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EVALUATION AND CLASSIFICATION OF
BANTU JOBS AT THE KLIPRIVIER FACTORY

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EVERITE LIMITED

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COUNCIL FOR SCIENTIFIC AND INDUSTRIAL RESEARCH

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August, 1971

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1. INTRODUCTION

The need for an evaluation exercise incorporating all Bantu jobs found in the Kliprivier Factory of Everite Limited developed as a direct result of a request for assistance in improving Bantu selection methods by means of psychological tests.

A previous report¹ commented in depth on findings relating to the selection of moulders in the Moulded Goods department. The current report, however, is more general in its field of coverage, and relates to the screening and classification of workers in all factory departments. An essential prerequisite for the establishment of general selection procedures is an orderly categorization of jobs into grades on the basis of their relative complexity. Consequently, a full evaluation exercise was undertaken, the findings of which are presented here.

During the course of the evaluation exercise, certain weaknesses and gaps in existing personnel procedures manifested themselves, and though not always relating directly to selection, it is considered of value to the company to incorporate them in the report.

¹R.A. Breger. The Selection of Bantu for a Skilled Job - the Moulding of Asbestos-Cement. An Investigation conducted for Everite Ltd. Kliprivier Factory. June 1971.

2. THE JOB EVALUATION EXERCISE

2.1 The NIPR System

The system of job evaluation developed by the National Institute for Personnel Research is intended to distinguish between the complexity of different jobs relative to one another. It achieves this aim by an analysis of the demands which the jobs make upon individuals performing them, and which the individuals are required to meet for their work to attain a satisfactory standard. Four factors have been isolated as coming closest to providing an accurate reflection of demands common to all jobs, and thus providing a means of direct comparison between the jobs. The factors are:-

- (1) Decisions and Vigilance.
- (2) Controls and Checks.
- (3) Education.
- (4) Experience.

Of these, the key factor is the quality of decision making inherent in a job, and the remaining three factors provide supplementary information designed to reinforce it.

It is important to note that the system concentrates on the job and not on the individual, so that irrespective of whether an incumbent is performing a job well or poorly, the analysis of job demands should yield identical results.

Once all jobs involved in a study have been described and analysed, the factors are rated by a panel and the factor scores are totalled to give a composite score for each job. Following this, the jobs are ranked in their order of complexity, and finally cut-off points for job grades are determined and grade definitions drawn up.

2.2 Evaluation at the Kliprivier Factory

Using the NIPR 'Job Description and Evaluation Training Manual' as the medium of instruction, 5 analysts (4 European, 1 Bantu) were trained to interview and draw up job descriptions of all posts occupied by Bantu personnel in the factory.

The quality of the completed descriptions ranged from good to poor. Of interest is the fact that the highest quality of description was produced by the Bantu analyst. This could be attributed partly to the procedures followed for obtaining job information whereby the European analysts relied upon European supervisors for their information whereas the Bantu analyst interviewed Bantu incumbents directly. Although supervisors can be expected to have an overall knowledge of the content of jobs within their departments, the obvious source of information and the person who can be expected to have the soundest knowledge of job content, is the person performing a job. This procedure was only followed partially due to language difficulties between European analyst and Bantu incumbent, but it is recommended that where new jobs are established (e.g. in the new pipe plant), use be made of the Bantu analyst to produce additional descriptions required.

A panel was established to rate the job descriptions consisting of 2 permanent members - one from the NIPR in the role of chairman, and one member from Everite head office personnel department. Additional temporary members consisted of the head of a division or department when jobs under his supervision were being considered, and where necessary other divisional members when a need was felt to clarify or supplement information contained in the job descriptions.

The procedure of including temporary divisional members on the panel yielded two practical benefits. In the first place, where information in the descriptions was either inadequate or incorrect, the necessary alterations could be incorporated thus enhancing the accuracy of the ratings made. Secondly, the presence and participation of divisional members in the rating exercise helped not only to improve their understanding of the job evaluation process, but also to gain their acceptance of the end results. It was noticeable at the beginning of a rating session that divisional members were hesitant about the potential value of the evaluation exercise, but as the sessions progressed and they began to receive feedback so their attitudes changed, and interest and acceptance developed. This acceptance is an essential facet in the long term success of procedures stemming from job evaluation.

Finally, a noteworthy feature was the continual interest displayed in the exercise by top factory management. Their frequent appearance at rating sessions did much to gain acceptance lower down since it indicated firm support from above.

3. THE JOB CLASSIFICATION

3.1 Job Grading

Classification of jobs into job grades consists initially of a rank order listing of all jobs in their order of complexity from low to high in terms of their composite factor scores. The listing is examined to detect any obvious irregularities in the relative positions of jobs, and then cut-off points are established. This is done by re-examining the listing in an attempt to isolate groups of jobs sharing certain characteristic features. When the features of jobs begin to assume new characteristics, the point at which the change begins is marked off and then jobs above and below that point are studied to ascertain whether the change is suitably distinct for the establishment of a new grade. The procedure is repeated until all grades have been identified.

Once job grades have been clarified, definitions are drawn up describing the characteristics in each grade. These are described firstly in general terms, and then relating to the four job factors.

There is a gradual increase in complexity from grade to grade, and jobs falling within the same grade may be seen as essentially equal in complexity level. Finer distinctions between jobs within a grade should be approached with caution as the system cannot be claimed to have this degree of accuracy. It is for this reason that job listings within a grade are given in alphabetical order rather than numerical order.

It is recommended that copies of grade listings and grade definitions be distributed to all divisional heads so that they may query any apparent misplacings or discrepancies. Any queries which do emerge should be referred back to the original job descriptions and panel ratings, and discussed in the light of these as well as the grade definitions. Only in the case of clear cut misplacements should a job be moved from one grade to another.

3.2 Operational Ratios

A total of 221 jobs were included in the final classification covering 748 workers.

The jobs were broken down into 5 grades ranging from grade 1 - the least skilled category, to grade 5 - the most skilled category.

For selection purposes, grades 4 and 5 have been combined since the Form Series Test does not permit finer distinctions to be made. Generally, grade 1 can be considered unskilled, grades 2 and 3 semi-skilled, and grades 4 and 5 skilled.

Before cut-off points on selection test scores can be ascertained, the number of workers in each grade expressed as a percentage of the total labour force needs to be calculated in order to establish the operational ratios. The following table expresses the relevant grade breakdown.

Grade	Range in combined Factor Scores	Number of Jobs	Number of Workers	Operational ratios . %
1	4 - 23	76	343	46
2	24 - 36	52	163	22
3	37 - 47	52	121	16
4	50 - 63	32	121	16
5	65 - 79	9		

3.3

Grade Definitions

GRADE I

Jobs range from those of general labourers performing straightforward tasks carried out on direct instruction or where a minimum of supervision is required, to jobs which are of a short cycled, highly repetitive nature which may involve assisting or performing work of a low level operative nature.

Decisions are based on simple perceptual cues easily distinguished from their background and requiring the roughest discrimination. In many of the jobs the level of vigilance is enhanced by the need to exhibit care in the handling of asbestos products. Alternatives are clearly delineated by either superior's instructions or set procedure. Consequences of an incorrect decision are generally negligible.

Supervision ranges from the issuing of specific instructions where close control is not required, to more direct and regular control relating chiefly to output since there is limited opportunity for incorrect functioning. In the case of workers involved in line production, feedback on performance may be obtained from other workers in the same section or department where their work is adversely affected.

The majority of jobs at this level require no education although in a few isolated instances there may be the need to read and distinguish between a limited number of words and signs. No previous experience is required, and on-the-job training extends up to 5 - 6 days in order to develop to the required standard of performance.

GRADE II

Jobs are generally short-cycled and repetitive by nature, and are characterized by the emergence of certain elements requiring a modicum of skill in their performance although limited to a specific field.

Decisions are based on more pronounced perceptual cues involving increased acuity, but are repetitive and necessitate only minor variations on problems experienced previously. The number of alternatives to be considered widens, though closely regulated by standard operating rules and procedures. Consequences of an incorrect decision may lead to minor delays or limited cost through wastage although feedback tends to be rapid.

Supervision is comprehensive and regular, tending at the higher level of the grade to be exercised on completion of a process where each element of the process is not directly controlled. The presence of operating rules and regulations permits minor discretion to be exercised within clearly defined limits, and interaction between line workers provides a supplementary source of performance feedback.

Educational demands range from no previous schooling required up to a maximum of 2 - 3 years formal schooling in order to develop sufficient knowledge to be able to perform simple calculations and carry out low level reading and writing. On-the-job training is generally in the region of a week although it can extend to two weeks to develop competence, and at the upper end of the grade previous departmental experience in a superficially related job may be required.

GRADE III

Jobs remain relatively short-cycled but are more semi-repetitive by nature. The jobs are typified either by the degree of versatility which now emerges or the more clearly defined skill demands which manifest themselves. Lower level supervisory positions also begin to appear at this level.

Decisions are based on the recognition of cues involving some skill and knowledge elements in their perception. Problem situations, although having their alternatives governed by set standards and regulations, are generally semi-repetitive and may require co-ordination and integration of cues giving rise to the situations. Consequences of incorrect decision making can involve the organization in limited costs and need to be appreciated as such.

Supervision is generally thorough but less frequent and at the higher levels of the grade only exercised on completion of a number of processes. The field of interaction also widens, remaining within the department lower down but higher up feedback may be obtained from other departments on goods passed on to them. The need to exercise own discretion in specific areas begins to manifest itself more clearly in the supervisory positions.

All jobs in the grade require formal schooling of at least 2 - 3 years since in many instances there is the need to read or complete production records, delivery notes, etc. Related in-company experience is essential, more commonly on a specific helper basis in order to develop accuracy, skill, and an understanding of relationships existing between various work processes.

GRADE IV

Jobs retain certain semi-repetitive components but are more typically characterized by the presence of demands based on skill and experiential requirements developed over a period of time. Incorporating many supervisory and/or positions of authority, the degree of responsibility found in the grade differentiates it from jobs found in the lower grades.

Decisions have varied alternatives involving clearly defined educational and skill demands for their correct perception and integration, since cues may be indistinct and require elaboration. Nevertheless, the presence of company rules and regulations together with the knowledge of precedent do provide guidelines to the eventual choice of alternative. The inherent responsibility in many of the jobs necessitates a greater awareness of the consequences of an incorrect decision since they can adversely affect both company image and/or costs.

Direct supervision generally consists of random checks on work progress, or else checks dependant upon reports made by incumbents. Work is conducted more or less independantly, and there is scope for initiative to be exercised within the framework of operating rules and procedures without recourse to higher authority. Feedback on performance from sources other than the direct supervisor is generally external to the department and may involve people outside the company.

Formal schooling extends up to 4 - 6 years to accommodate various clerical procedures relating to a specific field of activity and also to facilitate calculations which may involve the use of simple formulae. Attendance of company courses may be required to develop proficiency in a particular field e.g. driving. Experience ranges from that which is specifically related on a helper basis up to experience of a number of processes within a specific field, and at the upper extremity sufficient experience to obtain a depth understanding of the processes involved in a number of jobs. On-the-job training varies between 3 weeks and 2 months to develop job competence, particularly in supervisory positions.

GRADE V

Educational and experiential demands of the previous grade become more accentuated at this level. Similarly, the level of responsibility is greater since the consequences of error can result in tangible costs to the organization which may take time to remedy.

Decisions rely heavily on sound background knowledge and fairly extensive experience within a particular field to detect cues which may require considerable elaboration and interpretation before a meaningful picture emerges. Self-reliant functioning may be required since advice from higher authority is not always readily available. Responsibility for others, or for quality and output of production goods imposes demands in which the permissible margin of error is of necessity narrow.

Direct controls range from random to spot checks by the supervisor, although in many instances control is exercised either by the meeting of schedules or else through verbal and/or written reports being submitted by incumbents. There is considerable scope for independent functioning. Feedback on performance generally remains external to the department, may relate to the performance of subordinates, and can involve some delay.

Educational requirements can range as high as 10 years of formal schooling since work can involve the reading and writing of material containing a number of technical terms applicable to a specific field or the performing of statistical calculations involving various formulae. It may also be necessary to attend both internal and external courses in order to develop proficiency on the job. Experience ranges from that involving knowledge of a number of processes within a specific field to a depth understanding of the functions and inter-relationships of tasks and/or posts in a department. On-the-job training varies from 5 weeks upwards to develop and refine the various skills required.

4. SELECTION AND PLACEMENT

4.1 General Selection

It is recommended that the Form Series Test be used as a general screening device for all incoming labour. On the basis of test performance, each employee can be placed into an appropriate skill grade as defined in the previous chapter. In the event of no vacancy existing in a relevant skill grade, an employee should be placed in a lower grade and his record card marked to indicate his potential for promotion should a suitable vacancy occur in the future.

The F.S.T. results of 180 workers at the Kliprivier factory were normalized to give their distribution in terms of percentile rank and stanines (Appendix 2). These norms, together with the skill grades generated from the job evaluation form the basis of future Bantu selection and placement. The following table reflects test cut-off points for the different skill grades.

Grade	F.S.T. Cut-off Point (Raw Scores)
1	1 - 8
2	9 - 12
3	13 - 15
4	16 - 18

Providing that future labour is recruited from a similar population to that on which the norms are based, use of the cut-off points should result in a comparable number of workers being engaged per grade in relation to the numbers likely to be required for each grade.

4.1.1 General Selection and Placement Procedure

- (a) Test all job applicants on the F.S.T.
- (b) Classify candidates according to their F.S.T. scores (see above table).
- (c) Place candidates in jobs in appropriate skill grades. It is important to take into account the specific requirements for each job through

reference to the relevant job descriptions, and to ensure that candidates meet the specifications. Thus, educational and experiential demands must be considered, particularly at the higher grade levels, and where a candidate is lacking in the necessary expertise he can be placed provisionally in a lower grade for developmental purposes (see 5.1.4).

4.2 Selection of Moulders

As indicated in a previous report, it is recommended that selection of moulders be conducted on the basis of performance on two tests:-

- (i) Abstract Spatial Relations Test (A.S.R.T.)
- (ii) Paper Pricking Test (P.P.T.).

From an analysis of test results on the samples tested (moulders and non-moulders), the following cut-off points appeared to be the most suitable:-

- (a) Raw Score of 10 and above on the A.S.R.T., and
- (b) Raw Scores of 49 and above (Stanine 6) on the P.P.T.

Since the study on moulders indicated that cognitive functioning was not a suitable distinguisher of potential job success, it will be possible to screen applicants who have not achieved a high enough score on the F.S.T. to enable them to be considered for grade 3 jobs, and hence the jobs of moulders grades 2, 3 and 4. The actual approach followed will depend upon a policy decision on the part of the personnel department, but the procedure given below is recommended.

4.2.1 Procedure for Selection of Moulders

- (a) Test and classify all applicants on the basis of F.S.T. results.
- (b) Test all applicants on the A.S.R.T.
- (c) All applicants attaining a raw score of 10 and above to be screened on the P.P.T.

4.3 Test Administration

In order to maintain testing procedures at an acceptable standard, certain procedures and principles need to be adhered to. Many of the factors have already been met by Everite, but for completeness of information are given in Appendix 4.

4.4 Discussion

The value of psychological tests lies in their indication of a man's potential. Therefore, the results provide a guide to the placement and development of individual workers. Other factors such as previous experience, merit, etc. also provide relevant information and need to be taken into account during the selection and placement process.

Since the tests only measure potential ability to meet job demands, the tendency to assume that test achievers will of necessity be industrious and reliable workers must be guarded against. Work performance and job stability are influenced by a number of factors including inter alia supervision, motivation, training, working conditions, and factors outside the working environment.

Correct placement does, however, have a positive effect on job satisfaction, labour turnover, and related issues. It also assists in reducing training time and improving labour efficiency. The ultimate success of aptitude testing lies in its effective incorporation into the personnel function in conjunction with other personnel processes such as training and supervision.

5. COMMENTS ARISING FROM THE STUDY

Although the primary aim of the exercise was to arrive at a classification and grading of Bantu jobs, the value of the information is dependant more upon the successful implementation of procedures relating to secondary aims based on the classification and grading. The previous chapter considered one of the chief secondary aims - the implementation of selection procedures, whereas the present chapter discusses other secondary aims. In addition, certain findings emerged, which though not directly related to the job evaluation exercise, nevertheless merit some comment. It is possible that action may have already been planned by the company on points arising under the findings, in which case the report may provide some re-inforcement.

5.1 Rationalization of Organization Structure

Since the NIPR evaluation system is based upon an assessment of mental demands common to all jobs, it provides a universal means of comparison ranging through the entire hierarchy of Bantu jobs. Jobs which are essentially technical in nature can be compared directly to jobs of a more clerical or manual nature because of the common frame of reference. Similarly, lower level jobs (e.g. cleaner, trolleyman, off-loader, etc.) can be compared directly with higher level jobs (e.g. Factory Clerk, Boss Boy, First Aider, etc.).

5.1.1 Manning

Preparation for the job description exercise revealed no up-to-date centralized breakdown of jobs by department or division. In consequence, planning for future labour requirements is handicapped by the absence of basic information on which to base estimates. It is believed that work is underway for the establishment of manning procedures, and it is recommended that these should include the determination of standard strengths for all sections within the factory. The standard strengths should be expressed in terms of job positions and number of incumbents per position, as well as grades of the jobs. This should also assist divisional heads in the budgeting of their costs, and introduce an element of cost control which is not currently present.

5.1.2 Establishment of Rational Wage Structure

The job evaluation has revealed a number of jobs which by virtue of their titles and the traditional manner in which they are viewed are regarded as being on a par with one another, whereas markedly different levels of demands are actually being imposed on the incumbents holding them. A good example of this is a number of stockyard Boss Boys who are found in the semi-skilled grade 3 and yet are grouped together with Boss Boys found in higher grades. The problem can be overcome by introducing differential Boss Boy titles (e.g. Boss Boy grade 1, Boss Boy grade 2, etc.), or by altering job content (see section on job design). Wherever any differential status is found, this should be reflected in the wage structure.

No firm wage policy was found to exist for Bantu workers in the factory, and in fact records only give individual wage levels and not job wage levels. It is recommended that a comprehensive wage policy be established including inter alia:-

- (a) Clearly defined wage ranges for each grade, with specifications being set up for each job enumerating commencing wage and maximum wage attainable.
- (b) A policy statement on overtime and shift differential.
- (c) A statement of incremental policy clarifying both the dates for increments and also company policy on whether these are granted automatically on length of service or based on performance appraisal. Incremental policy should be communicated to all workers affected by it.

It may be found in a number of cases that the NIPR grading does not agree with levels specified under the Wage Determination Act (e.g. Assistant Inspector in the Factory Laboratory is classified under the NIPR method as being unskilled and falling into grade 1). Where such instances occur, if the Wage Determination grading is too low then the job should be upgraded and appropriate adjustments made, and if the grading is too high then the job should be redesigned to bring its demand level up to par.

Workers should in no way be penalized or adversely affected if their current wages are found to be out of alignment with a new salary structure. Where wages are found to be too low, suitable upward adjustments should be made. Conversely, where existing wages are found to be too high one of three alternatives can be followed:-

- (i) The job can be redesigned to bring its demand level up to par.
- (ii) Where an incumbent is not capable of handling a more demanding job, he can be transferred to another job where wages are on a par with those he is receiving.
- (iii) Where neither (i) and (ii) are possible, the incumbent should be retained at his current wage until he leaves the company's employ.

5.1.3 Fringe Benefits

It is not known whether any fringe benefits are available to Bantu workers, but if they are then the grade structure provides an objective platform on which to base them. For example, benefits such as differential compound housing, bonuses, leave allocations, etc. can all be based on the grade structure. As in the case of incremental policies, policies relating to fringe benefits should be effectively communicated to all workers concerned.

5.1.4 Promotional Routes

This has been touched on in the previous chapter, but needs to be expanded upon. The ability to progress upwards in an organization has been found in numerous studies not only to have a positive motivational effect, but also to result in more effective utilization of labour resources. With the aid of the evaluation grade structure, it becomes possible to plan the most appropriate experiential route for jobs above a certain level, where each job leading up to a particular position becomes progressively more demanding. During selection, an individual may reveal the potential to perform a high level job, but due to his lack of experience cannot move directly into it. Under the situation described here, however, he can be placed into an appropriate lower level position and then after a period of time, if his performance is found to be adequate, he can be promoted to a higher position before he becomes dissatisfied with the demands made on him.

5.2 Returning Workers

One of the problems said to be experienced by the company was that of attracting contract workers back for a second or third tour once they had completed their initial contracts. The situation aggravates the training problem and means that there is a constant inflow of inexperienced workers who require some adjustment before they are fully productive. All the points raised in this chapter could have a bearing on the problem in terms of making the factory a more attractive employment prospect. A further possible means of persuading workers to come back would be to regard the return to their home areas as extended unpaid leave. Consequently, if they returned to the company they would be guaranteed the same wages and benefits received at the time of their departure, and where possible would be offered the same jobs they had vacated.

5.3 Job Design

A small number of South African companies have been attempting to raise the motivational level of their Bantu workers with a view to increasing productivity by means of job design. Initial reports indicate that a reasonable degree of success has been obtained. H.M. Rush in an article entitled 'Motivation Through Job Design'¹⁾ says "the primary emphasis in job design . . . is on creating a working climate in which the self-actualizing needs of the mature individual can be met, at least partially, through the work performed daily". By equating the goals of the individual with that of the organization through creating more meaningful and challenging work certain benefits have been shown to accrue. These include increased productivity, concomitant reduction in the size of the labour force, reduced wastage, reduced labour turnover etc.

Various techniques of job redesign are available and include job rotation, job enlargement, and job enrichment. The particular technique or combination of techniques followed is dependant upon company philosophy and availability of

¹⁾ The Conference Board Record. January 1971.

competent personnel to implement the plan. Numerous instances were noted in the factory of possibilities existing for job design, and one or two examples will be discussed. Certain low level white jobs can be passed on to Bantu operators within legislative requirements. It was mentioned that the post of forklift driver may soon be performed by Bantu workers. Due to the restricted range of jobs available to Bantu, it is likely that this job will attract a fairly high level Bantu worker.

A number of Boss Boy jobs were found to fall into Grade 3, and almost without exception these jobs were found to occur in the various stockyards. At the same time, each of the stockyards was manned by a Boss Boy (Factory Clerk). It is probable that the two jobs can be combined to give a single higher level job, which, whilst halving the personnel involved, creates a more demanding job in its stead. Other aspects of job design will be mentioned in the following section on Training.

Should a job redesign programme be implemented, its success or failure will depend to a large extent on the acceptance and co-operation received from European supervisors. The aims of the project will have to be explained to them before it gets underway, and any doubts they may have should be cleared up. The supervisors will have to learn to place greater responsibility in the hands of their subordinates. Initially it would probably be advisable to carry out a pilot study in a department where there is a receptive supervisor. There is no more effective way of converting reluctant supervisors than by the production of results to reveal the effectiveness of a method.

The job description and evaluation exercise can assist a job design programme in two ways. Firstly, the job functions set out in the general description provide readily available information on job content and can serve as a basis for a preliminary examination of a job. Secondly, the two main factors - 'Decisions and Vigilance' and 'Controls and Checks' serve as a reliable barometer on whether changes made are actually creating a more demanding job. Thus, if higher level tasks are incorporated into a job's functions this will be reflected immediately in an analysis of the decision making complexity. Similarly, if a greater degree of responsibility is given to a job this will result in an increased score on 'Controls and Checks'.

5.4 Training

Apart from the moulding school, there appears to be little systematic training either formal or on-the-job conducted in the factory. The evaluation exercise revealed a number of areas where training of a specific kind may prove to be beneficial, but the comments given here cannot be considered comprehensive.

5.4.1 Induction

A new worker entering a company, particularly if he is industrially inexperienced requires a period of time to re-orientate himself and adapt to his changed environment before he can become a productive asset. The re-orientation period can be reduced, however, if he receives some form of induction training designed to inform him about the company. Content normally found in induction programmes include an account of obligations to the company and also what can be expected from the company in return. They cover a brief introduction to company products and departments, personnel policy, company rules and regulations relating to employees, etc. Training should be given in the home language of the employee, and when dealing with relatively low level workers should be amply illustrated with slides or photographs. Any queries which the employees have should also be answered as comprehensively as possible. In a nutshell, induction training lets an employee know just where he stands in the company.

Everite is an asbestos goods manufacturing company, and repeatedly during the job rating divisional heads expressed the need to give credit to employees right down to the lowest level for the handling of asbestos products. It is suggested that since this is a practically universal job requirement, the most appropriate place to give training in the care and handling of products is during induction.

5.4.2 Supervisory Training

It is not always feasible to run a large training school providing formal training for all jobs in a company since at any one time the demand for a particular type of training may be too limited to warrant the presence of a full time instructor. However, without the presence of such a school, the responsibility for ensuring that work is correctly carried out falls upon supervisors - both European and Bantu.

Consequently, it is recommended that Everite attempt to introduce the Training-within-Industry (T.W.I.) approach to the company. T.W.I. was developed during the second world war when there was a need to provide rapid training for a large number of people in a variety of tasks. The technique has been extensively adopted by industry both in South Africa and abroad with considerable success. The system comprises three courses: job methods, job instruction, and job relations, and training for Bantu supervisors is provided by the National Development and Management Foundation (N.D.M.F.)²⁾.

It is suggested that two senior Bantu employees (possibly attached to the personnel department) be trained by the N.D.M.F. as T.W.I. instructors. These instructors will then be in a position to train Boss Boys employed by the factory on an in-company basis. It is only when the Boss Boys have been given the opportunity to acquire skills associated with effectively training others that trainees will be able to gain proficiency in their jobs in the shortest possible time. The training should also help to improve motivation amongst Boss Boys since it will be increasing their level of competence and at the same time provide them with more challenging goals.

The T.W.I. training of Boss Boys should be accompanied by similar training for European supervisors as this should assist in re-inforcing the principles taught, and also lead to improved relations between black and white workers. The NIPR has developed a set of programmed self-instruction manuals on T.W.I. principles, and being re-usable, the manuals may be appropriate for the need. At present the manuals are only available in Afrikaans, but it would appear that the majority of white supervisors at Kliprivier are Afrikaans-speaking.

5.4.3 Quality Control Training

Much of the work performed by Bantu in the factory consists of short length production line runs of an operative nature. Invariably at the end of a line there is an inspector who checks for flaws, faulty workmanship, etc. However, although all operators do have a duty to provide a rough, initial check on goods passing

²⁾ Mr. Theo Visser, National Development and Management Foundation,
P.O. Box 31793, Braamfontein, Transvaal.

through their hands, there is no procedure for individual operators to receive feedback on the acceptability of goods. Tying up with what has been said in section 5.3 on job design, it is suggested that operators be given thorough training in quality control, and at the same time channels be developed by means of which faults can be traced back to individual workers. The latter point is intended not so much as a supervisory control instrument but rather an instrument by means of which the individual operator can control his own standards.

5.5 Standardization of Personnel Policy

R.M. Aldrich in the 'Principles and Practice of Management' says "the value of a sound personnel policy cannot be over-estimated. It does not mean lavish expenditure, or spectacular welfare amenities. It means broad lines of guidance for managers and foremen, to encourage them to maintain standards of justice and supervision which will keep morale on a high level and so contribute to effectiveness of operation".

It is recommended that a written statement of personnel policy for Bantu employees be formulated covering all functions in which the personnel department is involved. This has a twofold purpose. In the first instance it will assist in clarifying the aims of management and the personnel department towards Bantu employees, and will isolate areas in which insufficient attention is at present being given. Secondly, it will serve as a means of reference for all European supervisors in their dealings with subordinates. A sample of areas which should be covered include:

- recruiting
- test administration and selection
- placement
- induction training
- job training
- transfers
- promotions
- welfare (leave conditions, sick leave, etc.)
- compound
- record keeping
- wage determination
- discipline
- separations practices (resignations, dismissals, etc.).

The policy should be made available to the Induna or Bantu personnel officers so that in the event of a query from a worker they can inform him of his rights and obligations.

5.6 Maintenance of Job Evaluation System

It is seldom that the content of jobs remain static over a period of time. Therefore, to be effective and reliable it is necessary for job descriptions to be checked against actual job content at periodical intervals. Where changes are found to have taken place the descriptions need to be updated, and new gradings assigned where relevant. A period of 1 year is suggested as being economical and practical. All divisional heads should receive copies of job descriptions of jobs falling within their supervision in addition to those maintained by the personnel department. If any obvious changes do take place between review periods, it then becomes a simple task for the changes to be reported to the personnel department for updating of descriptions.

6. CONCLUSION

The report presents the various job grades identified during the job evaluation exercise together with a number of recommendations on how the information can be utilized. It must be emphasized that the evaluation study is not an end in itself, but simply an essential basic tool on which to base a sound personnel management programme.

Considerable time has been spent on discussing changes which can be undertaken as a result of the study particularly with regard to job redesign. Change of any nature, however, can be perceived as a threat by the individual who is directly affected. It is important therefore to communicate notice of any impending changes to the individuals concerned, and also to satisfy them that they stand to benefit as a result of the changes.

Various recommendations may lead to an increase in the paperwork burden of both supervisors and the personnel department if followed up, and as such may be resented. Once again it is important to convince those concerned of the value of the changes and to elicit their full support. The keeping of accurate statistics relating to production (both output and quality), and labour (e.g. absenteeism, turnover, etc.) should reveal the benefits which can be expected, and can therefore be used to persuade reluctant staff members to modify their behaviour. However, results should not be expected to occur overnight, and it may take a year or more before improvements become clearly noticeable.

The NIPR was requested to list an order of priority for implementing recommendations, and therefore these have been listed into 3 phases, of which phase 1 is the most pressing.

PHASE 1

- (1) Completion of all selection procedures and supportive systems.
- (2) Development of statistical monitoring systems to assess weak areas and effectiveness of changes.

PHASE 2

- (1) Clarification and standardization of Bantu personnel policy.
- (2) Implementation of induction training.
- (3) T.W.I. training for supervisors.
- (4) Attendance of N.D.M.F. courses on T.W.I. by 1 or 2 Bantu staff members.
- (5) Implementation of revised wage structure.
- (6) Identification and implementation of developmental and promotional procedures.

PHASE 3

- (1) Training of Boss Boys in T.W.I. techniques by trained Bantu staff members.
- (2) Establishment of manning section.
- (3) Survey of training needs and rationalization of training department.
- (4) Pilot study on job redesign.

APPENDIX 1

List of Graded Jobs

GRADE 1

Code No.	Job Title	Section	Department/Division
M8	Artisan's Assistant	Workshop	Maintenance
A5	Artisan's Assistant Labourer	Mould Maintenance	Moulded Goods
K5	Assistant Inspector	Quality Control (Pipe Plant)	Factory Laboratory
L17	Assistant Mandrel Extractor	Pipe Production	Pipe Plant
L9	Bag Mover	Hard Waste Recovery	Pipe Plant
L29	Boring Mill Assistant	Joint Turning	Pipe Plant
L1	Cleaner	Raw Material Store	Pipe Plant
I4	Cleaner (Compound Area)	Compound	Personnel
M1	Cleaner	Garage	Maintenance
C28	Crane Boy	Hard Sheet Cutting	Sheet Plant
C46	Crane Slinger	Sheet Production	Sheet Plant
C4	Cross Cut Machine Labourer	Window Sills	Sheet Plant
C11	Driller	Sheet Coating Plant	Sheet Plant
A21	Electric Trolley Operator	Stockyard	Moulded Goods
C44	Gauging Boy	Sheet Production	Sheet Plant
D5	General Factory Clerk	Rotaprint	Advertising
L8	Hazemag Feeder Hard Waste Handler	Hard Waste Recovery	Pipe Plant
C17	Labourer	Flat Sheet Stockyard	Sheet Plant
A 20	Labourer Stockyard (Cleaner)	Stockyard	Moulded Goods
B 7	Labourer (office cleaner)		Administration
C24	Labourer	Corrugated Sheet Stockyard	Sheet Plant
C22	Labourer	Hard Sheet Cutting Stockyard	Sheet Plant
C26	Labourer (Loader)	Autoclave/Hard Sheet Production	Sheet Plant
C19	Labourer (Loader)	Flexit & Cladit Stockyard	Sheet Plant

Code No.	Job Title	Section	Department/Division
F1	Labourer	Joints and Fitting Stores	Factory Sales
A28	Labourer (Hand Sander)	Dry Cleaning	Moulded Goods
K4	Labourer	Quality Control (Sheets and Moulded Goods)	Factory Laboratory
H1	Labourer	Sheet Trading Goods	Factory Sales
C16	Labourer (Sorter)	Slate Coating Plant	Sheet Plant
A27	Labourer	Dry Cleaning	Moulded Goods
L2	Labourer	Raw Material Store	Pipe Plant
C2	Labourer (cutting machine)	Window Sills	Sheet Plant
G1	Labourer	Cash Sales Depot	Factory Sales
H2	Labourer (Trainee Factory Clerk)	Sheet Trading Goods	Factory Sales
C32	Labourer (Cross Cut Machine Operator)	Special Hard Sheet Cutting	Sheet Plant
L23	Lathe Assistant Operator	Pipe Finishing and Testing	Pipe Plant
G2	Loading Boy	Cash Sales Depot	Factory Sales
A24	Loading/Transporting Labourer	Stockyard	Moulded Goods
E2	Lorry Loader	Despatch	Factory Sales
C12	Machine Feeder	Slate Coating Plant	Sheet Plant
J2	Machine Operator (lawn mower)	Auxiliary	Personnel
L32	Machine Operator's Assistant	Pipe Auxiliary	Pipe Plant
L41	Mandrel Feeder	Pipe Production	Pipe Plant
L35	Mandrel Turner's Assistant	Pipe Auxiliary	Pipe Plant
E5	Messenger	Despatch	Factory Sales
E10	Messenger	Despatch	Factory Sales
C39	Mix Preparing Hollander	Sheet Production	Sheet Plant
I5	Office Cleaner	Compound	Personnel
A19	Offloaders and Transporters	Stockyard	Moulded Goods

Code No.	Job Title	Section	Department/Division
C47	Offloading Boy No. 2 Machine	Offloading	Sheet Plant
C49	Offloading Boy Machines 1 & 3	Offloading	Sheet Plant
L4	Paper Sorter and Baler	Raw Materials Store	Pipe Plant
L27	Pipe Loader	Pipe Finishing & Testing	Pipe Plant
E4	Railway Truck Loader	Despatch	Factory Sales
A9	Roller Operator	Production	Moulded Goods
C31	Sanding Belt Machine Operator	Hard Sheets	Sheet Plant
I3	Sanitary Cleaner	Compound	Personnel
J1	Sanitation Man	Auxiliary	Personnel
M10	Slurry Dam Labourer	Slurry Dam	Maintenance
C38	Solvo Pulper	Sheet Production	Sheet Plant
L31	Spacer Inserter	Joint Turning	Pipe Plant
L34	Spray Pipe Driller Assistant	Pipe Auxiliary	Pipe Plant
A14a	Sweeper	Production	Moulded Goods
A14b	Sweeper (operating hoist)	Production	Moulded Goods
E1	Sweeper	Despatch	Factory Sales
A10	Tank Fillers	Production	Moulded Goods
B6	Teaboy		Administration
L24	Test Machine Boy	Pipe Finishing & Testing	Pipe Plant
A4	Transport Labourer	Mould Maintenance	Moulded Goods
A17	Transporters from Maturing	Maturing	Moulded Goods
A16	Transporters from Wet Cleaners to Maturing	Maturing	Moulded Goods
A12	Trolleyman	Production	Moulded Goods
A26	Wet Waste Collector	Wet Waste	Moulded Goods
C45	Wet Waste Dissolver	Sheet Production	Sheet Plant

GRADE 2

Code No.	Job Title	Section	Department/Division
D4	Addressograph Operator	Rotaprint Despatch	Advertising
L15	Assistant Callandar Operator	Pipe Production	Pipe Plant
L3	Bag Collector	Raw Materials Store	Pipe Plant
I6	Beerhall Attendant	Compound	Personnel
N2	Bricklayer's Machine Boy	Building	Maintenance
A 29	Carpenter's Assistant	Carpenter Shop	Moulded Goods
N3	Carpenter's Machine Boy	Building	Maintenance
J4	Cleaner/Messenger	Auxiliary	Personnel
I1	Compound Cook	Compound	Personnel
L19	Crane Slinger (Crane No. 4)	Pipe Production	Pipe Plant
L20	Crane Slinger (Crane No. 5)	Pipe Production	Pipe Plant
L21	Crane Slinger (Crane No. 6)	Pipe Production	Pipe Plant
L26	Crane Slinger	Pipe Finishing & Testing	Pipe Plant
C42	Cutter No. 2	Sheet Production	Sheet Plant
L22	Cutting Wheel Operator	Pipe Finishing & Testing	Pipe Plant
F3	Gauge Boy (Rubbers)	Joints and Fittings	Factory Sales
F4	Gauge Boy (Fittings)	Joints and Fittings	Factory Sales
M2	Greaser/Cleaner	Garage	Maintenance
A 2	Hand Disc Sander/ Assembler	Dry Cleaning	Moulded Goods
C13	Inspector	Slate Coating Plant	Sheet Plant
C37	Koller Gang Boy	Sheet Production	Sheet Plant
M5	Labourer	Sewerage	Maintenance
C6	Labourer-Drilling Machine	Window Sills	Sheet Plant

Code No.	Job Title	Section	Department/Division
C 8	Labourer-Sanding Machine	Window Sills	Sheet Plant
N1	Machine Boys	Building	Maintenance
C35	Mitring	Corrugated Sheets	Sheet Plant
L12	Mix Preparing Koller Gang	Pipe Production	Pipe Plant
A 29	Mould Cleaner	Mould Making Shop	Moulded Goods
A 30	Moulder Grade 1	Production	Moulded Goods
J5	Nurseryman	Auxiliary	Personnel
C50	Offloader Machines 1 & 3	Offloading/Sheet Production	Sheet Plant
C48	Offloader Machine No. 2	Offloading/Sheet Production	Sheet Plant
C9	Operator-Buffering Machine No. 1	Window Sills	Sheet Plant
B5	Outside Messenger		Administration
L25	Pipe Stenciller	Pipe Finishing and Testing	Pipe Plant
E6	Saw Operator-Packing Gates	Despatch	Factory Sales
C36	Silica Feeder Boy	Sheet Production	Sheet Plant
C18	Slate Boy	Flat Sheet Stockyard	Sheet Plant
E9	Spragger-Gates	Despatch	Factory Sales
L5	Stacker	Raw Material Store	Pipe Plant
L30	Stenciller	Joint Turning	Pipe Plant
L39	Stenciller	Pipe Dipping	Pipe Plant
E3	Strapper	Despatch	Factory Sales
A6	Stripping and Wet Cleaning Labourer	Stripping and Wet Cleaning	Moulded Goods
B3	Tea Boy/Boss Boy		Administration
C14	Tile Strapper	Slate Coating Plant	Sheet Plant
A13	Trolley Boy	Production	Moulded Goods
A 25	Wet Waste Dissolver Operator	Wet Waste	Moulded Goods

GRADE 3

Code No.	Job Title	Section	Department/Division
M9	Artisan's Assistant/Tea/Messenger	Workshop	Maintenance
L11	Bend Maker	Pipe Production	Pipe Plant
C21	Boss Boy	Flexit and Cladit Stockyard	Sheet Plant
C51	Boss Boy	Offloading/Sheet Production	Sheet Plant
C23	Boss Boy	Hard Sheet Cutting Stockyard	Sheet Plant
C25	Boss Boy	Corrugated Sheet Stockyard	Sheet Plant
C27	Boss Boy	Autoclave/Hard Sheet Production	Sheet Plant
A22	Boss Boy (Factory Clerk)	Stockyard	Moulded Goods
A23	Boss Boy Stockyard	Stockyard	Moulded Goods
L37	Boss Boy (Factory Clerk)	Pipe Stockyard	Pipe Plant
L6	Bulk Cement Off- Loader	Raw Material Store	Pipe Plant
L16	Callandar Operator	Pipe Production	Pipe Plant
D1	Catalogue Binder	Rotaprint Despatch	Advertising
C34	Corrugated Sheet Cutting Machine Operator	Corrugated Sheets	Sheet Plant
C3	Cross-Cut Machine Operator	Window Sills	Sheet Plant
C43	Cutter No. 1	Sheet Production	Sheet Plant
D12	Display Assistant	Display	Advertising
D8	Drilling Machine Operator	Rotaprint	Advertising
B1	Factory Clerk (Clock Card Clerk)	Time Office	Administration
L42	Fork Lift Driver	Pipe Auxiliary	Pipe Plant
H3	Factory Clerk (Boss Boy)	Sheet Trading Goods	Factory Sales
L38	Factory Clerk	Pipe Stockyard	Pipe Plant
D7	Folding Machine Operator	Rotaprint	Advertising
N5	Trench Digger Driver	Building	Maintenance
M6	Greaser	Workshop	Maintenance
D10	Guillotine Machine Operator	Rotaprint	Advertising

Code No.	Job Title	Section	Department/Division
C30	Hard Sheet Cutting Machine Operator	Hard Sheet Cutting	Sheet Plant
J3	Handy Man	Auxiliary	Personnel
I11	Handy Man	Compound	Personnel
N4	Komatsu Loader Driver	Building	Maintenance
L18	Mandrel Extractor	Pipe Production	Pipe Plant
C41	Mix Boy	Sheet Production	Sheet Plant
L14	Mix Operator	Pipe Production	Pipe Plant
A31	Moulder Grade 2	Moulds	Moulded Goods
C5	Operator-Drilling Machine	Window Sills	Sheet Plant
C1	Operator-Cutting Machine	Window Sills	Sheet Plant
F2	Operator-Drilling Machine	Joints and Fittings	Factory Sales
C7	Operator-Sanding Machine	Window Sills	Sheet Plant
C10	Operator-Buffering Machine No. 2	Window Sills	Sheet Plant
D9	Perforating Maching Operator	Rotaprint	Advertising
N8	Road Sweeper Driver	Building	Maintenance
N6	Road Roller Driver	Building	Maintenance
N7	Road Grader Driver	Building	Maintenance
A8	Sanding Belt Operator and Cutter	Dry Cleaning	Moulded Goods
E8	Saw Operator-Crates	Despatch	Factory Sales
M7	Storeman	Workshop	Maintenance
D6	Stitching Machine Operator	Rotaprint	Advertising
C29	Tea Boy/Messenger	Hard Sheet Cutting	Sheet Plant
A11	Tea Boy/Stamper/Messenger	Production	Moulded Goods
E7	Tractor Driver	Despatch	Factory Sales
N9	Tractor Driver	Building	Maintenance
J6	Tractor Driver	Auxiliary	Personnel

GRADE 4

Code No.	Job Title	Section	Department/Division
I8	Bantu Policeman Compound Gate	Compound	Personnel
J8	Boss Boy	Auxiliary	Personnel
C20	Boss Boy	Flat Sheet Stockyard	Sheet Plant
D11	Boss Boy Guillotine Operator	Rotaprint	Advertising
A1	Boss Boy (Factory Clerk)	Cleaning & Finishing Yard	Moulded Goods
A3	Boss Boy (Factory Clerk)	Mould Maintenance	Moulded Goods
I2	Canteen Boy	Factory Canteen	Personnel
A15	Chopping Boy	Production	Moulded Goods
M3	Driver	Garage	Maintenance
M4	Driver Boss Boy	Garage	Maintenance
I9	Factory Gate Police	Factory Security	Personnel
K2	Factory Shift Quality Control Clerk		Factory Laboratory
F5	Factory Clerk (Boss Boy)	Trading Goods Pipes	Factory Sales
L7	Factory Clerk (Boss Boy)	Raw Material Store	Pipe Plant
N4	Factory Clerk	Asbestos Testing	Head Office Laboratory
N1	Factory Clerk	Development	Head Office Laboratory
I7	Head Cook	Compound	Personnel
L13	Hollander Operator	Pipe Production	Pipe Plant
J7	Lorry Driver	Auxiliary	Personnel
G3	Lorry Driver (Deliveries)	Cash Sales Depot	Factory Sales
C33	Machine Operator	Special Hard Sheet Cutting	Sheet Plant
I10	Main Gate Constable	Factory Security	Personnel
A32	Moulder Grade 3	Moulds	Moulded Goods
A33	Moulder Grade 4	Moulds	Moulded Goods
L33	Operator	Pipe Auxiliary	Pipe Plant
K1	Quality Control Clerk (7-5)		Factory Laboratory
D3	Stock Record Keeper	Rotaprint Despatch	Advertising
D2	Typing Clerk	Rotaprint Despatch	Advertising
M2	Vehicle Driver	Compound	Personnel
L10	Weigher and Tallier	Hard Waste Recovery	Pipe Plant

GRADE 5

Code No.	Job Title	Section	Department/Division
B2	Factory Clerk (Time Office Clerk)	Time Office	Administration
N2	Factory Clerk (Qualified)	Research	Head Office Laboratory
N3	Factory Clerk (Qualified)	Development	Head Office Laboratory
I13	First Aider	Compound	Personnel
C40	Hollander Operator	Sheet Production	Sheet Plant
I14	Induna	Compound	Personnel
C15	Paint Preparer	Slate Coating Plant	Sheet Plant
A18	Production Boss Boy	Production	Moulded Goods
K3	Senior Quality Control Clerk		Factory Laboratory

APPENDIX II

Normalization of Test Scores

On the following pages the full tables of norms generated on the basis of the test results of the sample tested at the Kliprivier Factory are reproduced. At present it is recommended that selection and placement be done solely on the basis of Raw Scores. The additional data (Stanines, Percentile Ranks etc.) is presented for your information.

The norms generated for the Paper Pricking Test are provisional. When a larger sample has been tested it is recommended that the raw scores be forwarded to the NIPR, and the norms will then be revised.

NATIONAL INSTITUTE FOR PERSONNEL RESEARCH

Norms prepared for Bantu workers of Everite Limited, Kliprivier factory.

SAMPLE SIZE: 180

TESTS

SECONDARY INDUSTRY VERSION-FORM SERIES TEST

Raw Score: Mean 9.17 S.D. 4.83

$r_{tt} = .923$ (Kuder Richardson formula 21 with Tucker's correction.)

ABSTRACT SPATIAL RELATIONS TEST

Raw Score: Mean 7.33 S.D. 2.92

$r_{tt} = .756$ (Kuder Richardson formula 21 with Tucker's correction.)

FORM SERIES TEST

Standard Error of Measurement

Raw Scores, $Se = 1.339$

Standard Scores, $Se = 2.774$

Unit Normal Scores, $Se = .277$

Raw Score	Unit Normal Score	Standard Score	Percentile Rank	Stanine
1	-2.20	28	1.4	1
2	-1.60	34	5.5	2
3	-1.10	39	13.6	3
4	-0.80	42	21.2	
5	-0.60	44	27.4	
6	-0.40	46	34.5	4
7	-0.30	47	38.2	
8	-0.20	48	42.1	
9	0.00	50	50.0	5
10	0.10	51	54.0	
11	0.20	52	57.9	
12	0.40	54	65.5	6
13	0.60	56	72.6	
14	0.80	58	78.8	7
15	1.10	61	86.4	
16	1.50	65	93.3	8
17	2.00	70	97.7	9

ABSTRACT SPATIAL RELATIONS TEST

Standard Error of Measurement

Raw Scores, Se = 1.439

Standard Scores, Se = 4.939

Unit Normal Scores, Se = .494

Raw Score	Unit Normal Score	Standard Score	Percentile Rank	Stanine
0	-2.80	22	0.3	
1	-2.50	25	0.6	1
2	-2.10	29	1.8	
3	-1.50	35	6.7	2
4	-1.10	39	13.6	3
5	-0.80	42	21.2	
6	-0.50	45	30.8	4
7	-0.10	49	46.0	5
8	0.30	53	61.8	6
9	0.60	56	72.6	
10	0.90	59	81.6	7
11	1.20	62	88.5	
12	1.50	65	93.3	8
13	1.80	68	96.4	
14	2.10	71	98.2	9
15	2.60	76	99.5	

PAPER PRICKING TEST (PROVISIONAL NORMS)

Raw Score Accuracy on Manipulative Task

N = 78

<u>Raw Score</u>	<u>Stanine</u>
3 - 6	1
7 - 10	2
11 - 16	3
17 - 27	4
28 - 48	5
49 - 75	6
76 - 119	7
120 - 147	8
148 - 199	9

APPENDIX 3

Instructions for the Paper Pricking Test

TEST INSTRUCTIONS FOR THE PAPER-PRICKING TEST

1. "Can you see these dots making a pattern?" (Point at the dots on the poster and wait for an affirmative answer.)
2. "Your job is to reproduce this pattern in these holes". (Indicate the holes of the rod.)
3. "I will show you how."
4. Take the two cylinders and say: "Look at these two things. One has a pin in the middle and the other one on the side. Can you see this?" (Wait for an affirmative answer.)
5. "Now watch carefully how I am going to reproduce this pattern using these two things."
6. Point to the first dot on the poster.
"There is a dot in the middle, I use the thing with a pin in the middle to prick the dot here" (demonstrate.)
7. Point to the four dots on the poster.
"There are four dots on the sides, I use this thing with a pin on the side to prick these dots in here" (demonstrate).
8. Continue in this manner for the first five holes. Be as accurate as possible.
9. "You have seen how I do the job. Now I want you to continue up to the end of the row".
10. Give subject the cylinders and tell him to continue. Where necessary guide him to complete the pattern.
11. After subject has completed the first line remove the practice sheet and insert the test sheet.

"I want you to work as I have shown you. When you hear the gong, start working as fast and as accurately as you can. When you hear the gong again, change the rod to the next row like this (demonstrate) and wait for the gong to go again."

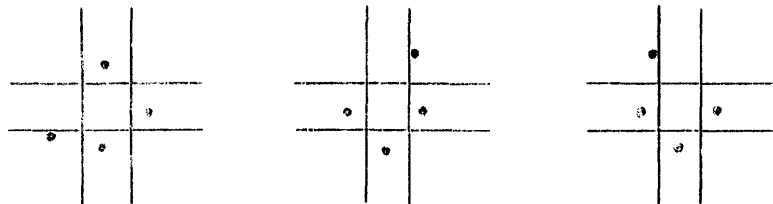
Tester must ensure that subject changes the rod to the correct row each time it has to be moved during the course of the test.

The accuracy score on the manipulative task (i.e. the placement of the 4 dots) should be used. The norms have been drawn up on the basis of the raw scores for this task.

Scoring:

Regard a correct response as being at least 3 out of the 4 dots correctly placed within the dimensions of the scoring-mask.

e.g.



SOTHO INSTRUCTIONS

1. "Na wa bona hore mabala (dilo) ana a entse setshwantsho na?"
2. "Mosebetsi wa hao e tla ba ho etsa setshwantsho sena ka hare ha mekoti ena."
3. "Ke tla le bontsha hore le sebetse jwang".
4. "Sheba ntho tsena tse pedi. E ngwe e na le motsu ka hare, e ngwe e na le motsu ka thoko. Na o ya e bona na?"
5. "Jwale o shebe hantle hore ke tla se etsa jwang setshwantsho sena ke sebedisa ntho tsena tse pedi".
6. "Mona hona le lebala (selo) ka hare, jwale ke sebedisa ntho enang motsu ka hare ho etsa lebala lena mona".
7. "Ho ena hona le mabala a mane ka mathoko, jwale ke tla sebedisa ntho enang le motsu ka thoko ho a etsa.
8. -
9. "Le bone hore ke sebeditse jwang? Jwale ke batla hore le sebetse jwalo ho ya qetellong".
10. -
11. "Ke batla hore le sebetse jwale ka ha ke le bontshitse. Ha le utlwa tshepe, ie qale mosebetsi, le sebetse ka phakiso le hloko e kholo. Ha le utlwa tshepe hape, le theose ntho ena ho tla qala mola o mocha ka tsela ena ha le u tlwa tshepe hape".

XHOSA INSTRUCTIONS

1. "Niyawabona lamachaphaza ukuba enza umfanekiso?"
2. "Nina ke nifanele ukwenza umfanekiso ofana ngwa nalo apha kule minxhuma."
3. "Khangelani ke ndinibonise."
4. "Khangelani ezi ntsinjana zimbini. Enye ine naliti phakhathi enye inaliti yayo isecaleni. Niyayibona lento ndiyi thethayo?"
5. "Qwalaselani kakuhle ke nibone ukuba ndizisebenzisa njanina ezi ntsinjana xa ndisenza umfanekiso ofana nalo".
6. "Apha kukho ichaphaza eli phakhathi ngako oko ke ndihlaba ngale ntsinjana ine naliti ephakhathi ukwenza ichaphaza apha."
7. "Apha kukho amachaphaza amane ase macaleni ngako oko ke ndihlaba ngale ntsinjana ine naliti ecaleni ukwenza lama chaphaza apha."
8. -
9. "Nibonile ke indlela endi wenza ngayo lomsebenzi. Ngoku ke ndifuna ukuba nigqibezele lomgca.
10. -

"Ndifuna ukuba nisebenze ngale ndlela ndinibonise yona. Nakura intsimbi ikhala qalani nisebenze ngokukhawuleza kanga ngoko ninakho kodwa nicoselele nilumkele ukwenza impazamo. Xa intsimbi ikhala kwakhona buyisani lento ineminxhuma niyibeke kumgea olandelayo kanje, nize nilinde ukukhala kwe ntsimbi phambi kokuba niqale ukusebenza kwakhona."

APPENDIX 4

Guide to the Procedures and Principles of Test Administration.

A GUIDE TO THE PROCEDURES AND PRINCIPLES OF TEST

ADMINISTRATION

1. Make sure that all subjects understand the language in which the test is to be administered.
2. Keep test instructions standard. Every time the test is administered the same instructions must be given to the subjects.
3. The functions of a tester are:
 - (i) To administer the instructions of tests to the testees.
 - (ii) Deal with any difficulties that might arise from the instructions.
 - (iii) Start the testees on the test and stop them at the end of the time limit.
 - (iv) Keep control over the group and give them all possible assistance they may require.
 - (v) All instructions to the group as a whole are made through the tester only.
 - (vi) As far as possible to answer all questions.
 - (vii) To hand out test material and to collect it on the completion of a test.
 - (viii) To check that the examples are fully understood.
 - (ix) To keep an eye on the testees, checking that they are doing what is asked of them.
 - (x) To discourage cheating by their presence.

4. Scoring of Tests

Accuracy is most important when tests are to be scored. Check all answers after they have been scored.

5. The testing room

- (i) Quiet and free from disturbances.
- (ii) Well lit and well ventilated.
- (iii) Each subject must have sufficient working area.
- (iv) Every subject must be able to see the posters and hear the test administrator.
- (v) There must be adequate toilet facilities near the test room.

6. Security

In a testing programme where the motivation of testees will be strong to achieve high test scores, the problem of maintaining security as regards the tests, etc., arises. There is the danger of leakage, and the possibility exists that a person may acquire knowledge of the tests beforehand; this prior knowledge will give him unfair advantage over others.

For security reasons it is advisable for all testers to adhere strictly to the following preventative measures:

- (i) Testees should be tested as soon as possible after arriving at the place of testing, in order to prevent them gleaning information concerning the tests from others who have already done the tests.
- (ii) All tests and test materials must be kept under lock and key and only authorised persons allowed access to them.
- (iii) A means of keeping an inventory of the tests should be in operation whereby all tests are numbered and a constant check can be kept on them, in order to prevent any tests being mislaid and hence becoming "lost".
- (iv) At the end of each test session, all tests used must be checked for completeness, but this must not be done while testing is in progress.
- (v) Tests and testing materials, which have been used in error or have been damaged, must be destroyed completely beyond

recognition, but before this is done a note must be made in the inventory mentioned in (iii) above of the numbers of the tests, in order to indicate for future records what became of these tests.

Another aspect of security which does not fall under the more practical measures mentioned above is that of the confidential nature of the actual test score results, personality and temperament comments and final reports of a testee. All information available on a testee must on no account be discussed with any person apart from those members of staff directly concerned with the testee.

The information obtained from the testing of a candidate is strictly confidential and must be treated as such. The tester is in no position to discuss test results with a testee and must pass no comment nor show any indication of what he feels about such scores. Should a testee ask the tester how he has done, a non-committal answer must be given and he should refer the testee to the interviewer.

7. Tidiness and Preparation of the Tests

Neatness and tidiness always give the impression of efficiency. In the testing rooms it is essential to be neat and tidy - it helps create the right atmosphere, and also helps to avoid tests becoming mislaid.

It is a good idea to have all the testing materials needed for a day's testing prepared in advance. It does away with any delays caused by fetching tests from the cupboards or hunting for further stocks of tests when available stocks run out.

