like myself", "If you show him a piece of paper, he can tell you where a place is to be found". Responsibilities of jobs may specifically be defined in terms of this personal relationship: "The scribe writes a note recommending the painter for a job ... If there was no scribe then the painter would not get a job". "I cannot get a dustbin if it has not been ordered by the scribe". Such comments relate personal experiences which African judges have had and on which they base their evaluation of jobs.

Comments of a more personal nature are also given when the African compares his own job with another. Cold abstract comments made by the European group are replaced by vivid personal experiences. The refuse remover tells us that the "bin eats into his shoulder" and that it is quite easy to stumble and fall when one is running with a heavy object on the shoulders. Old shoes affect the feet badly. The drill operator tells that the vibrations of the machine are hard to bear, and that strength is needed "to keep the jerking machine steady".

This tendency to use more personal comments is to be expected from men who are intimately connected with the jobs of the value study. African jobs must remain to European subjects essentially abstract concepts. They are something which they see, but cannot directly experience. This is shown in the less personal words European judges use when they explain their preferences, e.g. the job is strenuous, it requires more skill, education and so on. The comments and examples of African judges are, on the other hand, much more concrete. This is due to the fact that they have a more direct experience of the jobs represented in the pictures and can identify themselves with them more easily.

This leads to a further distinction between Europeans and Africans. When a European does not adequately explain a judgment, he resorts to a well-worn stereotype, "We need persons with the right personality for this job" or more simply: "This is skilled work". Africans appear to use stereotypes just as readily, but commit, in addition, a number of errors which are characteristic to them, and which we did not find among any of the European judges.

There are, to begin with, comments which do not explain at all reasons for the judgments, but which suggest some antagonism Africans have for Europeans. "The pick and shovel labourer has to dig deep down into the soil till the Europeans get what they are after". The bossboy stands to be hurt by the men "who identify him with the tyranny of the Boss and who is arrogant and proud".

Other comments indicate an inadequate perception of the job. A judge, for example, was guided entirely by the images presented to him, and said that the clerk should be paid more than the bossboy because "the clerk writes, he is doing work ... The bossboy merely indicates". The policeman is said to do no work, but merely to walk around. The main criterion used by these subjects appears to be the production of some concrete result which the worker has achieved through his own personal efforts.

In some cases, a train of association is presented as a process of logical reasoning. The clerk and drill operator are both seen to do a strenuous job because they both have to maintain a bending position. In another case, the judge was more explicit, but again saw just as readily the equivalence between the strenuous effort of the clerk and that of the refuse remover. "The scribe does a strenuous job. He uses his mind. He must record correctly all that he is told. The refuse remover also does a strenuous job. The two should be ranked equally. But the scribe is educated and this is an advantage in his favour". The opposite argument is also found based on the same hastily drawn equivalence when a labourer is favoured to the clerk. "Both the clerk and the pick and shovel labourer are doing a very strenuous job. The labourers are, however, exposed to the elements, and should be paid more".

The presentation of a train of association as reason for a judgment appears as well in the description of some of the causal relationships. The refuse remover should be paid more because "if he were not there, the bossboy will have no work to do". Similarly, the drill operator precedes other workers and should be paid more. "He is doing a job which comes first. He works even before a city is built. A policeman can only get a job after he has worked. A city can only be built after he has worked". In one case, the argument presented staggers with its finality. "The pick and shovel labourer does a more important job ... Why, if you die, he might dig your grave".

In some cases, the causal relationship which is perceived, indicates acceptance of some hierarchical structure. Some argue that "it is because the scribe has done some writing that the drill operator is employed". Some see the medical orderly as more important because "the diggers go to the medical orderly with their injuries so that they can go back to work and earn money for the support of their families". In other instances, the explanation is given purely with reference to self. "The medical orderly looks after our health, whereas we can still live even if the house is not painted".

Finally, there are instances where the judge presents his argument forcibly and quite vividly, but lacks the vocabulary to present it more pithily. This was the case with the judge who did not know the name or cause of tubercolosis, but who said of the drill operator: "The machine so affects his health that even after his stopping to use it, he continues to shiver. It causes him to develop an illness that makes him shiver, as though he is feeling cold all the time".

All these examples reinforce the contention we made initially that Africans evaluate jobs on a more personal basis. The majority of their comments can be classified into the same categories we defined for the European group, though such categories would have more personal connotations with African judges.

We asked ourselves whether instances of faulty reasoning were characteristic of the African as a member of a racial group undergoing adaptation to an industrial society, or whether they were to be found among working groups in general. We could find no comparable experiment carried out among working groups in other countries. A report by John Gale (53) in the Observer suggests, however, that the second alternative is quite plausible, i.e. that instances of faulty reasoning reflect in actual fact the hurried and less critical reasoning one finds among certain social groups. John Gale reported on the strike of underground workers which had paralysed intermittently the London Transport system. He interviewed a number of workers and reported some of their comments in full. One of them in particular is quite similar to the comments we have just discussed. A motorman

was discussing the demands the job made on him and said: "If a man's unfortunate enough to have a suicide, he's got to get down and help, and pick the pieces up. There's no compensation for it, and if you're off sick because of it, you may get nothing. You're stood spare three days in the room, ready in case there's an inquiry ... Old Ted Slaughter, who just died, had seven suicides within six months, and it broke down his health. He was reduced to a motorman-shunter at Neasden. His health still deteriorated. They made him a collector, with a loss of 10s. off his rate. Put him on the barrier at Preston Road. His health still deteriorated, till a month ago he died. All due to those blooming suicides".

We must not lose sight, however, of the first possibility, i.e. that the comments made by Africans are characteristic of a group in transition and in the process of adapting itself to an industrial society. There is a fair amount of evidence which suggests that values are social products which the individual has internalized. Biesheuvel (11) after examining the results of various studies conducted among Africans, concluded "that the more deeply Africans are drawn into that essentially Western culture, the more thoroughly do they acquire the personalities functional for that culture". Hutt and Miller (78, 128) in a different context, concluded that the fairly stable value systems of adult life were gradually internalized by children in a manner which, however, could not yet be fully explained.

A similar process of internalization presumably takes place with the values of work. We maintain that this process will depend on the experience the African has gained by working in an industrial community. We shall examine this point further in a detailed analysis of the comments made by the various occupational groups when they considered the job of the clerk.

5.5.3 Verbal comments made with reference to the clerk.

Our analysis of the verbal comments made with reference to the clerk will be somewhat detailed. We wish to indicate how African judges differ both among themselves and from Europeans in their evaluation of the clerk. This is of interest because by indicating the principal differences and explaining their origin, we shall gain some insight into the way various groups think. We shall show moreover, how a probing analysis of verbal comments brings out differences which may not be apparent from straightforward tabulations.

There are a number of reasons why we are particularly interested in the comments made about the clerk. In the first instance, the scaling of this particular job helped us to distinguish between various clusters of occupational groups. The semi-professional, senior technical and clerical groups placed the clerk at the top of their scales. Semi-skilled workers and labourers did not. The middle cluster of groups placed it at the top of the scale, but favoured also jobs requiring much physical effort.

It is quite possible that the manner in which various groups view this job characterizes the values they have internalized. This is moreover the only job, in the group of nine we included in the value study, which has a marked conceptual content. The transactions in the other eight jobs are all more tangible. Though in some cases they are preceded by conceptual elaboration, this is nowhere as great as in the case of the clerk. He writes, and therefore deals with symbols. His job is perhaps the most representative of a well-developed community. Record-keeping is after all the paradigm of advanced social organization.

The comments made by the European group are tabulated in Table XXX. Most of the comments fall into the first four categories. The need for the clerk to work reliably is stressed in three categories of comments: responsibility under the sub-category of consequence of errors; personal attributes under the sub-categories of reliability and integrity; and skill under the sub-category that the job is skilled because it requires precision and accuracy in figure work. European judges accept that the clerk holds a status job, that he works with concepts and is therefore required to be educated.

TABLE XXX. Comments about Clerk by European group

(N = 196)

CATEGORY (Mean Number of Comments = 9.6)	Number of comments	% of Total
1. What he knows - (mainly that he needs more education - his knowledge of Bantu dialects and of office procedures are also stressed)	644	34.3
2. Responsibilities. Equal emphasis placed on the consequence of errors, to the fact that he works on his own - as well as to the responsibility for personal contacts	382	20.4
3. Personal attributes. Primarily that the job requires an intelligent, adaptable person having to cope with various situations. Great stress placed on reliability and integrity.	311	16.6
4. Status of the job. He is a senior staff member and must maintain appearances, and dress accordingly	267	14.2
5. Skill. Essentially the clerical skills accurate and reliable work with figures and files. Wide variety of tasks which clerk must master.	224	12.0
6. Mental effort. His work is more exacting - he must meet dead lines, works under pressure with interruptions from switchboard.	27	1.4
7. The work he does is more valuable to the Council.	21	1.1
TOTAL	1,876	

The categorization of comments made by the eleven African groups is shown as percentage of totals in Table XXXI. The first impression we gain, is that there are hardly any differences in the distribution of comments as we move from one African group to another. Ten groups out of eleven feel that the clerk should be paid more because of what he knows, with his responsibilities coming a close second. This order is reversed by the high-grade supervisors. Personal attributes - meaning essentially that the clerk must be more intelligent and adaptable than others - fill as a rule the third most important category of comments. Sundry comments relate generally to aspects of the job which the African judge considers unpleasant. Labourers on the lowest wage grade (group K), for example, feel that the clerk does an unpleasant job because he must sit behind a desk the whole day. He cannot move around freely.

Looking at European and African groups, we find that the mean number of comments, made by any group, is directly related to the place it gave the job on its scale. More comments are made by groups when they place it at the top of their scales than when it is placed at the centre. There are, however, some cultural differences. The largest mean number of comments is made by the European group, 9.6 comments per person or 4.8 comments per comparison. This is followed by the African group with highest educational qualifications - the semi-professional group - with a mean number of 5.5 comments per person or 2.8 comments per comparison.

Beyond these facts there is little else which helps us distinguish between various occupational groups or between European and African judges. The reason for it is that we have in no way qualified the broad classification of comments. Is education, for example, viewed in the same manner by labourers and clerks? What particular connotations are attached to the concept of responsibility by European and African judges? Why is it that the category: mental effort, features in the comments of African judges and hardly at all among European comments?

In order to find an answer to these questions, we examined how each occupational group viewed the clerk. The picture which emerged can be summarized as follows:

TABLE XXXI. Percentage of comments made by African groups about Clerk.

CATEGORY	AB (N = 28)	B (N = 56)	C (N = 56)	F (N = 56)	H (N = 84)	K (N = 112)	AA (N = 28)	D (N = 56)	EA (N = 28)	EB (N = 28)	G (N = 56)
1. What he knows	30.5	32.0	31.0	33.8	39.7	33.1	45.6	29.2	25.2	32.8	31.3
2. Responsibilities	20.1	26.5	27.1	25.2	21.8	25.9	18.4	29.7	29.6	25.0	29.8
3. Personal attributes	21.4	21.8	17.3	16.6	17.9	14.4	15.8	20.5	26.1	20.3	19.7
4. Status of job	4.6	5.1	7.0	2.6	2.2	2.3	3.5	0.6	1.7	-	-
5. Skill	7.2	2.9	1.0	7.3	-	3.8	0.9	1.1	3.5	-	1.0
6. Mental effort	11.0	8.7	11.3	5.9	12.8	6.8	12.3	12.4	7.8	9.4	11.6
7. Sundry comments	5.2	2.9	5.3	8.6	5.6	13.7	3.5	6.5	6.1	12.5	6.6
Total Number of Comments	154	275	284	151	179	263	114	185	115	64	198
Mean Number of Comments	5.5	4.9	5.1	2.7	2.1	2.3	4.1	3.3	4.1	2.3	3.5
Rank of Job in Scale	1	1	1	3	5	3	1	1	1	3	2

A. Semi-professional group - group AB.

They stress the struggle and cost to acquire an education. Responsibilities are not clearly specified. Some judges state simply that the clerk is a responsible man. Others specify that he is placed in a position of authority and can influence materially the lives of others. The most explicit comments refer to personal attributes. The job requires someone who can think for himself. This need for independent thinking and initiative means that the clerk is less easily replaced than say the drill operator. Many judges stress mental effort: "He strains his brain thinking, whereas the artisan's hand is told what to do".

B. Senior technical and clerical personnel - group B.

They stress cost and effort of education. Some suggest that the mere fact that the clerk is educated entitles him to preferential treatment. Explicit comments are made about the central position the clerk holds in the hierarchy. "He is the hub of the works coordinating all business relating even to our friend the drill operator". The most colourful comments relate to the conceptual nature of the job and to the fact that the clerk uses his brain, and that this is stressful: "He carries his problems home in his mind ... The labourer has much loafing in between ... Some clerks have become mentally deranged from doing mental work continuously".

C. Clerical personnel - group C.

The most competent group to discuss this job. They stress the cost and effort of education, and the need to compensate the clerk for this. The superiority of mental work over physical work is mentioned repeatedly. There is a great deal of concern over mental effort and the fear that much thinking leads to madness. Consequence of errors are seldom mentioned, but when they are, judges become quite explicit: "If he makes a mistake, people are paid the wrong amount and will suffer".

D. Labourers working under markedly unpleasant conditions - group H.

Comments reflect primarily the image uneducated people have of literate persons. "He has a lot of knowledge in his head." Comments are made about the cost parents have to undergo in order to educate their children. When the responsibilities of the job are discussed, they refer to the function of the clerk as a channel of communication. This reflects distrust in European supervisors, a finding reported by Glass in "The Black Industrial Worker " (55). The controlling position the clerk has in the organization and his ability to do mental work are repeatedly mentioned. Comments about mental effort connote the fear that people go made from hard thinking".

E. Labourers in the lowest wage grade - group K.

Comments in the sundry category are relatively frequent. They refer to features of the job the judge dislikes most, e.g. the clerk is expected to produce a great deal of work, he cannot walk around when he feels like it, but must remain seated at his chair; the job is unpleasant because it offers limited opportunity for physical activity. Comments on education portray an almost childlike admiration for literacy. "If he is sent, he can read a number and so find a place". The importance of repaying parents for the cost they incurred educating their children is mentioned repeatedly. Responsibility connotes the fact that the clerk is in a central position of authority. He controls central records, pinpoints the work of individuals, and is consulted by workers. The mental effort in the job is mentioned frequently.

F. Nurses - group AA.

They stress the effort and cost of education. A superficial relationship is perceived in some cases between the clerk and other labouring jobs, e.g. "Before one gets education, one works hard for it, so the clerk, like the refuse remover, has had some experience in hard and strenuous work". Nurses, however, attach great importance to effort per se. Abstract work done by the clerk is felt to be more important than physical work, e.g. "The clerk is more important because he knows things by studying them, whereas the artisan's hand knows things only by seeing them".

G. Artisans - group D.

Equal emphasis placed on knowledge and responsibilities. Cost of education is mentioned frequently. The central position of the clerk and the manner in which he directs the work of others form the bulk of comments dealing with responsibility. The superiority of mental over physical work is accepted by many.

H. High-grade supervisors - group EA.

The clerk is educated and therefore quite near to the European official. Comments on responsibility form the most numerous category. They relate generally to the importance of the records kept by the clerk. "The machine that the driller uses goes through the records of the clerk". This importance attached to records reflects the experience high-grade supervisors have had of administrative controls. African supervisors are in fact subject to much greater administrative controls than would be placed on their European counterparts. Comments made reflect also the healthy respect persons who have acquired technical competence, have for administrative matters.

I. Bossboys - group EB.

The job is strenuous, giving the clerk little opportunity to move around. His education cost a great deal of money and effort, and should in turn receive suitable compensation. Education has placed the clerk moreover in a position of control.

K. Policemen - group G.

The position the clerk holds in the organization and his education are frequently mentioned. "The policeman stops fights, that is all. The scribe writes a report on all that has happened". Effort and cost of education must receive their proper compensation. Mental effort is mentioned frequently together with suggestions that brain work is more exacting. A policeman wistfully noted that "the clerk cannot booze at any old time as the cleaner might and still work efficiently".

5.5.3.1 Similarity between African groups.

All African groups stress the fact that the clerk should be compensated because of the effort and costs involved in his education. Biesheuvel (11) suggests that Africans value education mainly for these reasons. They have limited resources at their disposal and must in actual fact struggle hard to reach Western standards of competence.

The controlling position the clerk holds in the organization forms another point of agreement between African groups. They all agree that the functions of the clerk affect the work of others and influence materially their lives.

All groups agree in one way or another that conceptual work is superior to physical work. This occurs even with partisan groups like the policemen who placed their own job to the fore.

5.5.3.2 Differences between African groups.

The main differences between African groups reflect an important finding: African judges value the job of the clerk according to the experience they have had of the job. High-grade supervisors mention administrative controls. Labourers and semi-skilled workers see the clerk controlling them. The top cluster of occupational groups sees the clerk controlling others.

The most patent difference appears in the manner in which different groups explained the importance of conceptual work. The top cluster of groups stated simply that brain work was more important than physical work. Some judges drew the sophisticated simile between mental work and the controlling function of the central nervous system. But quite often the importance of mental work was expressed as a self-evident truth.

Labourers, on the other hand, tended to give more tangible examples. They saw the clerk working with symbols they did not quite understand. He was in a position to control their lives because of the records he kept. A clerk could find his way around the townships or around rules and regulations with equal ease and competence. He was endowed with a special knowledge they did not possess.

5.5.3.3 Differences between European and African groups.

The differences we elicited between African groups became apparent only after a probing analysis of the comments. They reflected differences in background and experience and could be viewed within the context of this experiment as being not important. Whether the clerk said he controlled others and the labourer said the clerk controlled him, both said in essence the same thing: that the clerk was an important person who should be paid more because he was placed in a position of control.

The differences between European and African groups are, however, much more fundamental. They were located in three major areas which we examined with some detail.

5.5.3.3.1 European groups give less emphasis to mental effort.

African judges in all occupational groups mentioned explicitly the mental effort involved in the job of the clerk. These comments described the discomfort of the clerk glued to his chair unable to move freely and attend to his personal needs. Some of the comments were rather far-fetched and expressed the belief that the clerk would go mad, so hard and intense was his thinking. The bulk of the comments were, however, quite sober and dealt with the fact that the clerk had to think for long periods of time and attend to a number of things at once.

European judges made few specific comments on this subject. When they were made, they dealt specifically with the effort the clerk had to make in concentrating in spite of the distracting influence of the switchboard.

We tabulated the comments made by European and African judges on the subject of mental effort. The proportions are shown in Table XXXII.

	Europeans	Africans	X^2
Comments refer to mental effort	27	198	$X^2 = 12,692$
Other comments made by groups	1849	1784	$p > .0001$

TABLE XXXII. Proportion of comments referring to mental effort.

We note that the proportion of African judges who mention specifically mental effort is significantly larger than the proportion of European judges.

5.5.3.3.2 European groups give less emphasis to the effort and cost of education.

African judges from all occupational groups stressed the importance of compensating the clerk for the effort and cost of his education. There was a slight shift of emphasis as we moved from high to low status occupational groups, the lower status groups saying that the father battled to educate his children. In essence, however, all African groups referred to the same idea. European judges, on the other hand, hardly ever mentioned this issue. The difference in proportions between both racial groups is again highly significant, viz. Table XXXIII.

	Europeans	Africans	X
Comments refer specifically to cost of education	7	166	$x^2 = 164$
Other comments dealing with knowledge	637	484	$p > .0001$

TABLE XXXIII. Proportion of comments mentioning cost of education.

5.5.3.3.3 African groups place less emphasis on the consequence of errors.

European judges were greatly concerned over the reliability of clerks. When they discussed the responsibility of clerks they mentioned repeatedly the consequence of errors. When they commented on personal attributes, they referred to the importance of having reliable and trustworthy persons. When clerical skills were mentioned, they were equated to accuracy in figure work.

The emphasis which European judges place on the negative aspects of responsibility is possibly due to the fact that they still view the African with some reservations when the latter are placed in positions of responsibility. Europeans are not altogether happy about delegating responsibilities to Africans.

These facts emerged from the tabulation of comments made by Europeans about consequence of errors and trustworthiness (Tables XXXIV and XXXV). In both cases, the X^2 values were significant at the .0001 level.

	Europeans	Africans	X^2
Comments mention specifically consequence of errors	196	62	$X^2 = 82.6$
Other comments dealing with responsibility	186	449	$p > .0001$

TABLE XXXIV. Proportion of comments mentioning consequence of errors.

	Europeans	Africans	X^2
Comments mention specifically trustworthiness	44	12	$X^2 = 28.7$
Other comments dealing with personal attributes	267	363	$p > .0001$

TABLE XXXV. Proportion of comments dealing with trustworthiness.

5.5.3.4 Absence of differences between African groups.

Having established the presence of certain differences between European and African groups, we examined whether they existed as well between African groups. We restricted our comparison to high and low status clusters. We assumed that if no differences occurred between these clusters, they were unlikely to be found among other African groups.

The proportion of comments made by high and low status clusters in all four instances show no significant differences (Table XXXVI). The X^2 values are quite small.

Comments	High Status groups	Low Status groups	X^2
Comments mention specifically mental effort	73	50	$X^2 = 1.46$
Other comments made by groups about clerk	640	543	Not significant
Comments mention cost of education	57	46	$X^2 = .967$
Other comments dealing with knowledge	166	163	Not significant
Comments mention consequence of errors	16	20	$X^2 = 1.54$
Other comments dealing with responsibility	165	125	Not significant
Comments mention trust-worthiness	5	1	$X^2 = 2.6$
Other comments dealing with personal attributes	137	94	Not significant

TABLE XXXVI. Proportion of comments made by high and low status groups.

5.5.3.5 Provisional conclusions.

We have examined, in some detail, the comments made about the clerk. This is only one of the nine jobs included in this study. The observations we have made are, however, quite important and lead us to formulate these preliminary conclusions.

We note in the first place, that there are differences in the manner in which different groups justify their preference of the clerk. These differences are not quite apparent at the broad conceptual level of the eight categories used in our initial tabulations. They become, however, quite apparent when comments are examined in some detail.

The most marked differences are between European and African groups. We see among Europeans deep concern over performance in the job and a suggestion that African clerks are not to be trusted fully. These comments may possibly be the results of two biases: the bias of managers and that of a privileged minority. Managers are dependent on workers to maintain the smooth functioning of departments. They are forced to delegate. At the same time, they are quite convinced that no one will work as effectively as they would ... had they only the time to do all the work themselves. Europeans are moreover members of a large privileged minority. The African advent into a technical society is quite recent and largely untried. It is quite possible therefore, that the strong prejudices Europeans possess are reinforced by the mistakes and lack of tradition of African clerks. There is in this, yet another reason for the fear of delegating responsibility and the emphasis Europeans place on consequence of errors and trustworthiness. This behaviour may not be typical alone of South African conditions, but possibly occurs wherever strong prejudices exist. Xenophobia, anti-semitism would give rise to a similar set of circumstances.

The Africans value the work of the clerk primarily on the basis of the experience that they have had of it. High-grade supervisors stressed the administrative nature of the job, because they themselves came under stringent administrative controls. The high status cluster of groups mentioned how the clerk controlled the lives of others. Low status subjects stressed how the clerk controlled their own lives, and admired his literacy.

We cannot, however, conclude with any finality that these differences are only due to the experience the judge has had of the job. We shall have to combine our observations on the clerk to those we shall make on other jobs. The assumptions we have made must remain for the moment untested. We do not know, for example, to what extent the European prejudice is that of a manager, or that of a member of a privileged minority. No comparable studies have been carried out in a purely Western organization which does not employ a mixed labour force. We cannot tell for certain that the distrust Europeans have of Africans causes them in actual fact to perform in a less reliable manner. Some

further light will be shed by an examination of the comments judges made on the other eight jobs.

To bring a study of this nature within manageable proportions, we shall not continue our examination of comments in the detail we have adopted for the clerk. We shall examine the remaining eight jobs primarily on the basis of the eight categories we adopted for our tabulations. Where, however, differences become apparent, either from the tables of comments, or from the manner in which a job has been scaled, we shall examine these categories in greater detail. Our examinations will be restricted to selected occupational groups which our analyses have shown so far to be clearly different from each other.

5.5.4 Verbal comments made with reference to the medical orderly.

The comments made by the European group appear on Table XXXVII; those made by African groups are tabulated according to percentages of totals (a convention used for all tables showing the distribution of verbal comments by African groups) and appear in Table XXXVIII.

The European group has scaled the orderly second. The bulk of their comments fall into the first three categories, i.e. knowledge, responsibilities and personal attributes. Reference is made to the fact that the orderly has received extensive medical training, that he is clearly responsible for human life, and must develop confidence in his patients who are suspicious of Western medicine. The job requires an intelligent person who can use his initiative as he may have to face a serious situation on his own. The skill he shows in handling surgical instruments and the status of his job, which demands of him a standard of dress, receive the same emphasis. Hardly any mention is made of the fact that he is exposed to infections and therefore liable to catch diseases.

African groups look at the medical orderly differently. Groups AB, B, and C tend to look at him in the same manner as the European group. Less emphasis is placed on personal attributes, more emphasis is placed on skill and work hazards. The bulk of comments is evenly divided between knowledge and responsibilities. Knowledge involves the cost and effort of studying for the job. Responsibilities refer to a variety of features, but more specifically to the consequence of errors and the need to work accurately. "He is responsible for life ... Slightest mistake he makes may cause the patient to suffer pain and injury, probably for the rest of his life".

We find with the remaining groups - and more expecially with the low status groups - much greater emphasis placed on responsibility. The comments made by these groups, and which fall into this category are similar to those made by the first three groups. They deal frequently with generalities, he attends to the sick, he helps sick people, he relieves pain and suffering. Personal experiences

TABLE XXXVII. Comments about medical orderly by European group (N = 196).

CATEGORY (Mean number of comments = 7.9)	Number of comments	% of Total
1. What he knows. Requires higher education, has acquired medical knowledge and was trained more extensively in such matters as first aid, medical work, etc.	510	33.0
2. Responsibilities primarily that the consequence of errors is serious because he deals with human lives - he must inspire confidence in the public; works on his own.	420	27.0
3. Personal attributes. An intelligent, reliable person who must show initiative and must be clean as he deals c human injuries.	274	17.8
4. Skill. Handles instruments, knows how to bandage, and undertakes sundry medical tasks, e.g. gives injections, stitches wounds.	144	9.3
5. Status. He must be respected in the community and must dress suitably - it will not do to have a man with tattered clothes doing this job.	141	9.1
6. Work conditions. Mainly the fact that he is exposed to hazard. infection.	31	2.0
7. Mental effort. He must be alert for symptoms.	7	0.5
8. Sundry comments. The job he does is much more valuable to the community.	18	1.3
TOTAL	1,545	

TABLE XXXVIII. Comments made by African groups about Medical Orderly.

CATEGORY	AB (N = 28)	B (N = 56)	C (N = 56)	F (N = 56)	H (N = 84)	K (N = 112)	AA (N = 28)	D (N = 56)	EA (N = 28)	EB (N = 28)	G (N = 56)
1. What he knows	34.5	33.6	39.8	18.8	18.3	24.6	33.3	26.5	27.4	22.7	29.8
2. Responsibilities	32.8	32.8	32.0	66.2	57.8	55.2	34.2	48.5	47.0	61.4	45.7
3. Personal attributes	5.2	6.9	8.7	4.3	3.3	2.5	3.4	6.1	10.6	1.8	9.3
4. Status of job	5.2	6.1	5.0	1.4	1.7	1.5	3.4	3.8	1.5	-	2.6
5. Skill	9.7	8.1	5.8	4.3	3.3	6.4	6.8	5.3	7.5	3.6	2.6
6. Mental effort	3.7	4.4	3.3	3.6	0.6	0.9	2.6	2.3	1.5	1.8	3.3
7. Work conditions	5.2	2.8	1.7	-	2.2	1.5	6.0	0.7	1.5	1.8	0.7
8. Sundry comments	3.7	5.3	3.7	1.4	12.8	7.4	10.3	6.8	3.0	6.9	6.0
Total Number of Comments	134	247	241	139	180	203	117	132	66	57	151
Mean Number of Comments	4.8	4.4	4.3	2.5	2.1	1.8	4.2	2.4	2.4	2.1	2.7
Rank of Job in Scale	2	2	2	2	4	4	2	4	2	4	3

are suggested in a few instances "He has to be extra careful when treating injured people as they feel pain more". The bulk of comments refer, however, to the fact that the responsibility for human life is much greater than that for machines or inanimate objects. "He helps us by attending to our injuries ... he is more responsible". "He is the doctor's "spanner boy". He saves life".

We found no differences in the connotations of the concept of responsibility between the various African groups or between African and European judges. The orderly serves a function of healing which is well-known in all forms of society. As such, he is readily identifiable, often with little more than the simple label: he saves lives.

African groups place, however, little emphasis on personal attributes. The need for cleanliness and the dangers of infection are mentioned most frequently by the nurses who are well acquainted with them and by the semi-professional group, who is the best educated group. We must point out that these dangers of infection are least tangible and less likely to be conveyed by a picture than would have been the case with some of the features of the painter or policeman. For judges to discuss the importance of cleanliness by merely looking at the picture of the orderly, requires either first-hand experience as the nurses possess, or else sufficient worldly knowledge which is the by-product of a good education.

The bulk of sundry comments for all groups deal with the unpleasant features of the job. There appears to be a widely-held belief among Africans, especially in the lower occupational groups that the sight of blood or having to touch it will affect the personality of the orderly. In addition to that, he has to deal with "dying, dead and mangled people" and this calls for great courage. It is interesting to note that group H (labourers working under markedly unpleasant conditions) stresses this factor more than any other group.

The orderly is generally ranked in the top half of the scale. It is usually placed second, excepting for the policemen who place it third, and for the bossboys, the artisans and labourers who place it fourth. Most comments are given about this job by the high status groups and the nurses.

The main difference which can be observed between groups is in the number of categories used to describe its most important attributes. The European judges use the first three categories with similar frequency. Most of the African groups use two or one category. If the mean number of comments is small, then most of them tend to fall into the category of responsibility. This may well be due to the fact that of all the categories used to evaluate the importance of the orderly, this is the one which includes the most egocentric comments, e.g. he can hurt me if he is not careful.

5.5.5 Verbal comments made about the policeman.

The European group scales the policeman fourth, close to the bossboy. To them, the most important reason for ranking this job as high as that lies in the personal attributes demanded in the job (Table XXXIX). The policeman must be primarily a man of integrity who will not abuse his position of authority. There are a number of things he must be in addition. He must use his initiative to avoid a riot, when a nasty situation begins to develop. He must be impartial and show courage. Next in importance are mentioned his knowledge and his responsibility of ensuring that proper contact is maintained with the public. Fourth in importance are the hazards of the job which European judges generally associate with the fact that African policemen are inadequately armed. The status of the job, namely that the policeman represents authority and must dress in a manner which will command respect, is mentioned one tenth of the time.

Africans usually rank the policeman at the centre of the scale. The bossboys and labourers rank it lower than the rest. The clerks and artisans place it in the same rank as the European group. Excepting for the high status group, little mention is made of the personal attributes. The bulk of comments fit into the category of responsibilities and work conditions, meaning primarily the hazards of the job. This category is the most important with the policemen who rank their own job first, with the low status groups and with the nurses.

TABLE XXXIX. Comments about policeman made by European group (N = 196).

CATEGORY (Mean number of comments = 6.9)	Number of comments	% of Total
1. Personal attributes. Primarily a person of integrity, who can use his initiative, is intelligent, and has a good physique. He must be impartial and show courage.	379	28.2
2. What he knows. He was trained in the legal aspects of his work, knows municipal by-laws, and must be literate.	278	20.7
3. Responsibility primarily for personal contact in that he must be courteous and tactful. He maintains law and order and works on his own.	278	20.7
4. Work conditions. Hazards of the job more especially the danger of assault - works irregular hours, called out at night.	222	16.5
5. Status. Holds a position which must be respected by others. He represents authority and must appear neat and smart.	137	10.2
6. Skill. To interpret the law and defend himself from physical assault.	16	1.2
7. Mental effort. He must be careful when on patrol, alert and vigilant.	10	.7
8. Sundry comments. The job is much more valuable to the community, he deals with situations beyond his authority.	22	1.8
TOTAL	1,342	

TABLE XL. Comments made by African groups about Policeman.

CATEGORY	AB (N = 28)	B (N = 56)	C (N = 56)	F (N = 56)	H (N = 84)	K (N = 112)	AA (N = 28)	D (N = 56)	EA (N = 28)	EB (N = 28)	G (N = 56)
1. Personal attributes	13.3	9.7	13.0	4.0	0.9	1.4	5.1	4.4	6.3	3.7	5.0
2. What he knows	3.6	7.3	9.5	-	0.9	1.4	-	2.2	4.8	-	1.7
3. Responsibilities	45.8	37.9	35.4	29.4	28.2	34.6	46.1	43.4	34.9	51.9	25.4
4. Work conditions	30.1	35.5	28.6	52.6	54.5	46.8	43.6	38.9	38.0	33.3	50.8
5. Status	1.2	1.6	2.7	-	1.8	2.8	-	-	3.2	-	-
6. Skill	-	4.8	2.7	7.0	5.5	7.2	2.6	3.3	4.8	7.4	3.9
7. Mental effort	3.6	1.6	2.0	3.0	-	3.6	-	2.2	3.2	3.7	1.1
8. Sundry comments	2.4	1.6	6.1	4.0	8.2	2.2	2.6	5.6	4.8	-	12.1
Total Number of Comments	83	124	147	99	110	139	39	90	63	27	181
Mean Number of Comments	3.0	2.2	2.6	1.8	1.3	1.2	1.4	1.6	2.3	1.0	3.2
Rank of Job in Scale	4	4	3	4	6	7	6	5	3	7	1

Hazards are particularized by all groups. The policeman is inadequately armed, yet he must deal with hooligans carrying firearms. When he separates people who are fighting, they may both turn against him. He must intervene even when he is in danger. As would be expected, the most explicit and numerous comments are made by the policemen; the labourers, who make the smallest number of comments, tend to comment on the hazards of the job rather than about the responsibilities.

The responsibilities of the job are commented upon by all groups, but more particularly by the semi-professional group and by the bossboys. Comments deal generally with the broad functions of the policeman. He maintains law and order. He protects people; he keeps peace among men; he has to reconcile persons from different tribal groups with each other; he safeguards the community. There is no difference in the manner in which all occupational groups view responsibility.

Personal attributes refer in almost the same proportion to the need for intelligence and to those characteristics one generally wishes to see in a policeman. The job requires someone who is intelligent because he must give a coherent account of occurrences, and explain why he has arrested someone. He must, in addition, be honest and faithful, and show a fair amount of courage. "He has taken it upon himself to face death". Comments about personal attributes are rarely made by the labourers. They show some resignation to the fact that policemen must be taken as they come, and rarely, if at all, mention personal attributes which are desirable in this job.

Sundry comments for all groups refer to the fact that due to the particular controlling function of his job, people tend to dislike and hate the policeman. The unpopular nature of the job is stressed by the policemen themselves, and by the labourers on unpleasant jobs. Comments generally state that the policeman is unpopular, that his duties are misunderstood, that people hate him "and yet he must still protect them".

5.5.6 Verbal comments about bossboy.

The bossboy ranks fourth in the European scale, quite near the job of the policeman. The bulk of the comments Europeans make refer to the responsibilities of the job (Table XLI). He must organize the work and control staff. He must look after the safety of his men, issue instructions, and ensure that they are carried out. He must inspect the work done from time to time, to see that it is carried out within specifications. The second most important comment refers to the personal attributes a bossboy should have, namely enough intelligence to understand instructions and put them across, and to show those qualities of leadership which will get people to do the things he wants them to do.

Africans - as we have already noticed - view the job quite differently. The bossboys place it second in their scale, the high-grade supervisors place if fifth, but the other groups place it near the end of the scale; the nurses place him at the bottom of the scale; the high status groups place him sixth, well after the pneumatic drill operator and in the bottom cluster of labouring jobs; the remaining five groups place him in the penultimate position slightly above the artisan's hand.

The number of comments made by Africans is low (Table XLII). Most comments are made by the supervisory groups and by group AB. The remaining groups make few comments as the bossboy was obviously preferred much less frequently. The bulk of the comments made refer to the responsibilities of the job. Knowledge and unpleasant features of the job are mentioned more frequently than personal attributes.

The responsibilities of the bossboy are clearly detailed and comprehensively described by the two supervisory groups. Group EA mentions that the bossboy does the thinking for the labourers in the gang, that he is held accountable for their mistakes and that "he has to put up with a lot of difficult characters who are incorrigible". The bossboys stress above everything the fact that they are accountable to the White man for everything their men do. "He is responsible for the job ... Anything that goes wrong he should answer for. The white man simply gives him orders

TABLE XLI. Comments about Bossboy by European group (N = 196).

CATEGORY (Mean number of comments = 5.9)	Number of comments	% of Total
1. Responsibility for the safety of his men, to organize work and control staff, to issue instructions, to ensure that work is carried out according to specifications.	641	55.0
2. Personal attributes. An intelligent person who can understand instructions and put them across.- must show qualities of leadership, and use his initiative at work.	213	18.2
3. What he knows. Has gained considerable knowledge of work activities; speaks various vernaculars.	168	14.4
4. Status. He holds a senior job and is nearer to management.	60	5.2
5. Skill in a number of operations where he is required to assist the European overseer, e.g. determining levels.	29	2.5
6. Mental effort. He must anticipate trouble and take remedial action, especially in matters dealing with the safety of his men.	21	2.3
7. Work conditions. He works in the open and is exposed to some hazards.	13	1.0
8. Sundry comments. The job he does is more important to council; it is of greater importance to the community.	19	1.4
TOTAL	1,164	

TABLE XLII. Comments made by African groups about Bossboy.

CATEGORY	AB (N = 28)	B (N = 56)	C (N = 56)	F (N = 56)	H (N = 84)	K (N = 112)	AA (N = 28)	D (N = 56)	EA (N = 28)	EB (N = 28)	G (N = 56)
1. Responsibilities	69.0	63.1	54.9	70.9	66.4	60.8	56.7	73.4	64.0	53.2	58.8
2. Personal attributes	8.6	7.5	17.1	8.3	7.2	4.8	10.0	7.8	13.8	9.1	10.6
3. What he knows	13.8	17.4	17.1	10.4	8.4	17.6	23.3	9.4	6.9	15.6	18.8
4. Status	-	1.2	1.2	-	-	0.8	-	-	-	-	1.2
5. Skill	5.2	-	3.6	-	1.2	3.2	-	-	-	-	2.4
6. Mental effort	-	2.4	4.9	2.1	-	2.4	-	-	6.9	2.6	1.2
7. Work conditions	1.7	3.6	-	-	6.0	4.8	-	3.1	2.8	6.5	-
8. Sundry comments	1.7	4.8	1.2	8.3	10.8	5.6	10.0	6.3	5.6	13.0	7.0
Total Number of Comments	58	81	82	48	83	125	30	64	72	77	85
Mean Number of Comments	2.1	1.5	1.5	0.9	1.0	1.1	1.1	1.1	2.6	3.0	1.5
Rank of Job in Scale	6	6	6	8	8	8	9	8	5	2	8

and leaves every work with him". They are also concerned with the problem of motivating men to work: "The bossboy must know the way people think ... It is a difficult thing to have a man work". Other comments refer to the fact that the bossboy is in a controlling position. "No work can be done without his direction", and that he must look after the welfare of the men.

We compared the comments made by the two supervisory groups on the responsibilities of the bossboy to those made about the responsibilities in other jobs. We found that on the whole, these two groups were at their best when they discussed the responsibilities of the bossboy. These were comprehensively described. The stock responsibilities in the other jobs were mentioned with less frequency. Though some of the comments made were quite specific, e.g. "The orderly saves lives because he prevents the loss of blood", they tended as a rule to the stereotype, e.g. the policeman is responsible for the safety of the public, the orderly saves lives. It may be concluded therefore that supervisors are more competent than others to discuss the responsibilities of their own job, but that this does not make them more sensitive to the concept of responsibility in general.

Other African groups mention the responsibility for supervision, but concern themselves more specifically with problems of human relations. The bossboy must deal with grievances, he has to maintain peace, and what is more difficult, he must stand as a link between an aggressive white supervisor and dissatisfied African workers. Other functions of the supervisor, e.g. that he is responsible for the progress of work, that he directs labourers, that he instructs them in the use of equipment, are mentioned as well.

Comments dealing with knowledge refer to the fact that as the bossboy was promoted from the ranks, he knows more about the work than the labourers. Personal attributes refer to the fact that he was promoted because of his ability, that he must plan his work. Sundry comments are mentioned most frequently by the bossboys themselves, and refer to the fact that the job is unpleasant and unpopular. "The men may rebel against him ... He is unpopular". Dangers of assault, and even murder feature in the comments made by the bossboys and the labourers in group H.

If then, the characteristic features in the job of bossboy are noted by Africans in all occupational groups, how do we explain the low rank given to this job by a large number of African judges. We must note to begin with, the fact that the comments about the bossboy were made generally when his job was judged to deserve more money. If then, his job scales low, this means that jobs placed higher in the scale are favoured in one of two ways: either the factors in their jobs are considered more important than those in the bossboy, e.g. the education of the clerk is more important than the responsibility of the bossboy, or else they have much more of a given quality than the bossboy, i.e. the clerk is more educated than the bossboy. With these two possibilities in mind, we examined the comments made by judges when some other job was preferred to the bossboy.

The most telling reasons why the bossboy should not be preferred are made by group AB, who have ranked the bossboy sixth. Though a number of judges in this group state that the bossboy should be paid, the majority of the judges feel that some other job should be paid more. Three reasons are advanced: (1) The other job makes greater demands, e.g. the clerk must be educated, whereas the bossboy can supervise even if he is not well trained. (2) The other job achieves something concrete, whereas the bossboy merely stands and watches, i.e. he is an overseer in the passive sense of the word. "The spanner boy is actually working while the bossboy only stands and watches". (3) The third type of comment is openly critical of the function of the bossboy and sees in him no more than a stooge of the White man. "The clerk is skilled... the bossboy can be dispensed with. He is merely there to enslave others". "The orderly is appointed through merit and not through favouritism as may be the case with the bossboy".

The nurses (group AA) scaled the bossboy last. They were primarily concerned with the fact that labourers exert themselves much more than the bossboy. "The pick and shovel labourer actually exerts himself, whereas the bossboy does little work, if any at all". His job is less stressful because he just stands around doing nothing. Other comments stress the fact that the bossboy is uneducated and untrained, and does therefore less important work.

The low status groups (semi-skilled workers, labourers) and the artisans, place the bossboy in the penultimate position at the bottom of the scale, just above the artisan's hand. Their comments similarly indicate the low value with which the bossboy is held. He is given no initiative, he is told what to do. He is lazy, lounges around while others do the real work. "The labourers go to sleep with aching bodies ... They sweat a lot ... The bossboy does sweet nothing". As a labourer pithily put it "I don't see what the bossboy is supposed to be doing. He just stands". Other comments refer to the fact that the bossboy is not trained, and that a person like the painter, who is trained for a skilled job, is worth much more than a person who is told "take this and put it there".

Our own observations in the City Council, and the experience we have generally had with African supervisors, indicate that there is a great deal of truth in the disparaging comments which were made about the bossboy. Persons were frequently promoted to the job on the recommendation of the white supervisor, and this was often tantamount to blatant favouritism. The jobs they supervised were essentially simple and required little experience. The bulk of the bossboys who were selected for this study were illiterate. In most cases, the bossboy served no other function than to make tea for the European supervisor and act as his interpreter. This state of affairs did not, of course, prevail in all departments. In a number of instances, bossboys were granted sufficient authority to function effectively and supervised over less simple tasks. In most cases, however, these jobs were done by labourers who were illiterate and had received good training on the job.

The evidence presented, supports our explanation that the reason why the bossboy ranks low is because Africans see it as a straw job. He does little in their eyes which is concrete; he is ill-trained and often uneducated, he supervises simple jobs and has little scope to exercise initiative. The relegation of this job to the bottom of the scale is therefore the result of a number of factors influencing each other. Africans, as we indicated earlier on, have a more pragmatic view of jobs than Europeans. Africans use in their evaluation of jobs the personal experiences they acquired of many of the jobs used in this study. The bossboy

they visualize, is someone they know in real life, often their own bossboy. To European judges, on the other hand, the bossboy is a symbol of delegated authority. He stands for that important concept of front-line supervision, the man who will get results, who is most intimately connected with the workers. It is for this reason that personal attributes play an important part in the comments they make. They may, in their conceptual speculation of the desirable characteristics of a front-line supervisor, have forgotten what, in reality, a bossboy is: an illiterate ganger who acts as the mouthpiece of a European supervisor.

Other factors appear, however, to have influenced Africans in their low evaluation of the bossboy. There is the view that concrete results are more important than supervisory inspection. It is something we find mentioned in comments of all occupational groups, even among bossboys, when they value the job of the pneumatic drill operator over their own. This is perhaps akin to the reason why the Russian emblem bears a hammer and sickle rather than the alpha and omega. Jointly with this view that physical effort and concrete achievements are important, is the importance attached to proper training and education. Many of the judges reject the bossboy, purely on the grounds that he is untrained and his appointment is due to favouritism rather than technical competence. Underlying all this, we note a fair amount of antagonism against white supremacy, and the fact that the bossboy is used to further the control of the dominant white group.

5.5.7 Verbal comments about painter.

The painter is scaled fifth by the European groups. They stress first of all, the responsibility of the job. This means in essence that the painter should produce work of acceptable quality and finish (Table XLIII). He must, moreover, avoid wasting material and show a sense of responsibility because he works on his own. The apprenticeship he has served and the skill he has acquired receive the same emphasis. Hazards at work are mentioned with less frequency, but receive over one tenth of all comments made, almost the same frequency as comments dealing with personal attributes, i.e. the painter must be sufficiently intelligent to learn his trade.

TABLE XLIII. Comments about painter by European group (N = 196).

CATEGORY (Mean number of comments = 4.0)	Number of comments	% of Total
1. Responsibility for the quality and finish of the work; to avoid waste of materials, and because he works on his own.	238	30.4
2. What he knows. He has served a long apprenticeship and is quite familiar with the materials he uses.	164	21.0
3. Skill. This is undoubtedly the more skilled job, it demands a certain touch and a fair amount of artistic quality	150	19.2
4. Work conditions. Essentially the hazard of fall, poisoning from paints, and having to work with pungent smells.	97	12.3
5. Personal attributes. An intelligent person who can learn his trade and who shows some initiative, e.g. selecting his own material, deciding on method of work.	75	9.6
6. Status. He must be treated differently because he is a skilled tradesman.	59	7.5
TOTAL	783	

African groups place less emphasis on the responsibilities of the painter (Table XLIV). When these are mentioned, they refer to the fact that the painter works on his own, and that he must produce work which will be of good quality. But these comments appear fourth or fifth in importance with most groups, excepting the nurses and the artisans, where they appear in the third most frequent category.

The bulk of the comments made by Africans fall into the category of work conditions, skill and knowledge. As the proportions of comments made vary from group to group, we shall discuss each category in turn.

Work conditions refer primarily to work hazards. These are not only due to the fact that the painter works on heights, but also relate to the many dangers caused by paints. The fumes affect the chest; the paints burn the skin; he may catch cold from working on heights; he may be poisoned by some of the paints. Hazards feature most prominently with the policemen whom one can say are attuned to danger and project their own fears in this evaluation. Hazards are also prominently mentioned by labourers in group H, whose work gets them into many dangerous situations, e.g. working in sewers, and by artisans who consider hazards forever present in their jobs and of greater importance than the apprenticeship they have undergone and which is of the past. Groups B and C vary from the rest in that they place greater emphasis on knowledge, i.e. the apprenticeship, than they do on work hazards. The comments of the remaining groups, however, fall predominantly in this category.

Sundry comments refer generally to two things: the unpleasant nature of the work because the artisan is expected to produce results quickly, but also the fact that he produces something tangible, i.e. "he actually works ... at least we see the work he is doing". This form of evaluation is used most frequently by labourers in group H.

A category which features prominently with group AB, but which is also used by the remaining groups, refers to the status of the job. Africans are understandingly proud of the fact that they can acquire a trade and say that the painter is quite capable of painting a white man's house. He is a fully fledged artisan, he can beautify surroundings, and his work to many has an artistic connotation.

TABLE XLIV. Comments made by African groups about Painter.

CATEGORY	AB (N = 28)	B (N = 56)	C (N = 56)	F (N = 56)	H (N = 84)	K (N = 112)	AA (N = 28)	D (N = 56)	EA (N = 28)	EB (N = 28)	G (N = 56)
1. Responsibility	7.0	13.4	15.4	8.4	6.7	7.9	15.8	10.4	7.8	10.8	9.0
2. What he knows	20.9	23.8	27.4	23.1	12.4	18.9	17.1	15.3	23.5	15.4	7.9
3. Skill	19.8	23.8	16.0	22.1	10.1	16.5	14.3	11.8	15.7	16.9	19.1
4. Work conditions	23.2	21.9	17.1	22.1	37.1	28.0	24.3	33.7	25.5	29.2	44.9
5. Personal attributes	8.1	5.5	9.1	2.1	3.4	3.7	7.1	9.2	9.8	3.1	7.9
6. Status	16.3	4.3	8.0	7.4	1.1	4.9	7.1	6.1	5.9	4.6	2.2
7. Mental effort	4.7	4.3	4.0	7.4	3.4	1.8	10.0	4.9	-	3.1	4.5
8. Sunary comments	-	3.0	3.0	7.4	25.8	18.3	4.3	8.6	11.8	16.9	4.5
Total Number of Comments	86	164	175	95	89	164	70	163	51	65	89
Mean Number of Comments	3.1	2.9	3.1	1.7	1.1	1.5	2.5	2.9	1.8	2.3	1.6
Rank of Job in Scale	3	3	3	7	7	6	5	3	6	5	5

Comments dealing with skill and knowledge are essentially the same as those made by the European group, and refer primarily to the apprenticeship the man has served.

It is interesting to note that notwithstanding this appreciating of the skill and hazards of the job, the painter ranks seventh in the scale of semi-skilled workers. A priori reasoning would suggest that they should have ranked this job much higher. It is a job higher in the skill hierarchy to their own, and one to which one would expect them to move or to aspire. Movements into the trades are, however, restricted at present because of the small demand which exists for African tradesmen. The restrictions are just as real as those thrown across occupational lines in America and which Packard has so vividly described in "The Status Seekers" (136). Workers do not therefore aspire to that which is beyond their reach. Secondly, a perusal of the comments made by judges in group F when rejecting the painter, reveals that negative comments are rarely made. Only two out of 56 judges mention the fact that the painter does a light job which is really not physically demanding. We find, however, that emphasis is given to those characteristics of jobs which are scaled higher, together with an acceptance of the skill of the painter. The policeman does a more dangerous job, the pneumatic drill operator does a job which is both dangerous and strenuous, the refuse remover and labourer work much harder. The impression one gains is that the skill and hazards of the painter are perceived, and often mentioned, but that they are held in less account than the particular characteristics which qualify jobs placed higher in the scale.

5.5.8 Verbal comments about pneumatic drill operator.

The drill operator is scaled sixth by the European group in between a skilled job, and a semi-skilled job which is judged to be less demanding as far as physical effort goes, and which possesses fewer unpleasant features. The comments made about this job represent only 8% of all comments made by European judges, but indicate quite clearly the relative importance of the first four categories (Table XLV).

TABLE XLV. Comments about Pneumatic Drill Operator by European Groups (N = 196)

CATEGORY (Mean Number of Comments = 3.3)	Number of Comments	% of Total
1. Work conditions. Primarily hazards to health from vibrations and potential accidents - the work is done in the open and is very noisy.	231	35.4
2. Skill in having to drill to limits or simply in operating the machine.	147	22.5
3. Physical effort. This is hard, strenuous work offering little opportunity to rest.	97	14.9
4. Responsibility. He works on his own and operates expensive equipment.	67	10.3
5. What he knows. Essentially the technical know-how required to assemble the drill to fittings and operate it.	59	9.0
6. Personal attributes. He must have aptitude for mechanical work.	37	5.7
7. Mental effort. He is distracted by the public - needs to concentrate on his work.	5	.7
8. Sundry comments. This is a more important job.	10	1.5
TOTAL	653	

Comments about work conditions are most frequently made. These refer to hazards caused by the excessive vibrations of the machine and the potential dangers the operator is exposed to, e.g. flying rock, the machine falling on him. Emphasis is placed, however, on the noisy conditions of work, something which would strike forcibly any observer of the job. The skill of drilling to limits and in operating the machine receives the second largest number of comments. Physical effort, and the fact that the operator is responsible for an expensive piece of equipment appear in third and fourth place.

African groups are divided in the manner in which this job is ranked. The low status groups place it at the top of their scales, the high status groups are uniform in giving it the fifth place in their scales. The comments they make also differ in emphasis (Table XLVI). The high status groups give slightly more stress to work conditions, the low status groups emphasise more the physical effort of the job. Excepting for groups AA, AB, and B, little mention is made of the skill inherent in the job.

The comments referring to physical effort are usually quite simple and to the point. They refer to the fact that great strength is needed to keep the jerking machine steady, and that it will not cut through rock on its own, but that one must apply muscular pressure. It is "a sweating job"; it strains the muscles; the machine is very heavy. One gets the impression that judges at some stage or other operated the machine either in a full-time capacity or on a brief period of trial. The job of drill operator is considered open to any African who shows an aptitude for it. The most frequent comments about physical effort are made by groups F, H, and K, all of which placed this job at the top of their scales.

The bossboys and nurses placed this job also near the top of their scales, but gave slightly more emphasis to work conditions. We find in this category, comments referring to work hazards and to health dangers. The machine may explode, he may drill into dynamite, stones may fly into his eyes and blind him, ground may cave in, the work is generally very dangerous. Factors which are deleterious to

TABLE XLVI. Comments made by African groups about Pneumatic Drill Operator.

CATEGORY	AB (N = 28)	B (N = 56)	C (N = 56)	F (N = 56)	H (N = 84)	K (N = 112)	AA (N = 28)	D (N = 56)	EA (N = 28)	EB (N = 28)	G (N = 56)
1. Work conditions	41.3	25.4	34.2	39.2	33.5	39.8	33.0	35.9	40.6	45.1	42.0
2. Skill	11.1	9.8	7.5	2.0	-	2.5	7.2	2.8	1.6	1.4	5.3
3. Physical effort	22.2	28.7	25.0	46.6	48.8	44.0	27.8	40.9	39.0	39.7	33.6
4. Responsibility	3.2	5.7	1.7	-	-	1.0	1.0	-	1.6	-	0.8
5. What he knows	12.7	8.2	9.2	1.4	1.6	1.6	13.5	2.8	1.6	1.4	3.0
6. Personal attributes	1.6	7.4	8.3	-	0.4	1.3	6.2	3.5	6.2	1.4	0.8
7. Mental effort	1.6	2.5	3.3	2.7	-	0.3	7.2	2.1	3.2	-	-
8. Sundry comments, i.e. unpleasant job	6.3	12.3	10.8	8.1	15.7	9.5	4.1	12.0	6.2	11.0	14.5
Total Number of Comments	63	122	120	148	248	316	97	142	64	73	131
Mean Number of Comments	2.3	2.2	2.1	2.6	3.0	2.8	3.5	2.5	2.3	2.6	2.3
Rank of Job in Scale	5	5	5	1	2	1	3	2	4	1	4

health are also described in some detail. Frequent reference is made to the dangers of tuberculosis because of the dust the operator inhales. In addition, a wide variety of ailments are noted. His nerves are affected, his hearing is impaired, the machine ruins his mental health, it affects his blood circulation, it weakens his kidneys, it gives him rheumatism. It is the type of job one cannot do for long periods at a time; "one cannot live long after operating the drill".

The vivid and detailed description of these hazards, especially as they are made by widely different occupational groups, makes us wonder whether we have struck with this job a powerful African stereotype. The association of the African with the pneumatic drill can be traced back almost to its introduction in the gold mining industry and the development of deep level minin_. Many of the comments made by our judges refer more to the mining industry than to any elaboration which could be drawn from the picture. The operator works on surface. The dangers of inhaling dust or of caving ground are quite negligible. But there may have developed over the years strongly-held stereotypes about mining activities in general which find themselves associated with the use of the pneumatic drill.

Until we come across more specific information, this must remain as no more than an interesting speculation. We may conclude, however, that to our African judges, the operation of the drill is essentially an unpleasant, dangerous and strenuous job. Skill does not feature prominently in their evaluation of this job. When they place it at the top of their scale this means that they attach greater importance to the combination of unpleasant characteristics in this particular job.

5.5.9 Verbal comments about artisan's hand.

The comments made about this job by the European group are classified in Table XLVII. The two major reasons why this job is of value is because of the knowledge the worker has gained, and the fact that one needs to be intelligent to learn this job quickly. Mention is also made of the fact that the worker must be able to get on with European artisans, that he has acquired some skill, and his assistance reduces appreciably labour costs. This is due to

TABLE XLVII. Comments about Artisan's Hand made by European group (N = 196)

CATEGORY (Mean Number of comments = 1.9)	Number of Comments	% of Total
1. What he knows - essentially his knowledge of tools and his familiarity with aspects of the work of the artisan.	124	33.4
2. Personal attributes. An intelligent person who can learn his job quickly and who can get on with European artisans.	112	30.1
3. Skill - in a number of tasks the artisan delegates to him, e.g. removing tyres, parts of engines, and in assisting the artisan.	42	11.3
4. Work conditions - does dirty work, is exposed to injury and dermatitis from machine oil.	25	6.7
5. Responsibility - looks after tools and maintains them.	24	6.6
6. Physical effort. The work is much harder than that depicted in the other picture.	3	0.8
7. Sundry comments - his assistance cuts down the time a skilled man would spend on a job.	41	11.1
TOTAL	371	

the wide discrepancy in earnings between European artisans and their African assistants, the European earning four to five times as much as an African semi-skilled worker.

The European group scaled this job seventh, above the two labouring jobs. African judges ranked it well below the labouring jobs, last in the scale, or else clustered it with them. Because very few comments are made about this job, their categorization shown in Table XLVIII is not altogether reliable. Where few comments are made, the addition or substraction of one comment from any category materially affects the percentage. We note, however, that the most important category refers to the particular knowledge of tools the artisan's hand has acquired. He knows all the tools by name, he is sent for things he knows, he knows which tools to take out for a particular purpose.

A new category "connection with artisan" refers to the fact that the artisan's hand has learnt many aspects of the job of the artisan, that he has learnt to do them himself, and may in actual fact be asked by the artisan to do them. Sundry comments refer to unpleasant features of the job, and relate to the fact that the artisan generally abuses his assistant. Among personal attributes are mentioned the ability to learn quickly nd of being able to get on with European artisans.

A detailed examination of the negative comments made about the job, i.e. in those particular instances where some other job was preferred, revealed essentially the same picture held about the bossboy. The artisan's hand did little work, his job is a light one. It does not require much intelligence, he is not skilled, no one expects much from him. Other comments are more specific. The artisan's hand does not have to strain his brain thinking because he is told everything he has to do. "He is just a fetch and carry man ... he is a helper ... he does not do the job himself, but helps someone else to do his job". We find here the same image of the straw job which Africans appear to dislike particularly. The artisan's hand achieves precious little on his own: he is there to assist someone else achieve the concrete results they could very likely achieve themselves.

TABLE XLVIII. Comments made by African groups about Artisan's Hand.

CATEGORY	AB (N = 28)	B (N = 56)	C (N = 56)	F (N = 56)	H (N = 84)	K (N = 112)	AA (N = 28)	D (N = 56)	EA (N = 28)	EB (N = 28)	G (N = 56)
1. What he knows	38.3	41.3	41.8	27.9	33.9	29.0	63.4	28.6	27.8	33.3	44.5
2. Personal attributes	14.7	17.5	6.3	4.6	10.2	7.5	-	10.2	33.3	5.6	11.1
3. Skill	14.7	7.9	3.8	9.3	3.4	3.2	10.0	12.2	5.6	-	-
4. Work conditions	3.0	1.6	1.3	2.3	6.8	10.8	-	2.1	-	11.C	-
5. Responsibility	8.8	9.5	11.3	7.0	3.4	2.2	6.7	16.3	11.0	5.6	3.7
6. Physical effort	2.9	4.8	3.8	16.3	22.0	25.8	3.3	10.2	5.6	22.2	3.7
7. Connection with artisan	8.8	7.9	15.2	16.3	-	6.5	13.3	6.1	-	5.6	7.4
8. Sundry comments	8.8	9.5	16.5	16.3	20.3	15.0	3.3	14.3	16.7	16.7	29.6
Total Number of Comments	34	63	79	43	59	93	30	49	18	18	27
Mean Number of Comments	1.2	1.1	1.4	0.8	0.7	0.8	1.1	0.9	0.6	C.6	0.5
Rank of Job in Scale	8	8	7	9	9	9	8	9	9	9	9

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