A STUDY OF THE ACHIEVEMENT MOTIVE
IN BANTU MINE WORKERS

Rudolph Karl Deppe

SUBMITTED IN PARTIAL FULFILMENT OF THE
REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS
IN THE DEPARTMENT OF INDUSTRIAL PSYCHOLOGY OF THE
POTCHEFSTROOM UNIVERSITY FOR C.H.E.

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1.1 INTRODUCTION

It is stated in another section of this chapter that motivation is a concept which is extremely difficult to define. In an address at the 1962 Nebraska symposium on motivation Kelly (1962, p. 85) stated:
' .... for two thousand years we have been looking for the thing that is doing the pushing .... We haven't found it yet! It is thus a problem which is not new but yet not satisfactorily solved.
Perhaps it is best to build up a mental concept of what this 'thing' is by saying where it comes from, what it appears to be, and how it fits into general psychological theory postulated by some of the great thinkers in psychological history. Thus by describing its historical origins, defining it and relating it to general theories, a more accurate concept of motivation can probably be obtained than by simply reciting a few random definitions.
This chapter thus concerns itself with what motivation is.

1.2 ORIGINS OF THE CONCEPT OF MOTIVATION: AN HISTORICAL BACKGROUND

It is likely that early man realised that he, in common with animals, possesses the property of self-induced motion. That this is so must have helped him to form a concept of the great difference between animate and inanimate objects. Murphy (1950) has suggested the importance of dreams in assisting a differentiation between man and animal. In a dream, it is possible to go many places and in fact to meet the dead who are once again living, talking and moving. It is possible to do this while the body remains apparently at rest. It has been suggested that this was the germ from which grew the
concept of dualism - a notion which accepts a division between body and soul or spirit.

Dualism entered Western philosophic thought at an early stage, being evident in the Greek philosophy of the 5th century B.C. It is in Socrates, Plato and Aristotle that dualism received clear formulation - a formulation which has guided Western thought for many centuries.

Fundamental to this is the belief that there exists a realm of being which cannot be perceived, which is not dependent upon the senses of perception but which exists in the mind - an idea or concept of a material object. It may be described as the rational representation of that which is concrete and perceived by the senses. This 'idea' also is the very essence and the ultimate reality of the object of perception. Aristotle considered the soul and the mind to be entities separate and different from the body. He describes three grades of souls viz.: the 'vegetative' soul found in all living things and concerned with basic functions; the 'sensitive' soul possessed by animals and men; and the 'rational' soul possessed only by man and concerned with reason. It is significant to note that the 'sensitive' soul had, in addition to the sensory capacity, the power of locomotion as well as appetite.

Conduct, or the understanding of behaviour, received attention throughout the history of thought. Several of the factors described had motivational implications.
Socrates, Plato and Aristotle attempted to determine how virtue could be achieved, i.e. how conduct could be modified or shaped to this end. Socrates apparently believed that knowledge and virtue are identical, and that correct knowledge always leads to correct behaviour. Plato, who advocated the use of contemplation as a means to right conduct, believed that the soul has three parts - a reasoning part and two passionate parts, the latter consisting of one part concerned with willing and one part concerned with sensual appetites. It is implied in his philosophical views that Plato equated virtue with i.a. the control of the passions. Aristotle stated that happiness, which may be regarded as man's highest goal, could be reached by the use of reason to control desires. The ideal was seen as moderation to be reached by an interaction between desire and practical reason.

In Aristotelian ethics, reason alone was not considered to be sufficient for right action. Also required was a will or a strength of will which should be developed by practice - a will to choose that which is indicated by knowledge and reason to be good.

St Augustine regarded the will as the most important aspect of life. The will, which was separate from knowledge, ruled the body. It was opposed however by bodily activities which appeared to overthrow the rule of the will. This belief, viz. that the will formed a sort of controlling body of the passionate or 'animal' aspect of man continued for some centuries and was effectively expressed in Emmanuel Kant who suggested that:
'the ultimate moral and religious reality lies not in the field of knowledge, but in the process of will'.

Instinct was aptly described by St Thomas Aquinas:

'The animal is impelled by sense impulse, directed toward the pleasurable. Man's activity, though impulse plays a part, is motivated by rational insight into the relation between the act and its end, which is the realization of the good.' (Wilm, 1925, p. 64)

Descartes described the idea of 'animal spirits' which moved through tubes connected to muscles, thereby inducing movement. The actions of animals then, were entirely mechanistic, and were determined by the pressures or forces imparted by the animal spirits. In the case of the human being, a similar mechanism existed, but which could be influenced in a non-mechanical way by the soul. Descarte's description may be regarded as being analogous to instincts, which will be discussed in greater detail in the description of the post-Darwinian period.

A notion worthy of mention in any description of the origins of motivational concepts, is that of hedonism. It is generally accepted that pain and pleasure are strong motivators of conduct. Aristippus of Cyrene broadened this concept into a philosophical belief which states that pleasure is the only thing worth striving for. He evidently meant pleasure of the moment. Virtue, according to this belief, was identical with 'the ability to enjoy'. Nevertheless, self-control was advocated. The Aristippian ideal of a wise man was 'that of a perfected man of the world. He is susceptible to the enjoyment of life, he knows what animal satisfactions are, and how to prize spiritual joy, riches and honor.' (Windelband, 1956, p. 149)
The influence of hedonism was not marked, until early in the nineteenth century, when Jeremy Bentham gave the movement what is perhaps its zenith of advocacy. Bentham argued that conduct of practical affairs must accord with what is good, which he defined as pleasure or happiness.

Hedonism still has a significant place in modern concepts of motivation, and will be enlarged upon in a discussion of the various theories of motivation.

Certain points which are implicit in the foregoing should be stressed. Firstly, it may be noted that the existence of motivational forces was recognised at an early stage in man's development, although not necessarily in a systematised way; secondly a general evaluation of human nature conceived of a human being as either good, with evil arising from various causes, or as essentially bad, with the law or social order required to keep him in check.

Thirdly, philosophical thought concerning motivational theory tended to emphasize or consider only one, or a few motives or factors or alternatively, have seen man as being handicapped by some primary factor. These views were reached by the writers on the basis of their own observations and were therefore necessarily limited and varied.

The preceding has mainly centered around trends of thought in early history. Concepts and thought concerning motivation subsequent to this period and before the nineteenth century were mainly variations of the themes discussed here, and do not warrant consideration for the purposes of this study.
The nineteenth century saw a rapid and phenomenal increase in scientific investigation. This was particularly so in the case of physiology, a field which was now for the first time primarily investigated by methods of observation and experiment. The rapid advances made in physiology had a significant influence on psychology, particularly through Wilhelm Wundt, who is generally regarded as the founder of modern psychology. Wundt believed that combinations of feelings with ideational processes produce emotion. Emotions are dominated either by pleasure or by displeasure. Closely related to emotions are volitions which are produced by strong feeling, and which culminate in overt action.

If one historical event were to be singled out as being the most significant in the history of motivational theory it would almost certainly be the publication of Charles Darwin's classic work 'The Origin of Species', published in 1859.

Although a number of works relating to evolutionary theory, and of significance to the development of theories of motivation were published prior to this date, they in no way approach the mass of evidence and the far-reaching influence of Darwin's work.

The aspects of Darwin's theories most significant for the study of behaviour are firstly: the concept that there exists a continuity of development, from the lowest to the highest forms of life, accepting man as an animal and, secondly, the clearly stated belief that adaptation to the environment is necessary for survival - a dynamic concept which superceded the previous emphasis by Wundt on descriptive psychology.
Behaviour is thus seen to serve an organism's needs - a concept which has no influential precedent in the history of Western thought. Cofer and Apley (1964) believe that in this functional approach lies evolution's greatest significance: a model for further study had been created. As a result of this and the belief in continuity of development, certain consequences became evident, one of these being the notion of 'drive', a term used to describe internal states whose consequence is restless activity to be terminated only by consummatory activity or death. A tendency has subsequently developed to equate motivation with these internal states.

Darwin, apart from providing considerable stimulus to subsequent trends of thought in psychology, also made considerable reference to this subject in his work. His work 'The Expression of the Emotions in Man and Animals' published in 1873 adheres to the theory that expressive behaviour is derived from practical functions. He described three principles of emotional expression, the first of which is the principle of serviceable associated habits, viz. that many expressive movements in emotion are vestiges of originally practical movements. The second is the principle of antithesis which states that opposite impulses tend to show opposed movements. The third principle concerns the direct action of the nervous system, where e.g. an overflow into motor channels can cause trembling. Darwin believed that the above were originally voluntary movements which became reflex actions through continued habits, thereafter to be inherited.
A most significant contribution by Darwin to psychology generally, and the field of motivation in particular, was his emphasis on drives to action. The causes of these drives which often seemed to be independent of the influence of learning had already been termed 'instincts'. In his 'Origin of Species' an important chapter was devoted to a discussion of the instincts. It should be noted that in Darwin's theory of evolution, considerable emphasis was placed on the influence of mental factors.

Darwin's greatest contribution to psychology was however undoubtedly via the effect that his work had in influencing subsequent trends of thought both as a stimulus to investigation, and in shaping ideational trends.

In the period which may be termed post-Darwinian, i.e. the late nineteenth and early twentieth centuries, a great deal of attention was given to various viewpoints and formulations concerning instincts as motivators. The textbooks of the period typically gave extensive lists of animal instincts and human instincts.

James (1890) e.g. observing the behaviour of his children and arguing by analogy with the behaviour of the lower animals, differentiated a large number of instincts. He viewed instincts as involving purposive actions, although awareness of such purposiveness was not always present.
William McDougall (1871-1938) was of the opinion that the most important determiners of conduct were instincts and their associated emotions - they were essential for action in an organism. McDougall also laid quite considerable stress on the role of irrational forces in conduct, rather than accept a predominance of reason in motivation. Cofer and Apley (op cit) consider the most important aspect of McDougall's belief to be his continued emphasis on the purpose-directed, striving or impulse-driven character of behaviour.

Subsequent to this period a number of well-ordered theories of motivation were developed by psychological investigators. Among them appear the names of Young, McClelland, Hebb, Hull, Spence, Tolman, Freud and many others. Of these Freud was probably the best known. He may truly be regarded as one of the founders of modern psychology and his work is a milestone in the understanding of motivation. His theories and some of those of the other persons mentioned, deserve closer scrutiny and will be comprehensively described in a later section of this chapter.

1.3 THE PROBLEM OF DEFINITION

'There is no word in modern philosophy repeated more often than this one, none which is defined so inexactily. Its obscurity makes it so handy, that one finds that its usage is not restricted to bodies with which we are familiar: an entire school of philosophy today attributes to beings which have never seen a force which does not manifest itself in any phenomenon.'
This quotation by Maupertius may be aptly applied to 'motive', 'motivation', 'need' and many related terms. A state of confusion with regard to terminology exists in motivational psychology. Both psychologists and non-psychologists fashion and use words to explain certain characteristics of motivational phenomena. The psychologist attempts to relate these phenomena to non-motivational phenomena. In order to do this properly, it is necessary to distinguish clearly between motivational and non-motivational phenomena. He has however not been able to do so successfully.

Littman (1958) in a paper delivered at the 1958 Nebraska symposium on motivation presented a list of 52 motivation related words. He pointed out that these words were in common use by psychologists and non-psychologists alike. The words, by common usage have acquired the meanings which are now attributed to them. As a result of early contact, these words are understood. The problem is not so much one of knowing what motivation is, as of defining it. Littman states:

'We shall solve our problem if we realize that it is not one of "What are the concepts which are motivational?" We know what they are. The disagreement is about what the defining properties are of concepts that are already classed as motivational. In a quixotic sense, we already know what motivation is. At least we do by the test of what words we apply on what occasions to what behaviour; we just aren't able to agree on why we are able to do it.' (p. 120)

The term 'motivation' can best be used in a generic sense - it is a broad term covering a multitude of concepts which are commonly used
in this sense. Littman is undoubtedly being realistic rather than pessimistic when he says:

'I do not believe that there is or will be found a significant theoretical, i.e. a fruitful psychological basis for rationalizing past, present or future motivational concepts.' (p. 121)

The problem of defining motivation is in large measure due to the fact that the concept of motivation is closely bound up with the many associated theories. Consequently if motivation is to be defined in anything but the very broadest terms, it should be done on the basis of a theory or theories.

Broad definitions of related terms are of some value however in that they provide a starting point. Such definitions are the following:

Drever (1956, p.174) defines motivation as:

'a term employed generally for the phenomena involved in the operation of incentives or drives'

while a motive is:

'an affective-conative factor which operates in determining the direction of an individual's behaviour towards an end or goal, consciously apprehended, or unconscious'.

A need according to the same source is:

'a condition marked by the feeling of lack or want of something, or requiring the performance of some action'.

It will be seen from the above definitions that 'need' and 'motive' really mean the same thing. Indeed, which of these two terms is used is dependent on the personal preferences of the person using them despite differentiation between the concepts by some psychologists. They are used interchangeably and any differences between them are subtle.

A more specific definition, and one which is stated in carefully-couched terms is that of H.A. Murray (1938, p. 123).
'A need is a construct (a convenient fiction or hypothetical concept) which stands for a force (the physico-chemical nature of which is unknown) in the brain region, a force which organizes perception, apperception, intellection, conation and action in such a way as to transform in a certain direction an existing, unsatisfying situation.'

Cofer and Appley (op cit) give several definitions covering a broad spectrum of traditions whence they are desired. He notes i.a. the definition stated by Young (1961, p. 24):

'The concept of motivation is exceedingly broad - so broad, in fact, that psychologists have attempted to narrow it ..... (singling) out one aspect or another of the complex processes of determination. The two most important aspects are the energetic aspect and .... regulation and direction. (We may) ..... define the study of motivation broadly as a search for determinants (all determinants) of human and animal activity.'

Young narrows his definition further:

'(motivation is) .... the process of arousing action, sustaining the activity in progress, and regulating the pattern of activity'.

A different emphasis is given to the problem by D.O. Hebb (1949, p. 172) with his statement that:

'.... the chief problem that the psychologist is concerned with, when he speaks of motivation, is not arousal of activity, but its patterning and direction'.

He classified his definition by explaining that the term motivation refers to:

1) the existence of an organized phase sequence;
2) its direction or content,
3) its persistence in a given direction, or stability of content.
He believes that the 'normal waking adult' always has some motivation.

Hebb later altered his opinion somewhat by separating cue and arousal factors. Arousal, which is a motivational concept (unlike cue) is equivalent to a general 'energizer' or 'drive', but without direction. Atkinson (1958, p. 602) of whose theories more will be said later relates the arousal function close to situational cues:

'The term motivation refers to the arousal of a tendency to act to produce one or more effects. The term motivation points to the final strength of the action tendency which is experienced by the person as an 'I want to ....' The particular aim of the momentary state of motivation is situationally defined.'

Apparently as a result of the difficulty in constructing a suitable definition of motivation, some authors prefer to describe the characteristics of motivation - a sort of pseudo-definition. An example is stated in the work of Peters (1960, p. 35) who says:

'My contention is therefore that there are three main characteristics of 'motive' as an explanatory concept in ordinary language:

(a) It is used in contexts where conduct is being assessed and not simply explained, where there is a breakdown in conventional expectations.

(b) It is used to refer to a reason of a directed sort and implies a directed disposition in the individual whose conduct is being assessed.

(c) It must state the reason why a person acts, a reason that is operative in the situation to be explained. The motive may coincide with his reason, but it must be the reason why he acts.'
Another approach, and an unfortunate one, is the tendency of many authors of motivational books and articles to solve the problem by simply ignoring it.

Irwin (1958) believes that 'the words "motive" and "motivation" are not technical terms and therefore will not be defined. They may be used to refer loosely to the matters concerned with preferences....'

Murray (1964) avoids the problem by describing a practical example of students who pass or fail at college because of their respective motivational states. Although he devotes a paragraph entitled 'A definition of motivation' his definition is actually a description of the components of motivation.

In conclusion, points of concensus common to the majority of definitions may be noted. Motivation implies the dynamic arousal of an organism. This arousal may be in a certain direction and may tend to produce a behavioural action by the organism.

1.4 SOME THEORIES OF MOTIVATION

Psychological theorists have tended to emphasize only certain aspects of motivation - those aspects with which they happened to be familiar, or have an interest in. Consequently the theories are legion and widely divergent. Recently however there has been a tendency to present unified theories of motivation. Such an attempt is described by Madsen (1968). This amounts to a 'theory of theories'. Madsen believes that this 'armchair' method of theory formulation is acceptable as it is necessitated by the enormous range of modern psychology. He points out, quite correctly, that psychologists are able to carry out experiments only as a basis for 'miniature systems'. He states further:

'If a psychologist is to construct a more comprehensive theory - as for example a theory of motivation - he must base it upon empirical studies made by other psychologists ....'
This process has also been applied to the construction of theories in other sciences. Madsen feels that, since one is isolated from particular experimental results, a more neutral or balanced approach and a greater overview are obtainable. He justifies this point further with the comment:

'The essential criterion of the scientific value of a hypothesis or a theory lies in its testability and not that it is based upon research.'

The scope of this thesis does not allow for a detailed comparison of all aspects of the various theories. The approach will rather be to describe in detail certain selected theories which may be regarded as being representative of major schools of thought. In this regard particular emphasis is placed upon the McClelland theory which is particularly relevant to this study, and on Freud's contribution which is basic to much modern psychology.

There are certain issues which may be used as a basis for comparison of the various theories. Although these issues will not in every instance be pointed out, they serve as useful and pertinent points to be kept in mind. Briefly they are:

1) Emphasis on innate or acquired processes in behaviour. These points are relevant here, viz: the extent to which behaviour can be attributed to features which are acquired after birth, features which exist in potential at birth and unfold during maturation.

2) Conscious and unconscious factors in behaviour. Cofer and Apley (op cit) point out that conscious and unconscious processes may be more readily described in terms of availability to consciousness and recall, rather than as entities. This serves to avoid some of the problems associated with inadequate definition of the entities involved. Degree of reportability is thus the most desirable operative concept in this regard.

1) It may be noted that a comprehensive description of motivational theory is given in the work of Barnard (1971).
3) **Is behaviour primary or is it instrumental?**

Behaviour, when regarded as primary, is studied as a phenomenon irrespective of its consequences in serving the organism. The instrumental point of view is mainly concerned with behaviour as it serves the organism. The difference between the two aspects is a question of orientation or point of view rather than of precise definitions.

4) **Organismic functioning: conservative v. growth-oriented.**

By 'conservative' is meant the tendency of the organism to seek a homeostatic balance. The opposing view is that the organism strives to attain new levels of development. It has been held that the two concepts are not reconcilable. Once again however Cofer and Apley maintain that these differences are attitudinal rather than essential and definable.

5) **The nature of human nature.**

This question is perhaps as much a philosophical as a psychological question. Is man basically good and peace-loving (the concept of the 'noble savage') or is he essentially bad, egocentric, aggressive, needful of society's restraints? This problem is of course, allied with the 'nature v. nurture' controversy. Cofer and Apley champion the 'nuture' concept, believing that one should look to the circumstances of past and present life as the sources of 'human nature'.

It has been previously stated that theorists have tended to emphasize only certain aspects of motivation due to a specific familiarity or interest. Another reason for the bias in emphasis may be in the tradition of inquiry to which the investigator owes his allegiance. Although there are no sharply-defined lines of demarcation between the various traditions, they have nevertheless had a quite considerable effect on the work of investigators, and have in many instances determined the basis of his work. Three traditions which are of particular interest to motivation are the following:
1) **Philosophic-theological tradition**

Persons loyal to this tradition are particularly concerned with issues such as ethical principle, moral conduct, freedom of choice, esthetics and religion.

2) **Biological tradition**

Ethologists, medical investigators, physiologists and the like generally fall into this group. The emphasis is usually on survival by adaptation, quantitative approach to problems, and experimental analysis of behaviour. Investigators in this group have tended to make a thorough analysis of a rather limited field of motivation. The homeostatic model of thinking is popular amongst this group. A limiting factor in theories of this nature is the clinical basis of their findings. Much of the work of investigators in this tradition has been concerned with abnormal individuals, as a result of the fact that many psychoanalysts and psychiatrists adhere to this tradition.

3) **Cultural tradition**

Investigation of social classes, societies and cultures often leads to a concern with motivational problems, with the result that persons such as anthropologists and social psychologists, who are associated with such concepts have developed hypotheses concerning motivation. Most of the theories falling within this group emphasize the cultural aspects of motivation, rather than the biological or philosophic-theological concerns.

1.4.1 **The psychoanalytic motivation theory of Freud**

It is on the unconscious that particular attention must be paid in an investigation of psychoanalytic motivational theory. Freud defined the unconscious as

'any mental process, the existence of which we are obliged to assume - because, for instance, we infer it in some way from its effects - but of which we are not directly aware'. (1933, p.99)
In addition to the unconscious Freud's topographically structured view of the mental apparatus also included a pre-conscious and a conscious. These concepts are well understood and will only be referred to in passing when appropriate.

Freud was convinced that all behaviour, no matter how slight or apparently insignificant, was at least in part unconsciously motivated. He was an affirmed determinist and was greatly interested in the causal relationships along which behaviour could be traced. He noted that the causal relationships, made explicit would often be strongly denied by his patients. This finding led him to evolve a schema of forces which prevented material from reaching a conscious state. This schema included an energy concept. His concept of energy was never clearly stated however. Neel (1969,(p.191)states that:

"Freud assumed that the human being was born with a large amount of free floating energy, a reservoir not attached to any particular function'.

This energy was referred to as libido - a concept which will be discussed in greater detail later.

The energy-concept is closely associated with the psychoanalytic theory of instincts. These were seen as having four dimensions:

1) **Source.** This is a biologically-determined internal bodily stimulation. A source is 'represented in mental life by an instinct'. (Freud 1915, p. 64). It is distinct from external bodily stimulation.

2) **Impetus.** The impetus of an instinct is described as 'the amount of force, or the measure of the demand upon energy which it
represents' (Freud, 1915, p. 65). Freud's inclusion of the impetus concept was apparently prompted by his belief in the necessity to think in energy terms.

3) **Aim.** This refers to the behaviour which must be performed to achieve satisfaction. Although limited by nature, the actions performed were largely determined by an individual's training and background.

4) **Object.** Any person or thing in the environment or the individual's own body which can satisfy the aim of an instinct may be its object. According to the Freudian concept, there is no innate connection between an instinct and its object. An object may in fact change quite often.

Freud distinguished between two major classes of instincts viz. life instincts and death instincts.

1) **Life instincts** include forces which subserve reproduction and self-preservation. The sexual instincts comprise the former, while drives such as hunger and thirst are concerned with the latter. The sex instincts should not be seen as purely sexual in terms of the modern connotation attached to the word. Neel (op cit) states 'Perhaps the term "sensual" would better cover his meaning for he assumed that any pleasurable activity is "sexual" in nature'. The sexual instincts gradually develop independently till maturity is reached, when they co-ordinate in serving the overall reproductive function. During the develop-
ment of the sexual instincts, it is possible for the libido (which serves as the basic drive) to become displaced. This could result in certain perversions or, or the other hand, it could provide energy for social and cultural action. The sexual and life-maintenance instincts were seen to function side-by-side as aspects of an overall life instinct, Eros, rather than in opposition to each other. The concept of libido was eventually considered to be an energy-force for the life-instinct generally, as opposed to its previous connotation specifically as a source of sexual energy.

2) The death instincts or destructive instincts. There were various reasons for the postulation of a death instinct. One of these was that the sexual instincts could not adequately account for the repetition-compulsion phenomena (whereby individuals force themselves repeatedly to experience unpleasant situations). However the broadest basis for the death instinct was seen by Freud to lie in the universal principle of entropy - as Freud stated in quoting Schopenhauer:

'The goal of all life is death'.

The death instinct, or Thanatos, is opposed by the life-instincts and is dominated by the life-instincts, but obviously only up to a point.

Because the death-instincts perform their work silently as it
were, it has not been possible to identify their source clearly.

Freud states that aggression is the only case in which the manifestation of Thanatos is visible. Although it normally operates internally, Thanatos may be directed outwards, either against the self as in masochism, or against other individuals or objects, as in murder and destruction.

The structure of the mind

The division of the mind into unconscious, preconscious and conscious parts did not correspond entirely with certain of Freud's concepts. Eventually these became merely descriptive terms as Freud evolved a second tripartite division - that of id, ego and superego. These then became the descriptive structures of the mind.

Id. The id is an obscure part of the personality. It 'contains everything that is inherited, that is present at birth, that is fixed in the constitution - above all .... the instincts ....' (Freud, 1940, p.14).

Primarily, he saw the id as illogical, timeless, knowing 'no values, no good or evil, no morality'. (Freud 1933, p. 105). Two principles regulate the id, viz. the 'nirvana principle' and the 'pleasure principle'. The former seeks to lower as much as possible the excitation flowing into it, while the latter seeks the increase of affective pleasure and a decrease in unpleasure. It will be seen that both are connected with tension reduction. This occurs in different ways however. The id attempts to discharge instinctual energy as quickly as possible, without regard for reality. This is known as the primary process.
Since the organism must take reality into account in the fulfilment of its needs, impulses and wishes, another entity must be postulated. This entity is the ego.

**Ego.** Although the ego pursues pleasure, it takes into account external reality - it is governed by the 'reality principle'. The ego thus mediates between the id and the external world in the interests of self-preservation. It withholds the discharge of cathexis until it perceives that a suitable situation or object has appeared for such discharge. Freud also referred to a secondary process. This is the ego's primary mode of operation and involves continuous reality testing of the memory of previous satisfiers with the environment.

In his later writings, Freud stated that all energy comes via the id. As a reality-id mediary, the ego is in a position to acquire libido from the id and thus act as a libido-storehouse. In this way the id obtains its required libido.

**Superego.** The superego is part of the ego, but is functionally separable. As the ego tests reality, so the superego distinguishes good from bad. It originates in childhood as a result of the child's introjection of parental values. The superego consists of two subsystems: the **ego ideal** which is an idealized abstraction of certain values; and the conscience, representing unresolved tensions and punished or forbidden areas of activity. The superego constantly strives for perfection, and as a result of this, it is often in conflict with the id and the ego.
In the preceding work the concepts and structures concerning psychoanalytic theory have been described. What however are the dynamic processes according to which motivation functions? Basically they are as follows:

Libidinal wishes arise in the soma. They are then expressed directly via the primary processes of the id according to the Nirvana and pleasure principles. Since the primitive behaviour of the id cannot fulfil all the requirements of tension-reduction, a change occurs. This change is the modification of the id into the ego and involves the creation and imposition of psychological structures on an otherwise loosely-ordered, raw mind. This modification is necessary for survival as via this means the organism is capable of contact with reality and subsequent selective acts of behaviour, thus to achieve successful tension-reduction.

In addition to a physical reality in the outside world however there exists a 'social reality' determined by the culture within which the individual exists. A special aspect of the ego must deal with this and the superego is considered to accomplish this purpose.

The 'higher-level functioning of the ego and superego takes place as a result of the failure of the lower-level functions to achieve tension-reduction. Thus frustration and conflict is at the core of all personality growth. These changes take place via certain processes: identification, sublimation and displacement. Identification refers to the process whereby the child seeks to model its behaviour after one of the parents (or another person). Displacement is the attachment of cathexis to an object other than that originally chosen as a means
of tension release, while in the case of sublimation libidinal energy is channeled to a more socially-desirable aim. The processes described above give rise to a large number of activities and interests. Thus an amount of residual energy becomes available to the ego. Supplied with energy the ego subsequently scans the environment seeking means of tension-release. The energy could also be used in other ways - as a source for other motivated behaviours, such as the anti-cathexes required for defence against libidinal discharge.

1.4.2 McClelland's Theory

David C. McClelland, an American psychologist, is the author of a number of experimental and theoretical works on the psychology of motivation. His work is relatively recent in this field and starts with his book 'Personality' (1951) in which various personality theories are integrated. In this work and in 'The Achievement Motive' (1953) McClelland states a theory of motivation. It should be noted that his work was developed with the help of his research assistants: J.W. Atkinson, Russell A. Clark, and Edgar L. Lowell.

McClelland has defined motivation as 'the reintegration by a cue of a change in an affective situation' and, more understandably as:

'a strong affective association, characterized by an anticipatory goal reaction, and based on past association of certain cues with pleasure or pain.' (McClelland, 1951, p. 466)

All motives are thus acquired and all motivation is based upon emotions. They are not identical with emotions but are related to an expectation of change of emotion.
From birth, pleasure is determined by a moderate increase in stimulus intensity, while a considerable, or further increase in stimulus intensity determines displeasure or pain. The former (pleasure) is referred to as a positive or approaching motive and is an expectation of pleasure. It is called a need and is designated by an 'n'. The second possible type of motive is an avoiding, or negative motive. It is an expectation of displeasure, pain or fear and is designated 'f' by McClelland.

In McClelland's theory, no distinction is made between primary and secondary motives because, as has previously been mentioned, all motives are acquired. However, biological needs must necessarily (to avoid the death of the organism) eventually lead to satisfaction and therefore pleasure. This results in expectations of increased pleasure in connection with biological needs, leading to the acquisition of the motives by learning. On the other hand, secondary motives such as need for achievement may have virtually the same intensity as primary motives as they may be learned at a very early stage in life. It is possible that the stimuli for the learning of motives such as this one are so universal among mankind (e.g. in all forms of education) that, despite being external, are learned at an early stage.

What about the process of motive acquisition? The theory of learning as postulated by McClelland seems to be based on simple association. For example, let us suppose that a man is experiencing a pleasant affect or emotion. While he is undergoing this experience, he is also receiving cues from his environment, his body, his thoughts and even his emotional state. Since the cues and the affective state occur simultaneously, or at least in close association of time, one
or more of the cues may become associated with the pleasure of the emotional state. Consequently they can at a later stage reactivate part of the affective state: that is a man may engage in instrumental activity which will bring him to approach the circumstance under which he experienced the pleasant affect or emotion. Similarly, if the emotion had been unpleasant there would be a tendency of avoidance.

In the foregoing, external cues have been referred to in the reintegration of change. It is possible however that internal cues such as thought processes may be sufficient. For example, thought of a past pleasant event may lead to another approach to the event in anticipation of similar pleasure.

It appears thus that motivated behaviour is that behaviour which falls within the area of approach-avoidance or appetite-anxiety. This is stated by McClelland (1953, p. 39) as follows:

' .... only when the succession (of responses) becomes a sequence which results in approach to or avoidance of a situation can we argue that there is evidence of the existence of a motive.'

1.4.3 Motivational theory of Clark L. Hull

Starting in 1929, Hull produced a number of books and papers concerned with a comprehensive system of learning-behaviour theory. His last book entitled 'A Behaviour System' is considered to constitute a general theory of behaviour and describes his beliefs concerning motivational theory. It is worth noting that K.W. Spence made significant contributions to Hull's work so that this theory
is often referred to as the 'Hull-Spence' formulation.

The basis of Hull's theory lies in the problem of survival of an organism in a non-nurturant environment. He saw survival primarily as the intake and elimination of foodstuffs which permit an individual to survive, but also as interactions (courtship, maternal behaviour etc.) promoting survival of the species.

He believed that an organism initiates and modifies behaviour primarily in reference to its needs as the following quotations indicate.

'Animals may be regarded as aggregations of needs. The function of the effector apparatus is to mediate the satisfaction of these needs .... Drives become active in situations which, if more intense or prolonged, would become injurious.' (1943, P. 65)

It appears that Hullian theory is close to certain aspects of evolutionary theory and it is thus logical that Hull should place particular emphasis on certain motivational states such as hunger, thirst and pain avoidance most closely related to survival. He regarded these needs as fundamental. While Hull did focus on certain problems of learning, he viewed learning as an instrumentality that permitted an organism to expand its efforts to satisfy its needs.

His theory may be conveniently considered in terms of three main aspects - drives and their mechanisms: drives' influence on behaviour; and other factors which control behaviour.

Hull differentiated between drives and needs, and did not include the latter in his system. He described these concepts as follows:
'Since a need, either actual or potential, usually precedes and accompanies the action of an organism, the need is often said to motivate or drive the associated activity. Because of this motivational characteristic of needs, they are regarded as producing primary and animal drives'. (1943, p. 57)

Drives were basically conceived as stimuli which act on receptors to induce certain behavioural acts. In the primary drives (hunger, thirst, elimination, sleep, pain avoidance etc.) an association with certain characteristic bodily states or activities such as stomach contractions, nutritional blood elements and bodily states was noted. Secondary drives such as fear were presumed to be acquired by associative learning. An important matter, basic to Hullian theory, is the role of secondary reinforcement, whereby neutral stimuli acquired valency by means of association and became reinforcing stimuli. Secondary reinforcement was thought to be of particular importance for habit formation in Hull's system.

Hull further postulated a general drive state to which almost any drive may contribute and which therefore is not specific.

Behaviour was thus seen to be a performance determined by several factors including drive, and habit. Drive was considered as multiplying habit to produce an excitatory state. This was formulated by Hull as follows:

\[ s_{ER} = s_{Hr} \times D \]

\( s_{ER} \) is the excitatory state
\( s_{Hr} \) is associative habit and

\( D \) represents drive.
It follows that if any of the above factors is zero, there will be no behaviour. It should be noted that in the above formulation, it is the habit structure which determines behaviour's general characteristics, while D serves as an energizer.

An example of a trained animal serves to illustrate. If an animal is starved of food or water, he is unmotivated. He would then probably be inactive even though he has acquired habits. If he has a bar-pressing habit and has a need (e.g. hunger), he will press the bar (to acquire food and satisfy the need) because he is activated by the drive. If he has no bar-pressing habit, but is hungry, then presumably other response tendencies (other than bar-pressing) will be displayed. Such response tendencies may include exploring, grooming, sniffing etc.

Hull also described additional factors governing behaviour. These included 'drive stimuli' and 'goal reactions'. The former described Hull's view of the 'steering function' of a drive. The drive stimulus enters the habit structure as an additional, associative factor and acts as a directional impulse upon the non-specific drive. 'Goal reaction' refers to the notion that certain fractional components of an act (e.g. salivation as a component of eating) could appear in anticipation (i.e. before the occurrence) of the act. This could influence the previously described sub-components (association, drive, etc.) and thereby alter behaviour.

It should be noted finally, that the observations concerning Hullian theory noted above are of necessity a gross simplification of a complex and comprehensive system of motivational theory.
CHAPTER 2

THE MEASUREMENT OF MOTIVATION

2.1 INTRODUCTION

This study deals with achievement motivation present in Bantu mine workers. It is therefore necessary to use some method of identifying and measuring it. This chapter describes the method used and discusses its development, background, its expected effectiveness and other related factors.

2.2 THE PROBLEM OF MEASUREMENT

Precise measurement of motivation is extremely difficult. On the one hand 'animal' psychologists maintain that clinical methods of motive assessment are not methods of measurement at all, but are merely codified subjective impressions of doubtful reliability. On the other hand many of the clinical psychologists quite correctly assert that the experimental psychologists - however much they preserve rigid rules of measurement - derive their information from uncheckable studies carried out on white rats. Obviously methodological considerations are of vital importance in this matter. Also, it is necessary that some definition of motivation be made before proceeding with its measurement.

While the definition of motivation has been thoroughly described in a previous section of this study it is worth noting what comments in this regard were made by McClelland. His approach is he says, 'more empirical' and 'less prejudicial' with regard to what the characteristics of a motive could be expected to be:
'At the outset, it (his method) takes no position as to whether, for example, there are certain primary (unlearned) and secondary (learned) drives, whether motives drive (provide a source of energy) or direct (release energy in certain directions) or whether they are temporary states or enduring dispositions of the organism.'

It is held that this is the correct approach. No attempt has therefore been made to presume any characteristics concerning the motive (achievement motivation) under investigation.

McClelland (1958a) considered certain criteria to be relevant in the choice of construction of a measure of motivation:

(i) The measure of a motive should sensitively reflect the presence, or absence of a motive or its variations in strength. This appears obvious, but it is doubtful whether all measures meet this criterion.

Investigators have generally used one of the following methods to determine the presence of a motive:

by depriving a subject of something (e.g. food, to produce hunger);

by applying persistent stimuli (e.g. the use of electric shock to produce anxiety);

by presentation of objects of different attractiveness - a method used by Lewin and his co-workers;

by giving special instructions or experimentally inducing certain experiences.

McClelland and his associates have made use mainly of this (last) method in their investigations.
(ii) The measure should reflect variations in only that motive.

It is possible, on the basis of certain signs or phenomena to infer the presence of certain motives in animals. This can be done with a reasonable amount of certainty. Purring in a cat e.g. is a reasonably sure indication of pleasure. Unfortunately for various reasons, it is not possible to reliably accept physical signs as manifestations of motives in human beings. Consequently McClelland e.a. consider fantasy a useful and reliable source of motivational information.

The complexity of human thought and behaviour is an important consideration:

'One of the reasons for search for such signs in fantasy, rather than, say, among autonomic responses, was the expectation that the possibility of identifying unique and differentiable signs for different motives was greater considering the variety and sublimities of human behaviour' McClelland (1958).

The same reasoning has prompted other investigators to seek signs of motives in questionnaires - for example, the Taylor Scale of Manifest Anxiety and Murray's questionnaires for assessing needs.

(iii) The measure of a motive should give the same reading for an individual or a group under the same or nearly the same conditions.

In other words, the test should be reliable. It is clear that the method used for measurement should be sufficiently precise and detailed to allow for consistent results.
The question of reliability is thoroughly described in a later section of this study.

(iv) The measure should have relational fertility. It should correlate with other variables or account for variance in human behaviour. It should be noted that relational fertility and validity is not quite the same thing although the latter is an instance of the former. This aspect of a measure of motives is described in a discussion of validity. (see page 48)

The major criteria discussed above prompts the question:

'What methods have been developed as measures of motivation?'

The methods may conveniently be classified for consideration.

(i) Self-ratings by the subject. This, the oldest method of investigating motives, is simply to ask the subject what his motives are. This may be done either directly or indirectly. Numerous variations within this method exist, and include simple questions, statements of like or dislike (of various objects, activities or situations), a choice between two possible supplied answers, or PAT-style tests.

Generally the methods within this group have high reliability.

However, they do not fare well with regard to the first two criteria: presence or absence of a motive, and variations of that motive.
(ii) **Ratings of motivation by outside observers.** It is reasoned that since a person may not be able to report his motives, for various reasons, a judge or outside observer may be better qualified to determine his motives. Most of the major figures in the study of motivation have used this method. This method has, according to McClelland, considerable and serious failings. Firstly, the method is not conducive to the measurement of experimentally-induced motivational states (criterion (i)). Secondly it is highly unreliable (criterion (iii)) and thirdly, it cannot determine to what extent a motive and only that motive, is reflected (criterion (ii)) and criterion (i)). For investigations of a nature similar to the one reported here, it must be concluded that the 'outside observer' method is inadequate.

(iii) **Behavioural measures of motivation.** Methods based upon this approach have in common the principle that a motive is considered to manifest itself in some behavioural action - e.g. physiological response, performance, learning, perception, memory or association. Thus provided that one of these manifestations is unique enough, it may be used to infer the presence and, in some cases, the strength of the motive. Many of these measures are hampered by the fact that the behavioural manifestations are not unique enough to allow for the satisfaction of the previously-described criteria. A case in point is the method developed by Eysenck (1963) which made use of a pursuit rotor to measure reminiscence which was then related to achievement motivation.
This method evidently does not satisfy the necessary criteria. A weak point in particular is the manner in which reminiscence is related to achievement motivation - a relationship which evidently rests on certain assumptions. Contamination of variables is a problem which must be considered. For example, fear may speed up learning process, but so do many other factors - as noted in an experiment by Karolchuck and Worell (1956). What possibility is there then, that rate of learning could be used as an 'uncontaminated' measure of fear? The depth of this problem may be further illustrated by quoting McArthur's (1953) proposal that McClelland's fantasy measure of achievement motivation be improved by including only characteristics which predict good performance in college. However, such performance undoubtedly results from other factors as well - e.g. social pressure. Thus following this suggestion will not make the measure any more pure. Similar arguments may be levelled at most other methods considered to fall within this category. It appears that the method which to date has proved most successful and which holds the greatest promise for the measurement of motivation, is analysis of fantasy stimulated by ambiguous pictures. It has been satisfactorily proved that fantasy is easily influenced by motivational states and that such motivational states can be related to empirically-based evidence.
Fantasy measures are sensitive not only to the motives which they are designed to measure, but also to extraneous and unwanted influences. Fortunately it is possible to minimize these undesirable effects by a vigorous and well-defined scoring system. That such scoring systems can be effective is demonstrated by extremely high inter-scorer agreement coefficients obtained in many instances. Provided that the fantasy-type measure is based on a sound scoring system, it permits measurement of the relative strength of the relevant motive, thus facilitating application of statistical methods. The identification and measurement of 'social' motives such as achievement motivation make a fantasy-type measure virtually a necessity as other methods (such as Strong Vocational Interest Blank Scales, Edwards Personal Preference Scale) have not proved successful. In this regard, McClelland (1958, p. 38) states:

'The conclusion seems inescapable that if the need Achievement score is measuring anything, that same thing is not likely to be measured by any simple set of choice-type items.'

In arguing against the use of this method, it has been stated that the presence of fantasy imagery is indicative of a deficiency in that area (Lazarus 1961). However, as stated by Baran (1971, p.10) 'empirical studies of the achievement motive have provided overwhelming evidence that in the area of need Achievement the relationship between thought and action is positive and direct rather than inverse.'
Another issue concerning the use of the McClelland projective method is the problem of using the method in a culture other than the one for which it was designed. Nevertheless, barring this matter which is fully discussed in another section of this chapter, it would appear in the light of the foregoing that the McClelland method forms the most suitable method of measuring achievement motivation in the test-subjects.

2.3 PROJECTIVE TECHNIQUES IN THE MEASUREMENT OF MOTIVATION

This section deals mainly with the application of projective methods, in particular the Thematic Apperception Test (TAT), and the derivation of the TAT used in the present study. It has been considered necessary also, to illustrate the workings of these methods by a short description of the nature of projection.

2.3.1 The nature of projection

A great deal of literature concerning projection is available, and it would be possible to describe and define this concept at great length. However, it is believed that the purposes of this study would be best served by a summarised description of projection in order to convey a concept of what it is.

Freud (1940) used the term 'projection' in 1894 apparently for the first time when he said

'The psyche develops the neuroses of anxiety when it feels itself unequal to the task of mastering (sexual) excitation arising endogenously. That is to say, it acts as if it had projected this excitation into the outer world.'
Later he explained the term further by stating that projection is a process of ascribing one's own drives, sentiments and feelings to other people or to the outside world. This was postulated as a personality defence mechanism - i.e. the ego was considered to defend itself against unacceptable phenomena or pressures by externalizing them.\(^1\)

This is stated more clearly by Healy, Bronner and Bowers (1930) as follows:

'A defensive process under the sway of the pleasure principle whereby the ego thrusts forth on the external world unconscious wishes into consciousness, would be painful to the ego.'

Projection has been given a wide interpretation when used in connection with projective techniques of measurement. These tests include the Rorschach, TAT, Szondi, Sentence Completion and similar tests. They operate by the presentation of ambiguous stimuli to which subjects are requested to respond. It is assumed then that in giving their responses, subjects project their innermost feelings, thoughts, needs, etc., and that these are then manifested in the responses.

It will undoubtedly be useful at this stage to briefly consider the terms 'apperception' and 'apperceptive distortion'. Abt and Bellak (1950) define the former as 'an organism's (dynamically) meaningful interpretation of a perception.'

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1) Projection is not necessarily in all instances a defence mechanism. Freud (1938) has stated 'it also comes into being where there are no conflicts.'
They suggest further, that there exists a (hypothetical) process of non-interpreted perception, which they term 'apperceptive distortion'.

In other words, in viewing TAT pictures for example subjects apperceptively distort cues, and by means of this distortion provide material suitable for analysis.

Projection is a form (an extreme form) of apperceptive distortion.

2.3.2 The Thematic Apperception Test

Projective techniques in general and the principle on which they base their mode of action have been briefly referred to in previous sections of this study. Since the TAT is of particular importance in the measurement of motives, a fuller description of that test and its derivatives will now be given.

The TAT was developed by Morgan and Murray and originally described in 1935. It is a technique for the investigation of the dynamics of personality as manifested in responses to relatively ambiguous pictorially depicted situations. There are thirty-one such pictures in the present form of the test. The test is scored by analysis of the content of responses. The original technique of analysis as developed by Murray may be described as the 'need-press' method. On the basis of this method, every sentence in the protocol is analysed as to the needs of the hero and the environmental forces or 'press' to which he is exposed. Each need or press receives a weighted score which can then be tabulated to provide a composite picture of the subject's personality make-up. Other methods of scoring have also been developed, but a discussion of these falls outside the scope of this study.
Furthermore it appears that the content analysis method is best suited to experimental studies, as stated by Abt and Bellak (op cit):

'The need-press scheme of interpretation still has many advantages for use in experiments in which detail is most important and time is no object.' (p. 193)

The scoring system used in this study is based on an adaptation of the need-press method. The system is described in detail elsewhere (p. 59).

Of the tests which are descended from the TAT, those of Henry (1947), Lessa (1954), Gladwin & Sarason (1953), Lee (1953), Sherwood (1957), De Ridder (1961) and Baran (1971) deserve mention here. These tests are all 'TAT's' designed for use among non-literates. Of these Baran's is the most recent and probably the most comprehensive and thoroughly-researched test.

It has one unfortunate weakness however. This is the choice of sample on which Baran has based her findings. She used an urban and a rural sample. Both samples are not large for tests of this nature - 96 in the rural group and 99 in the urban group. Criticism can be levelled at the selection of both samples. Firstly only members of the Zulu tribal group were included. Since there are several major tribes resident in the Republic and since there are large cultural and other differences between these groups, Baran's results should strictly speaking, be applicable only to Zulus. Her rural group was not drawn on a random basis. She says:
'An attempt was made to obtain a random group. However, the practical difficulties encountered made this an impossible task.'

(p. 54)

The urban group consisted exclusively of school staff members (presumably school-teachers) drawn from the Diepkloof, Meadowlands, Mofolo and Dube areas in Soweto. There are considerable area differences (with regard to social status, lifestyle, income, etc.) between Soweto suburbs and it must be considered doubtful whether the persons within four areas mentioned are representative of the 'average' (if there is such a thing) urbanised Bantu person. Furthermore the urban group members were highly educated - whereas not all or 'average' westernised or urbanised persons are highly educated.

Nevertheless, despite the shortcomings of the Baran test, it does fill an important need for a projective technique adequately standardised for use on South African Bantu. It was thus decided to make use of an adaptation of the Baran test for the measurement of achievement motivation. In a way it parallels, within another culture, McClelland's use of the TAT in a westernised, White culture.

2.3.3 The measurement of need for achievement

As has been noted previously, McClelland (1958) and his associates made use of Murray's TAT to measure the presence and strength of the achievement motive. The cards usually used by them in their experiments are 7 B/M (the 'father/son' card) and 8 B/M (boy with surgical operation in the background). Evidently these two cards were most successful in eliciting need for achievement. According to Abt
& Bellak (op cit), card 1 (boy with violin) also was frequently found to elicit need for achievement responses.

Since these cards have been tested and proven and found to be suitable for the measurement of need for Achievement, one may well ask why these cards should not be used per se in this study. Some mention has already been made of the advantage of using a test suitable for South African Bantu. However, it is not only an advantage, but a necessity.

The TAT is designed for and was conceived out of, a Western cultural setting. The pictures represent scenes familiar to Westernised persons but not necessarily so to rural, unsophisticated Bantu. On purely logical grounds therefore, and to avoid prejudice to reliability and validity, it seems highly advisable to make use of a test designed specifically for the South African cultural setting. In arguing that the construction of a new test is desirable, Baran (op cit, p. 2) has stated:

'.... it may be necessary to produce tests which are singular to each culture. In other words, it is sometimes desirable to make tests culture bound.'

It has already been mentioned that several other tests (e.g. De Ridder, Lee, Sherwood) designed for South African Bantu exist. However these tests suffer from major defects which render them unsuitable for use in this study. Not the least of these is the lack of proper study and information regarding the measurement of the achievement motive. The Baran test cards are well-documented in this regard.
Thus it was decided to make use of those Baran cards which were considered to be most effective in eliciting need for Achievement. These are card numbers 1.5, 3.1 and 3.3. Card 3.1 bears some resemblance to picture 7 B/M of the Murray TAT, while card 1.5 is basically similar to picture 1 (boy with violin) of the TAT. The latter card (of the Baran test) appears to have been particularly effective in eliciting need for achievement in the Baran study. A total of 66 per cent of the perceived situations relating to this card concerned need for Achievement. That this is so is understandable as previously published findings have shown that most Bantu view education in a highly favourable light. In a book concerning a sociological study of Bantu on the Reef, Brandel-Syrier (1971) has said:

'Even today people on the Reef will say:

"Our township has so many B.A.'s but your township has not yet produced one".'

In another study by Deppe (1974) it was observed that:

'In general therefore it appears that the urban Bantu view education as a means of improving financial position, and ensuring a higher standard of living.'

With regard to the selection of cards from the Baran set, it should be noted that their suitability for the thoroughly rural subjects was taken into consideration.
In the final form, the Baran cards were slightly modified to make them more presumably suitable for the subjects. For example the 'father' in Baran's card 3.1 (the 'father/son' card) is depicted in a jacket and tie. In the card used for this test the clothing on the characters was made more vague. They were so designed that they could be seen as wearing no clothing on the upper parts of their bodies. It was felt that since many, if not most of the subjects originated from areas where westernised clothing is unusual, they would identify more easily with subjects less far removed from themselves as far as appearance is concerned. Nevertheless, the basic structures of the cards are identical to those of the Baran test.

In addition to the three Baran cards, two cards of original design were included in the series. These cards were included firstly, because no other Baran cards were considered suitable for this study, and secondly because it was believed that cards of this particular design would, for certain socio-anthropological reasons, be particularly effective in eliciting achievement motivation.

The cards used in the final version of the test are then as follows.

Card 1. This card depicts a man (Bantu in appearance) standing at the edge of a kraal containing cattle. It appears as if he is looking at the cattle. The kraal and cattle continue up to the edge of the picture so that it should be possible to imagine a greater number of cattle being contained within the kraal than are actually visible. This card is similar in principle to De Ridder's (op cit) card D6 which depicts a man's hand holding money. It is well known that cattle represent wealth to rural Bantu so that subjects with a high need for
need for achievement are likely to interpret the stimulus in wealth and therefore need achievement-related terms. Baran criticised the De Ridder card on the grounds that it 'almost guaranteed the emergence of the stories induced'. Whether this criticism is in fact justified - and it is submitted that it is not - it certainly cannot be levelled at the 'man with cattle' picture. It was found in practice that while varied stories emerged, the card was suitable for the measurement of achievement motivation.

**Card 2.** The second card in the series is a drawing of a young Bantu man who appears to be looking at something. His face is relatively expressionless and he appears to be pensive about something. This card has been designed to act as a stimulus for introspective thought. It serves the same purpose as the blank TAT card, Lee's card MW 6 (also blank) and Baran's card 5.1. The latter was not used due to a suspicion that perceptual difficulties would arise. She reports that 8% of her subjects experienced such difficulties (i.e. reported seeing two figures). This figure is not high but it must be considered that the sample in this study included persons of lower mean educational level than those in the Baran study. Consequently the likelihood of perceptual misinterpretation is greater.

**Card 3.** This card is virtually identical to card 3.3 in the Baran series. It depicts a young Bantu man or boy carrying a bed-roll and walking out of what appears to be a hut. An elderly woman
is sitting on the floor, facing away from him. In the Baran study, it was found that relationship descriptions were the main feature (70% of responses) of the card. This card was included as the 'leave-taking' situation depicted had probably been experienced by most of the respondents not long before. It was reasoned that subjects with a high need for achievement would tend to produce relevant stories as the situation could be related to achievement - in the sense of a young man going out into the world to make his fortune. On the other hand, numerous other possible explanations present themselves. However, it was found in practice that (as in the Baran study) stories were often negative, painful recitations of previous incidents.

Card 4. Card 4 corresponds to card 7 BM in Murray's TAT and card 3.1 in the Baran series. This is the so-called 'father and son' card, and is a head-and-shoulders depiction of two men - one obviously young and the other much older. They appear to be in a conversational stance. This card (Murray's TAT 7 BM) is one of a group originally used by McClelland and Atkinson (1958) in some of their early work. In an experiment conducted by McClelland e.a., using college students in the sample, the card proved to be particularly suitable for the measurement of need for achievement.

Baran's card 3.1 differs from Murray's card in that the characters in the former have negroid or Bantu features. They are wearing western-style clothing however. As has been mentioned the depiction
of clothing has been changed in the card used in this study to make the characters more suitable for this particular type of sample. The clothing design has been left vague so that it is possible to see the characters as wearing no clothing, wearing necklaces or wearing some primitive form of clothing.

Card 5. The last card in the series is similar to Baran's card 1.5 which shows a young boy (or possibly a girl) sitting at a desk with several books in front of him. The effectiveness of this card in producing need for achievement responses has already been discussed. However it should be noted that need for achievement responses elicited were typically related to education. Therefore in order to score these responses positively for evidence of achievement motivation it must be accepted that education represents an achievement goal. It is submitted that it should be accepted as such on previously stated grounds and in view of the definition of need for achievement stated in the following chapter.

It may appear that this allows little room for interpretations other than the abovementioned. Some reflection on the matter will however show that this is not the case as it is equally possible to interpret the picture in a failure-related way. A simple factual description of the scene, or an explanation which does not involve the competitive factor (studying) is as likely to be mentioned.

The cards mentioned above were all line drawings, made with black ink on a white background. All pictures were mounted on cards measuring 24 centimetres by 30 centimetres. After much deliberation it was decided to use thin black lines as borders for the pictures rather than the borderless (TAT) or thick black border (Baran TAT) sometimes preferred.
2.3.4 Validity and reliability

It is submitted that it is not the purpose of this study to discuss in
detail questions pertaining to the validity and reliability of the measuring
instrument. On the other hand it is obviously necessary to have some
idea of what to expect from the technique used.

Manganyi (1969, p. 48) has said with regard to the technique which he used
in a study of African salesmen's needs:

'... the issues raised regarding the TAT in general are
equally relevant to the PUTCO African TAT'.

This viewpoint is endorsed, i.e. most if not all issues regarding the TAT
are considered to be equally relevant to the test used in this study.

Test validity concerns what the test measures and how well it does so.
It should be borne in mind that the validity of a test cannot
be defined in general, abstract terms. No test can have a 'high' or 'low'
validity in the abstract - its validity must be gauged with reference to the
use for which it is being considered. It must be determined according to
some criterion which is assumed to be the 'true' indicator of what is being
measured. In the case of the TAT, this is not as simple as it may seem.

Holt (1951) has stated that the TAT is not a test in the same sense
as e.g. an intelligence test, so that the usual procedures for validation
do not apply. However a large number of studies in this area have been
carried out. Some of these will be briefly mentioned here. Zubin e.a.
(1965) quotes numerous studies to point out that concurrent validity
obtained through ratings, judgements and test scores is not promising.
Similarly he states that the prognostic value of the TAT has been shown
by certain validation studies to be largely unsuccessful.
Of greater importance here are the statements made by Zubin e.a. in referring to work done in validating the TAT for the measurement of needs. McClelland and Atkinson are regarded as pioneers in this field. They manipulated drives such as the hunger drive and the achievement need, while noting apperceptive measure changes. It was considered that need for achievement is a valid measure. In an experiment by McClelland and Liberman (1949) achievement scores obtained from subjects under neutral conditions were significantly related to achievement associated words presented to them several months later. The authors felt that this provided confirmation that the need for achievement score was not temporary but reflected 'approximately, at least, the level of achievement motivation the subject maintains over a period of months.'

Considerable difficulties are experienced in relating need for achievement to actual performance. This was pointed out by Clark and McClelland (1956). Similarly a study by Veroff et al (1960) based on a nation wide sample found that researchers are far from discovering the precise nature of the relationship between TAT achievement level and actual behavioural achievement. Many behavioural validation studies using a wide number of needs and motives have been reported in Zubin (op cit, p. 439).

He states that:

'In general then, these behavioural validation studies seem to be much more productive in terms of positive findings than some of the other approaches to validation.'
However, this applies only to some measures and instances. The general view of the validity of the TAT in this particular field is not altogether optimistic. As stated by Child, Frank and Storm (1956, p. 114).

'Meanwhile, our results provide ample evidence that any general view of all TAT content as reliable and directly indicative of motive strength is not tenable.'

What does become clear in making a study of the validity of the TAT is that, due to the severe methodological problems which are experienced, it is difficult to reach a conclusion as to how valid the TAT really is. It appears that questions concerning its validity must of necessity be related to the particular uses to which it is put. Obviously considerable work remains to be done in this field to obtain satisfactory answers to the problem.

Psychologists working on the TAT generally do not agree on what can be regarded as a 'true' measure of reliability of this instrument. Nor is it clear what the reliability status (with the exception of scorer reliability) of the TAT might be. With regard to scorer reliability it has been found in most instances that fairly high coefficients can be obtained. As may be expected specific scoring systems with strictly prescribed criteria have tended to be more reliable than the more holistic procedures. Friedman (1957), in a study of subjective and holistic methods of scoring found a moderate intercorrelation figure of 0.74. On the other hand, using more specific methods of content analyses, Feld and Smith (1958) reported a median scoring reliability of 0.89. Using content analysis to score need
for achievement, need for affiliation and need for power, Veroff, Atkinson, Feld and Gurin (1960) reported ratings of 0.72 to 0.96. Clearly thus, that TAT can be scored with good reliability provided that the necessary conditions are met.

Test-retest reliability in the TAT is generally rather low. However, some workers consider that it cannot be measured accurately in the TAT.

Tomkins (in Kagan and Lesser, 1961, p. 279) compared it to a joke which is told twice.

'If I tell it to you twice in a row, or even separated by two days, and you don't laugh as much the second time, I say this is no measure of reliability of that first response.'

Haber and Alpert (1958) explored the test-retest reliability as related to need for achievement. When highly structured (i.e. for need for achievement) cards were used reliability was 0.74, but when weakly-cued pictures were used, this figure dropped to 0.54.

In conclusion, Zubin (op cit, p. 447) may be quoted:

'Although fairly good reliability of various scoring systems has been found, it is too early to make any overall statement about the reliability of the TAT as a psychometric device.'
CHAPTER 3

AIM AND METHOD

3.1 AIM OF THE STUDY

McClelland and his co-workers (1953) have demonstrated that in American samples there is a distribution of achievement motivation. It has also been shown by McClelland (1969) in some of his later work that the level of achievement motivation can be improved by suitable training. 1) It is clear that this holds considerable potential for industry in the fields of selection and training. The labour-intensive mining industry is no exception.

Underground Bantu mine workers fill a variety of positions, ranging from pure manual work to supervisory duties. Initially however, they arrive on the mine in a traditional (rural) cultural stage. By the time they become supervisors they are required to participate in the drive for achievement which characterises production demands in a modern Westernised technological situation. Consequently on the basis of the work done by McClelland and his associates it would appear likely that occupationall-y-experienced Bantu possess a higher need for achievement than their non-experienced (novice) counterparts. To determine this is the aim of the study.

There are two hypotheses:

(i) that among Bantu, at the traditional phase, on their first arrival on a mine, there is a distribution of achievement motivation,

(ii) that occupationall-y-experienced Bantu mine workers possess a characteristic achievement level and differ significantly in this respect from those still in the traditional phase.

1) McClelland conducted some interesting experiments on this matter in India. This work is reported in McClelland and Winter (1969).
The hypotheses were investigated by means of a specially-constructed projective test (described elsewhere) applied to a sample consisting of two groups of Bantu mine workers, and scored by a method developed by McClelland (1958).

3.2 THE SAMPLE

The sample was selected from prospective mine-workers entering the Western Reefs Aptitude Testing Centre for psychological education. Mine-workers recruited from rural areas enter the test centre for a thorough psychological evaluation prior to placement in the various job categories. Workers entering the test centre include previous employees as well as persons working on the mines for the first time.¹)

Selection was done on a random basis from groups waiting to be tested for placement. A total of 114 persons was selected, but due to incompletely protocols 9 of these had to be discarded. Protocols in these cases were not completed because of insufficient time being available for the completion of the interviews, as subjects were required to attend essential group testing sessions.

The final sample thus consisted of 38 novices and 67 occupationally experienced mine-workers. Naturally an equal balance of subjects would have been preferable. However due to a disparity in the intake

¹) Most labour utilized on mines in South Africa is acquired on a contract basis. Workers are recruited in rural areas, mainly in adjacent territories and are then sent to mining centres and specific mines where they work for certain contract periods, usually 9 months.
of workers and the requirement that a random selection be maintained it proved to be not feasible.

The sample was classified ethnically according to a system suggested by Seligman (1956). This is illustrated in the following table.

**TABLE 3.1**

**ETHNIC COMPOSITION OF THE SAMPLE**

<table>
<thead>
<tr>
<th>Ethnic group</th>
<th>Number</th>
<th>Percentage of sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nguni</td>
<td>31</td>
<td>29.5</td>
</tr>
<tr>
<td>Tsonga</td>
<td>36</td>
<td>34.3</td>
</tr>
<tr>
<td>Sotho</td>
<td>34</td>
<td>32.4</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>3.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>105</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The 'other' category includes subjects of little known tribes of Mocambique and Angola.

Comparisons between the groups with regard to age and educational differences were made. Of these two variables, there is some evidence to suggest that educational level may influence the level of achievement motivation. Naturally, a high need for achievement may result in an above-average educational level - it has been pointed out that education represents an achievement goal. The educational attainment distribution of the two sample groups are shown in the following table:
TABLE 3.2

DISTRIBUTION OF EDUCATION IN SAMPLE GROUPS

<table>
<thead>
<tr>
<th>Education (years)</th>
<th>'Novice' group</th>
<th>'Experienced' group</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
<td>Number</td>
</tr>
<tr>
<td>0 - 2</td>
<td>11</td>
<td>28,9</td>
<td>24</td>
</tr>
<tr>
<td>3 - 5</td>
<td>16</td>
<td>42,2</td>
<td>33</td>
</tr>
<tr>
<td>6+</td>
<td>10</td>
<td>26,3</td>
<td>9</td>
</tr>
<tr>
<td>Not stated</td>
<td>1</td>
<td>2,6</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>38</td>
<td>100,0</td>
<td>67</td>
</tr>
</tbody>
</table>

\[ x^2 = 2,83 \text{ df } = 2 \quad p > 0,05 \]

It may be noted that there is a slight preponderance of the more highly educated (6+ years) subjects in the 'novice' group. This is probably due to improved educational services in the subjects' areas of origin which benefits mainly younger persons. Nevertheless the difference is small and not significant, so that it may be assumed that the need for achievement scores will not be biased by an educational difference between groups.

1) On the basis of a chi-squared test of contingency. It should be noted that the 'not stated' categories in Tables 3.2 and 3.3 have not been included in the chi-squared calculation.
One other variable which may have an effect on the level of need for achievement in an individual, is the question of parental status. It is to be expected that the influence of the 'biological' parents on a Bantu child will not be as great as the equivalent in a White society, the reason being that the cultural tradition provides for other influential 'substitute parents' - usually close relatives. Also as pointed out by Krige (1965), Bantu children in rural society lead lives which are dependent on the social group rather than on individual parents.

Nevertheless Winterbottom (1958) has shown that mothers of children with a low need for achievement differ from mothers with a high level of achievement motivation. Consequently it appears likely that parental influence and presumably parental status in the community is an influencing factor.

**TABLE 3.3**

**OCCUPATIONAL STATUS OF PARENTS**

<table>
<thead>
<tr>
<th>Occupation of father</th>
<th>'Novice' group</th>
<th>'Experienced' group</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
<td>Number</td>
</tr>
<tr>
<td>Labourer</td>
<td>17</td>
<td>44,7</td>
<td>38</td>
</tr>
<tr>
<td>Farmer</td>
<td>7</td>
<td>18,5</td>
<td>8</td>
</tr>
<tr>
<td>Preacher</td>
<td>4</td>
<td>10,5</td>
<td>3</td>
</tr>
<tr>
<td>Group headman</td>
<td>1</td>
<td>2,6</td>
<td>4</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>13,2</td>
<td>5</td>
</tr>
<tr>
<td>Not stated</td>
<td>4</td>
<td>10,5</td>
<td>9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>38</td>
<td>100,0</td>
<td>67</td>
</tr>
</tbody>
</table>

\[ X^2 = 4,039 \text{ df} = 4 \text{ p} > 0,05 \]

Occupations in the 'other' group included:

'shopkeeper', 'policeman', 'mineworker', 'soldier', 'school official' and 'watchman'. The 'don't know' category which appears rather large at first sight includes a number of persons whose fathers were deceased.
Scrutiny of Table 3.3 shows that there is no significant preponderance of occupations (particularly high-status) in either group. Any possible influence resulting from parental status may thus be disregarded.

On the basis of the information recorded in this section, it may be assumed that the two sample groups do not differ significantly with regard to any variable which can reasonably be considered to influence level of need for achievement.

3.3 METHOD

This section deals with the administration of the measuring instrument, the scoring procedure used, quantification of the score and matters relating to scorer bias.

3.3.1 Administration of the test

Interviews were begun by completing a biographical data sheet (an example of which is in Annexure A). This served the purpose of establishing rapport between interviewer and subject - the former having been instructed to gather the data in a conversational tone. It will be noted that a considerable amount of information is covered in the biographical data sheet. It was not intended that all information would be used however, and the information was asked firstly, to allow sufficient time and scope for establishing rapport, and secondly, to gather potentially useful information. The form is in English but all interviews were conducted in the subject's language.

After completion of the biographical data sheet, and provided that the interviewer was satisfied that sufficient rapport had been established, application of the thematic apperception test was initiated.

The test instructions used were based on the 'classical' patter originated in the Murray test. The patter was as follows:

'Patter (These instructions are given to the subject before the pictures are placed in front of him).

I shall give you a picture. I want you to look at it and then make me a story about the happenings you see in it. The story should tell us what
is happening now; how it began; what will happen next, and what
next; and what the eventual outcome of the happenings will be. A story
is always about people, their doings, feelings and thoughts, so you shall
tell us in your story what the characters feel and think; and also the
reasons for their actions, feelings and thoughts.

I want you to use your imagination and make the story as interesting as
you can. Talk about events you describe as if they really happened -
in fact as they happen in life, and are likely to happen.'

After placing the first picture in front of the subject, the instructions
are briefly emphasized as follows:

'Tell me first all that you see in this picture. (After response) -
Now make me a story about the characters and happenings in the picture.

It is clear from the abovementioned that the patter and instructions are
more detailed but simplified than those used in the Murray TAT.
They were found to work well for unsophisticated subjects while retaining
the basic principles of test instructions.

Subsequently, each picture was placed before the subject and the response
noted. If necessary, the instructions would be repeated briefly.
Subjects were prompted only when necessary. It was reported by the
interviewer however, that little prompting was in fact done.

The cards were placed before the subject in their usual numerical order
i.e. from one to five. On the basis of a report by Reitman and Atkinson
(1958) it was considered not necessary to vary serial positions.

The responses of the subjects were tape-recorded and later transcribed
and translated from the vernacular into English by the interviewer. It
was reported by the latter that the presence of the tape-recorder did
not cause any evident anxiety or discomfort to the test subjects.
All interviews were conducted by a young Bantu man who had been seconded from his job as personnel assistant for this purpose. He possessed a sufficiently high level of education and proficiency in several Bantu languages to ensure his competence for the task.

3.3.2 Scoring procedure

Scoring was by content analysis, following a modification of the method developed by McClelland et al (1958). An explanation of this method will be expedited by a short description of the behavioural sequence as described by the abovementioned authors. They see the behavioural sequence as a person experiencing a state of need (N) striving toward a goal which necessarily has a positive valency (as illustrated in the following diagram). The person may experience an affective state (G) in his striving toward a goal. This state will have a positive or negative valency (G+ or G-). He may expect to attain the goal or possibly, not to attain it (this is represented by the symbols Ga+ or Ga-).

In his striving toward a goal, the person may be involved in activity which is instrumental to his striving. The outcome of this activity will be stated as successful (I+) or unsuccessful (I-). An obstacle, either internal to the person, or external (Bp or Bw) can prevent the attainment of the goal. Finally it may happen that somebody helps or sympathizes with a person in goal-directed activity i.e. nurturant press (Nup).

*McClelland et. al. (Manual for scoring), 1958.
The goal defines whether or not the scoring categories shown in the
diagram are achievement-related. Consequently, close attention must
be given to what in fact constitutes an achievement goal. This is illus-
trated in the following scoring criteria defined by McClelland.

Achievement imagery (AI)

In Chapter 1 a comprehensive description and definition of the concept
of motivation has been given. However we are here dealing with a specific
motive - the achievement motive, or need Achievement as it is conveniently
described. A description of this motive will help to clarify the method of
scoring as it also explains the identification of an achievement goal.
McClelland et al (1958) defines need Achievement as:

'success in competition with a standard of excellence'.

The crux of the matter then, is to identify the goal being sought in fantasy
as an achievement goal. If the goal is identified as such, the scoring
category termed "Achievement Imagery" (AI) may be scored. In order
to ensure that AI is correctly identified, certain criteria must be met.
These criteria are described in detail by McClelland et al (loc cit) and
will be shortly summarized here.

AI may be scored for a protocol provided that:

(i) competition with a standard of excellence is explicitly stated
e.g. when a subject actually states doing as well as or better
than others as a primary concern. If a character in the story
is engaged in some competitive activity, but where competition
with a standard of excellence is not explicitly stated, AI may
be scored if there is evidence of affective concern over goal
attainment or if there is instrumental activity which indicates a
desire to compete successfully. In this event competition with
a standard of excellence is considered to be implicit.

It should be noted that the expressed or implied competition
need not be with others - it can be competition with a self-
imposed requirement of good performance.
(ii) One of the characters accomplishes a unique feat or task which can be viewed positively. McClelland mentions the example of a character inventing a new machine. While one would not expect this sort of example from the subjects in this study, the example does serve to illustrate the point.

(iii) One of the characters is involved in some way in achieving a long-term goal. An example is the description of a character who is engaged in improving the stock of his cattle, so that he may one day possess a large herd.

With regard to (iii) above, a quotation from McClelland et al (1958, p. 184) is relevant:

'It is worth noting that we are able to include long-term involvement as evidence of achievement motivation only because we have knowledge that in contemporary American society, success in the career usually demands successful competition with a standard of excellence.'

This immediately raises a question: Can long-term involvement be regarded as evidence of need for Achievement in subjects with a non-Western, unsophisticated culture? On the basis of the subsequent action and performance of many of these individuals in a work situation (such as on the mines), it is believed that the answer is a tentative 'yes'. It is submitted also, that in the example of the cattle-herd being enlarged (stated above) would be acceptable as a demonstration of a need for achievement whereas this shows long-term involvement.

Once it had been established that the story could be scored for AI (in other words, that the goal was an achievement goal) it was further scored for Instrumental Activity (I), Achievement Thema (ATH) and need for Achievement (N).
Achievement Thema

Achievement Thema (Ach. Th.) is scored when achievement forms the central plot of the story. Even if the plot eventually does not succeed, it is nevertheless scored for Ach. Th. as long as the story revolves around the achievement behaviour sequence. If there is a counterplot, or if there is any doubt about achievement being central to the plot, Ach. Th. is not scored.

Stated Need for Achievement

A clearly stated desire by a character in the story to reach an achievement goal is scored Need for Achievement (N). This statement must be explicit and may not be merely inferred from Instrumental Activity, no matter how obvious it may seem to the investigator that a character is struggling to reach a goal. Not all statements of desire in a story are indicative of need for Achievement. A character may e.g. 'want someone to hand him an axe'. This statement, clearly, would not be scored N. Clear statements of N would be e.g. 'he wants to become a teacher' or 'he wishes that he would become the tribal chief.'

Instrumental Activity

If a character is engaged in mental or physical activity indicating that something is being done about attaining an achievement goal then Instrumental Activity (I) is scored. It is not essential that the outcome of the activity should be successful for I to be scored - what is essential is that the activity should be related to achievement. A further condition is that the Instrumental Activity be independent of both an opening statement describing the situation, and the outcome of the story. Examples of Instrumental Activity are: 'he is working out a plan to build a bigger kraal' or 'he is studying for the examination.'
Doubtful Achievement Imagery (T.I.)

This category is notated TI because it is used most often to denote task-related imagery. Stories scored TI are those which contain some reference to achievement, but fail to satisfy any of the criteria mentioned on page 60. In a case where there is doubt about whether one of the criteria can be met, the story is still scored TI. A story which is scored TI is not scored further for any of the abovementioned categories.

Unrelated Imagery (UI)

A story which fails to have any reference to achievement imagery at all, is scored UI, and is not scored further for any sub-categories.

3.3.3 Modifications applied to scoring system

The scoring system used in this study is a modification and simplification of the McClelland system. In this regard, it is worth quoting the following statement:

'In scoring the stories of other cultures without knowledge of the culture, it would be necessary to adhere to the criterion of an explicit statement of concern over successful competition with a standard in order to define the achievement goals of that culture. Only with growing knowledge of the culture could other criteria be added which involve the inference that competition with a standard of excellence is inherent in certain cultural activities.' (McClelland et al. 1958, p.184)

In applying a 'European' scoring system to the Bantu it is as well in the interests of validity to be cautious. It was felt that knowledge of the achievement goals and cultural activities of the subjects under study is sufficient to allow for valid use of Instrumental Activity, Achievement Thema and Stated Need as scoring categories. These are generally easily
identifiable. This is not the case with McClelland's additional scoring categories namely Anticipatory Goal States, Affective States, Nurturant Press and Blocks.

The available information on the culture/achievement relationships is simply not sufficient to allow the use of the above categories. Since this study concerns a comparison between groups, any increase in sensitivity gained by the use of the above categories would not justify a possible loss in validity resulting from incorrect application of scoring procedure because of a lack of knowledge.

A further modification of this system is the omission of the positive/negative symbols (+, ?, -) indicating the outcome of instrumental activity. Instrumental Activity is scored and one point is allocated, whatever the outcome of the activity. Consequently in this particular study a differentiation between positive and negative outcome is irrelevant.

### 3.3.4 Quantification of score

Following the lead of McClelland e.a. (1958) stories scored for UI received a point of -1, and were not scored further. Stories scored TI received no points. If a protocol was found to satisfy the requirements for a score of AI, one point (+1) was awarded. A protocol scored AI of course qualified for sub-category scoring. One point was given for each sub-category scored.

In effect then, the scoring system formed a continuum, stretching from imagery totally unrelated to achievement (UI) through partially or possibly related (TI) to stories heavily loaded with achievement imagery (AI, I, Ach.Th., N). Using this system, the maximum score which could be attained is 4 points, and the minimum is -1, per story. Since the scores for five stories related by each subject were added together, the maximum possible score for each subject was 20 points and the minimum was -5 points. In order to eliminate any arithmetical or statistical problems which could arise as a result of the use of a minus score, it was decided to add a constant of 5 points to each subject's total score, thus bringing the minimum and maximum permissible scores to 0 and 25 respectively.
3.3.5 The question of bias

Interviewer and scorer biases are always a problem in a study involving subjective techniques.

In this study, interviewer bias was minimized by tape-recording all interviews and by transcribing them word-for-word before translation. At no stage also, was the interviewer aware what motive was being investigated. He was informed only in a general way what the purpose and functioning of the study was.

Scorer bias was avoided by ensuring that the scorer did not know to which sample group each protocol belonged while the scoring was in progress. This was done by folding back the biographical data sheet (which identified or described the subject) and mixing the protocols of the two sample groups. After each protocol was scored it was numbered and the score was annotated on a separate list. This system enabled the scorer to determine each subject's score by matching his numbered protocol to the recorded score. The matching procedure was done only after all protocols had been scored, so that the scorer would not know whether just-assigned scores were for the novice group or the occupationally experienced group.

Strict adherence to McClelland et. al.'s (1958) scoring manual no doubt assisted in maintaining a non-biased method of scoring. It should be mentioned here that the scorer was trained in this method under the supervision of a person experienced therein.
CHAPTER 4

RESULTS AND DISCUSSION

This chapter is so arranged that it deals with firstly; the test results in general (the performance of individual cards etc.) and secondly; the occurrence and distribution of need for achievement in the sample; thirdly; differences between sample groups with regard to need for achievement, and finally; a discussion.

4.1 THE TEST RESULTS - A GENERAL EVALUATION

Basic questions dealt with here concern the general performance of the measuring instrument. The intention is not to investigate this matter in depth, but to supply an indication of the type of responses elicited by the test as a whole and by each card - to provide a tentative guide for possible future use of the instrument.

The section which follows includes graphs illustrating the relative frequency with which each scoring category was scored. In other words, the graphs show how often each achievement-related category (AI, TI, Ach. Th. etc.) was elicited by the cards. The Unrelated Imagery category (UI) has been discarded as irrelevant in the tables which follow:

The two sample groups have been combined and considered as one unit. The first of these tables shows the score distribution of the combined cards, i.e. the mean scores.
The shape of the graph in Table 1 is predictable. Task-related imagery is clearly the most-frequently-scored category of response as may be expected. On the other hand, Achievement Thema, i.e. need for Achievement as a theme of the response is infrequently noted. The mean number of achievement-related responses \(^1\) scored per person for all cards, is

\(^1\) This figure was arrived at by dividing the number of responses by the sample number. This gives an index of card performance for the measurement of need for achievement.
0.49. As noted Table 1 shows the results obtained from the measuring instrument as a whole. The performance of individual cards is therefore shown in the following five tables.

**TABLE 4.2**

**RELATIVE FREQUENCY OF RESPONSES SCORED FOR CARD NO. 1**

The curve of the graph for card number 1 is similar to that of the average, and requires no further comment. With a mean per-person number of responses of 0.47 this card was the second most effective in the series for eliciting need for achievement.
The 'introspective' card number 2 shows Achievement Imagery (AI) and Stated Need (N) categories which are relatively somewhat lower than observed in other cards. With a per-person response index of 0.34 this card may be regarded as moderately effective.
**TABLE 4.4**

**RELATIVE FREQUENCY OF RESPONSES SCORED FOR CARD NO. 3**

<table>
<thead>
<tr>
<th>Scoring category</th>
<th>0</th>
<th>3</th>
<th>6</th>
<th>9</th>
<th>12</th>
<th>15</th>
<th>18</th>
<th>21</th>
<th>24</th>
<th>27</th>
<th>30+</th>
</tr>
</thead>
<tbody>
<tr>
<td>TI</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>AI</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ach.Th.</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Perusal of the above table immediately shows that card No. 3 is a very poor performer in the measurement of need for achievement. The response index for this card is a very low 0.12. Furthermore, most of these responses comprise task-related imagery (TI) which is not a clear indication of the presence of need for achievement.
TABLE 4.5

RELATIVE FREQUENCY OF RESPONSES SCORED FOR CARD NO. 4

The response pattern of card number 4 is typical. Its response per-person index of 0.33 places it on a par with card 2 as a moderately effective card for the measurement of need for achievement.
The last card in the series - that of a school boy with books - rated extremely highly in all categories. Particularly notable is the relatively high Stated Need (N) category. The response per-person index of this card is 1.2 - by far the highest for any of the cards in this series.

In viewing the measuring instrument as a whole, it is clear that the last card in the series (card 5) is most effective in evaluating need for achievement. With the exception of card No. 3, the remainder are moderately effective. Card No. 3 however is virtually useless for the purpose of
measuring need for Achievement and should be discarded in any further use of the series for this purpose.

A characteristic pattern in the scoring of response categories is also observed. In other words, the scoring categories of TI, AI, I, Ach.Th. and N appear to be scored with a characteristic frequency, in relation to the remainder of the categories. This pattern (or graph as it is depicted) appears to remain fairly constant for different pictures.

4.2

THE DISTRIBUTION OF NEED FOR ACHIEVEMENT

The first of the two hypotheses stated in Chapter 3 is that there is a distribution of need for achievement in the sample. Some indication of the nature of this distribution has already been given in the tables in the preceding section. In the following table however, a graph illustrates the complete range of scores obtained for both sample groups.
### TABLE 4.7

DISTRIBUTION OF FINAL NEED ACHIEVEMENT SCORES

<table>
<thead>
<tr>
<th>Score</th>
<th>Number of subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>6</td>
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<td>6</td>
<td>7</td>
</tr>
<tr>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>10</td>
<td>10+</td>
</tr>
<tr>
<td>11</td>
<td>10+</td>
</tr>
<tr>
<td>12</td>
<td>10+</td>
</tr>
<tr>
<td>13</td>
<td>10+</td>
</tr>
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<td>14</td>
<td>10+</td>
</tr>
<tr>
<td>15</td>
<td>10+</td>
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<tr>
<td>16</td>
<td>10+</td>
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<tr>
<td>17</td>
<td>10+</td>
</tr>
<tr>
<td>18</td>
<td>10+</td>
</tr>
<tr>
<td>19</td>
<td>10+</td>
</tr>
<tr>
<td>20</td>
<td>10+</td>
</tr>
</tbody>
</table>

**Legend**

--- occupationally-experienced group

--- novice group
It is clear that the hypothesis stated above (that there is a distribution of need for achievement in the sample) must be accepted. No further assumptions can however be made about the shape of the distribution curves, as this is dependent upon the particular scoring system and method of quantification used. In the light of the available results and information obtained however there can be no doubt that subjects do possess characteristic levels of need Achievement and that these levels differ from person to person.

The implications of the differences between the two groups are discussed in the section dealing with the second hypothesis (that occupationally experienced Bantu have a significantly higher need for achievement).

4.3 INTER-GROUP DIFFERENCES IN NEED ACHIEVEMENT LEVEL

This section deals with differences expected and observed between the occupationally experienced group of subjects and the novice group.

4.3.1 Statement of null-hypothesis

The hypotheses basic to this study have already been stated (see page 52) However it will be advantageous to restate the second of the two hypotheses here within the more formal terms of a null-hypothesis. The hypothesis here stated may be regarded as the 'major' hypothesis of the study.

**Null hypothesis**

In this investigation, the null-hypothesis \( (H_0) \) is that there is no difference between the need for achievement level of the novice sample group and the need for achievement level of the occupationally experienced sample group. The alternative hypothesis \( (H_1) \) is that the need for achievement
level of the occupationally experienced group is significantly higher than that of the novice group.

**Significance level and sample size**

In the analysis the level of significance (a) used was equal to .05. The total number of subjects was 105. This figure included two groups of 38 and 67 subjects respectively.

**Region of rejection**

It may be deduced from the level of significance used that the region of rejection consists of all values of z which are so large that the possibility associated with their occurrence is equal to or less than $a = 0.05$. Since $H_1$ predicts the direction of difference between the two groups, the region of rejection is one-tailed.

**4.3.2 Choice of statistical test**

Siegel (1956) considers the power of a test to be one of the most important considerations in choosing a statistical test. Power in this sense may be very simply described as 'a small probability of rejecting $H_0$ when $H_0$ is true, but a large probability of rejecting $H_0$ when $H_0$ is false.' (Siegel 1956).

However there are several other considerations of importance in the choice of a suitable statistical test. Among these are the manner in which
the sample scores were drawn, the nature of the population from which
the sample was drawn and the level of measurement used for the
scores.

Parametric tests are generally the most powerful in accepting or
rejecting an hypothesis. However these tests are not always appropriate
as they are subject to certain conditions. These include:

(1) The observations must be independent,
(2) observations must be drawn from normally distributed
populations,
(3) the populations must have the same variance,
(4) variables must have been measured in at least the interval
scale.

These conditions are frequently not met. They are not all met by the
data in this study, with the consequence that a non-parametric test must
be used to test the significance of data.

The data obtained from the measuring instrument used in this investiga-
tion is on the interval scale. This allows the use of parametric techniques
suitable for levels of measurement up to and including the interval scale:
Naturally some loss of power is experienced if the highest possible level
(in this case interval level) is not used in the statistical technique.
However it was found that the most suitable test for analysis of the
data in this study was the Mann-Whitney U test, which is capable of
using ordinal scale data. This technique is described by Siegel (op cit, p.116)
'One of the most powerful of the non-parametric tests, and it is a most useful alternative to the parametric t test when the researcher wishes to avoid the t test's assumptions, or when the measurement in the research is weaker than interval scaling.'

Basically the test operates by ordering the data on a scale. Statistical manipulation of this information allows comparison of the resulting value with a table of U-values. This applies to small samples of up to 20 subjects. For relatively large samples it is necessary to compute a z value.

Since a large number of ties may occur in the ordering of the scores (this was the case in the present study) it may be necessary to apply a correction for ties. Despite Siegel's (op cit) comment that the effect of ties is 'usually negligible' this correction was applied to enhance the accuracy of the data.

4.3.3 Results

Some indication of the final result may have been obtained from the group differences illustrated by means of the graphs in Table 4.7. However the Mann-Whitney U test provides a precise means of acceptance or rejection of the hypothesized intergroup difference.

Calculation of the data yielded a z value of 2.37. This is associated (in Siegel's appended tables) with a probability of .0089. Since this figure is smaller than the stated pre-requisite level of .05 we are able to reject $H_0$ at the .05 level. The alternative hypothesis ($H_1$)
is thus accepted.

On the basis of the collected data and the application of a suitable statistical technique therefore, it appears that Bantu mine-workers who are occupationally experienced possess a higher level of need for achievement than novice Bantu mine-workers.

4.4 DISCUSSION AND SUGGESTIONS FOR FUTURE RESEARCH

This study is concerned with achievement motivation in Bantu mine-workers. The concept being measured is difficult to define and describe adequately. The approach has thus been to provide some historical background to the formulation of the concept and to discuss definitions which view this concept in different ways. These definitions have subsequently been expanded on by describing certain theories which may be considered prominent in this field. In this respect motivation in general has been considered while the concept was later narrowed to the more specific concept of achievement motivation.

The second chapter in this study dealt with the measurement of achievement motivation. Fortunately a fair amount of advance work has been done in this field by other investigators. It was determined that the most suitable method of identifying and measuring achievement motivation was by means of a Thematic Apperception Test. It has been mentioned that a considerable amount of work in this field has been carried out by McClelland and his associates (1953). However since the subjects used in this study were quite unlike the sophisticated, Westernized subjects used in the McClelland study it became obvious that the classic Murray TAT would not be effective. Some studies on adaptations of the TAT for local Bantu subjects have been made. Notable among these is the
recent development and validation of a test for Bantu by Baran (1971). Since this test was considered to present advantages certain of the cards were selected and modified for use in this study. The measuring instrument finally used was thus developed specifically for the measurement of need for achievement among Bantu, and consisted of five cards depicting line drawings of Bantu individuals in various situations.

The subjects' responses were analysed by means of a scoring system developed by McClelland, et. al. (1958). Resultant scores were quantified so that each subject could be said to have possessed a certain (numerically stated) level of need for achievement.

It was found that the test was suitable for the measurement of need for achievement. However should the test be used in future for this purpose it is suggested that card 3 be omitted from the series. This card proved to be totally unsuitable for the measurement of need for achievement as virtually no responses obtained for this card concerned that concept. The last card in the series (card 5) was extremely successful, while the remainder were moderately effective.

It was found further that there is a distribution of need for achievement among Bantu mine-workers, i.e. some subjects possessed a measurably higher or lower need for achievement than others. Unfortunately due to the present 'state of the art' no further assumptions could be made about the nature of the distribution.
The main hypothesis of the study - that occupationally experienced Bantu mine-workers possess a higher need Achievement than novices - was verified.

While it is not the purpose of this study to investigate the possible importance of this finding, it would appear that it holds some promise for the training function in industry. The finding seems to substantiate some of McClelland's (1969) later work which suggests that level of need for achievement can be improved by suitable training procedures. Presumably the work-situation (with which the occupationally-experienced subjects were involved) has an effect which is similar to that observed in McClelland's training courses. Naturally this can be expected to have potential for the increase of worker productivity in industry (particularly the gold mining industry) by means of suitable and selective training methods.

The results indicated by this study may be regarded as a small, tentative step which indicates the direction to be followed. Should practical application be made of the motivation-increase notion, considerably more information of a more specific nature would be required. We now know that occupationally-experienced Bantu mine-workers (and this can probably be extended to other groups) possess a significantly higher need for achievement than their novice counterparts. But what we really need to know is what the influencing factors are - what is it about the work situation that apparently induces a higher need Achievement? It is suggested that future research be conducted along these lines.
It is also suggested that verification of this studies' finding be obtained by a method of somewhat different design, to ensure maximum accuracy. Although it is not always feasible to conduct such studies, a longitudinal type of study would eliminate possible doubts about the most suitable methodology. In such a study subjects would be tested as novices and again after a fairly lengthy interval as occupationally experienced subjects. There is no doubt that the measuring instrument would be suitable for this method (provided of course that the time interval is sufficient) and unforeseen and uncontrollable problems of sample selection would be avoided.
CHAPTER 5

SUMMARY AND 'OPSOMMING'

5.1 SUMMARY

Chapter 1 was introduced with the comment that motivation is a concept which is not easy to define. It was stated however that a suitable way of approaching the problem would be to describe the background and development of the problem as well as more formal definitions and relevant theories. In this way a broad mental image of the concept could be built up.

As background material, an historical overview was described. This traced the development of the motivation-related concept from its early origin in classical Greek thought to be modern 19th and 20th century psychological theories. It singled out as a particularly important landmark, the tremendous contribution of Darwin's evolutionary theory as presented in his 'Origin of Species'.

The problem of definition was discussed at length and definitions illustrating various approaches to the concept of motivation were quoted. These definitions vary widely, but they possess certain common points. These common points were combined to produce an 'explanatory' description of motivation which was stated as follows:

'Motivation' implies the dynamic aroused of an organism. This arousal may be in a certain direction and may tend to produce behavioural action by the organism.
It was felt that a definition of motivation should be related to its theoretical constructs. Therefore a general discussion of theoretical considerations was followed by a detailed exposition of the theories of Freud, McClelland and Hull.

As stated above, the first chapter dealt with the nature of motivation. The second chapter followed with a discussion of its measurement. This includes the necessity of certain criteria for the design of a measuring instrument, and various methods. The different methods of measurement were broadly classified into the following:

1. self ratings by the subject,
2. ratings by outside observers, and
3. behavioural measures of motivation.

Included in 3 above are fantasy measures (such as the Thematic Apperception Test) based on the principle of projection. It was concluded that a measure of this type would be most suitable for the measurement of need for achievement. Projection refers to the process whereby a person displaces his own feelings, thoughts, attitudes and other factors onto an external stimulus. It is a form of apperceptive distortion, whereby persons distort (by perceptive interpretation) stimuli or cues viewed by them.

The Thematic Apperception Test (TAT) was described, as it forms the basis for the measuring instrument used in this study. This test (i.e. selected cards from the test) were used by McClelland and his associates (1953) with a considerable degree of success for the measurement of need Achievement.
However the TAT could not be used *per se* as the sample used differed considerably from McClelland's sophisticated White subjects. Thus it was decided to use an adaptation of a test developed by Baran (1971). She designed a TAT specifically for use on Bantu subjects. Since certain of the cards in her test were found to be effective in the measurement of need Achievement they were slightly modified and included in the test used. One additional card of original design was added, thus making a series of five cards. These cards are appended in Annexure B. They were line drawings depicting Bantu individuals in various situations.

In a discussion concerning the validity and reliability of the TAT (and therefore the test in this study) it was noted that much of the work done in this field is conflicting and subject to insoluble methodological problems. Viewing this matter in a general way however it would appear that the results of validation studies tended to cause pessimism, while reliability, on the other hand could be high provided that effective scoring systems were utilized.

In Chapter 3 the aim and method of the study were discussed.

There were two hypotheses namely that:

(i) among Bantu mine-workers, there is a distribution of achievement motivation.

(ii) occupationally experienced Bantu mine-workers possess a level of achievement motivation which is significantly different from that of novice mine-workers in the traditional phase.
The description of the hypotheses was followed by a description of the sample. This consisted of 105 Bantu mine-workers comprising two groups - a novice group of 38 persons and 67 occupationally experienced workers. The subjects were selected on a random basis from workers entering the Western Reefs Aptitude Test Centre - an induction centre for Bantu mine-workers in the Western Transvaal.

The test was administered in the manner considered to be standard for the TAT. Responses were tape-recorded, translated and transcribed by a competent Bantu personnel official. In addition to the basic test, a large amount of biographical information was gathered by means of a biographical data sheet which was used to initiate the interview.

Scoring was done by content analysis, following a well-tried and effective procedure developed by McClelland et al. (1958). The procedure was simplified by omitting certain scoring categories which were thought to be of doubtful validity for the Bantu culture. A score reflecting the presence of a certain level of need for achievement within each subject was calculated, following McClelland's method.

The 'results' chapter (Chapter 4) dealt with: firstly; the general performance of the test, secondly; the occurrence and distribution of need for achievement in the sample, thirdly; differences between sample groups with regard to need for achievement, and finally; a discussion.

The test was found to be generally satisfactory for the evaluation of need for achievement. Card 5 in particular, strongly elicited this need. However one card in the test proved to be highly unsatisfactory and should be omitted from the series in any future use of the test. This was card 3.
Comparisons between the scoring sub-categories were made for each card. This showed the presence of a typical frequency curve concerning the frequency with which each sub-category was observed in the subjects' responses.

The first hypothesis noted (that there is a distribution of need Achievement) was confirmed.

The second hypothesis was also proved. It was found that occupationally experienced Bantu mine-workers possessed a significantly higher need for achievement than did novice Bantu mine-workers. A highly significant result was obtained upon application of the chosen statistical technique: the Mann-Whitney U-test.

The significance of this finding was not deeply delved into as this was considered to be beyond the bounds of the study. However it was stated that the result is an indication that potential for fruitful further study with practical application lies in this field. The finding obtained gives an indication of the direction in which further research should move.

5.2 **AFRIKAANSE OPSOMMING**

Die studie wat hier beskryf is, handel oor die prestasiebehoeftes soos dit in Bantobewerkers voorkom.

Daar was twee hipoteses, naamlik:

(i) dat daar 'n verspreiding van die prestasiebehoeftes motief onder Bantobewerkers voorkom,

(ii) dat daar 'n beduidende verskil in die vlakke van die motief
tussen 'n nuweling-groep Bantoemynwerkers en 'n groep ervare mynwerkers is.

Die resultate het getoon dat daar wel 'n verspreiding van die prestasiebehoefte bestaan (d.w.s. die eerste hipotese is aanvaar) en dat die ervare groep mynwerkers 'n beduidend hoër prestasiebehoefte besit as die groep nuweling- of onervare mynwerkers.

Die steekproef het bestaan uit 105 individue, 38 in die 'nuweling'-groep en 67 in die 'ervare'-groep.

Die voorkoms van die prestasiebehoefte is vasgestel en gemeet met betrekking tot 'n TAT-tipe toets wat op die Baran-toets vir Bantoes gebaseer is.

Die studie is verdeel in hoofstukke wat onderskeidelik handel oor

1. die aard van motiewe,
2. die meet van motiewe,
3. doel en metode van die studie,
4. resultate, en
5. 'n opsomming.
ANNEXURE A

BIOGRAPHICAL DATA SHEET
MOTIVATION RESEARCH - BIOGRAPHICAL DATA SHEET

1. NAME ...........................................................................................................

2. HOME PROVINCE AND COUNTRY ............................................................

3. PASS NO. ............................................................

4. MINE NO. ............................................................

5. TRIBE .............................................................

6. EDUCATION (YEARS) ...............................................................

7. AGE (YEARS) ............ DATE OF BIRTH ..............................................

8. MARITAL STATUS  Single  Married  Divorced  Widowed  Separated

9. NUMBER OF WIVES ......................................................

10. WHO IS HEAD OF HOUSEHOLD (SELF, FATHER, ETC.) ......................

11. FATHER'S POSITION IN COMMUNITY (OCCUPATION AT HOME) ........

12. WORKING EXPERIENCE (START WITH RECENT JOB - WORK BACKWARDS)

<table>
<thead>
<tr>
<th>Type of job</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration</td>
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</tr>
<tr>
<td>Employer</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Age when started</td>
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<td></td>
</tr>
<tr>
<td>Surface or underground</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ANNEXURE B

THEMATIC APPERCEPTION TEST CARDS
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