PERSONALITY AND ATTITUDE CHANGE THROUGH NORMATIVE PRESSURE

A.M. COLMAN, B.A. (Hons)

Submitted in partial fulfilment
of requirements for the degree
of M.A. at the University of
Cape Town

October 1968.

CONTENTS

ABSTRACT

Some implications of the information content of expressed attitudes are discussed, and the literature on attitude change reviewed with this attitude-dimension in mind. 226 Ss responded to a scale measuring attitudes toward Africans, either on an individual basis in writing, or orally under pro- or anti-African normative pressure in an Asch-type situation. The confederates were successively replaced by naïve Ss. Extreme attitude change was found, but the personality correlates of change were unclear. A laboratory analogue of the perpetuation of attitudinal norms was successfully provided. These and certain unexpected results are discussed.

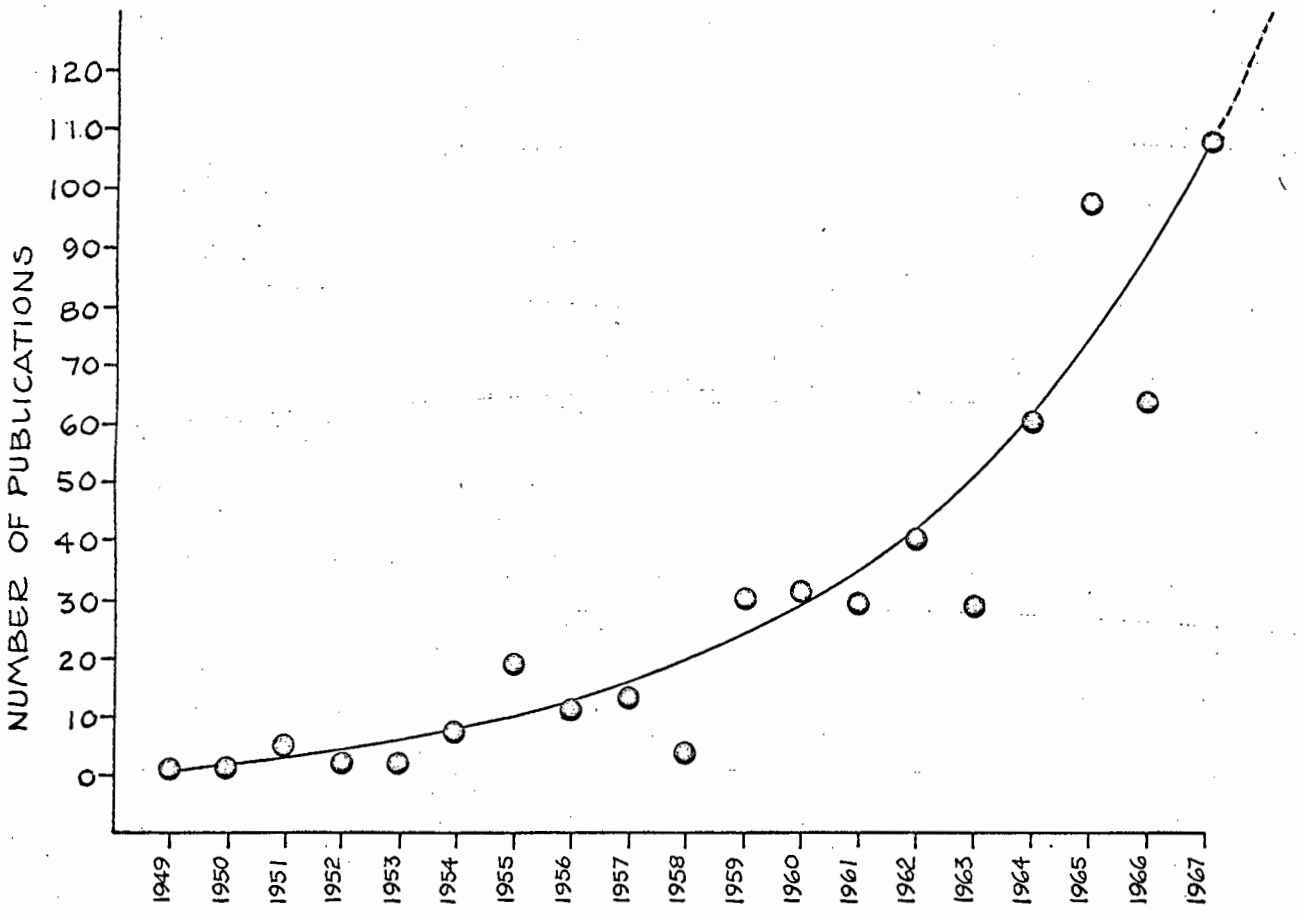


FIGURE 1.

Two preliminary observations should be made concerning this literature. Firstly, research on attitude change has surprisingly infrequently been concerned with what might be called, by however liberal an interpretation of the phrase, "ideological shift". It has usually been confined to investigating minimal quantitative changes in attitude to social issues of little salience to the subjects. In fact, the body of literature is more suggestive of Procrustean Man, than of Protean Man.

A second characteristic of most research on attitude change over the years, is that change has seldom been viewed as adaptation to "divergent social worlds". It has usually been conceptualised as a response to a message emanating from a specified source.

1. INTRODUCTION

According to Lifton (1968), we are living in the age of Protean Man. In contemporary literature, the zeitgeist is epitomized by Saul Bellow's fictional characters, such as Augie March, "a picaresque hero with a notable talent for adapting himself to divergent social worlds" (Lifton, 1968, p.18). Lifton asserts that

"until relatively recently, no more than one ideological shift was likely to occur in a lifetime, and that one would be long remembered as a significant individual turning-point accompanied by profound soul-searching and conflict. But today it is not unusual to encounter several such shifts, accomplished relatively painlessly, within a year or even a month; .... the rarity is a man who has gone through life holding firmly to a single ideological vision" (p.21).

The rise of Protean Man has been parallelled by an explosion in the psychological literature on attitude change. A perusal of Psychological Abstracts from 1949 through 1967 reveals a positively accelerated growth curve for the number of publications indexed under "attitude change" (see Fig. 1).

These two observations may be causally related to each other. It is not unlikely that attitudes involving salient issues, which play an important part in an individual's adaptation to his social environment, are resistant to change by means of "propaganda" messages. Change in such attitudes may necessitate changing the social environments in which they operate, while attitudes involving low-salience issues may be amenable to modification through standard communication procedures.

Such an analysis does not imply that attitudes involving salient issues are necessarily "enduring organisations of motivational, emotional, perceptual and cognitive processes with respect to the same aspect of the individual's world" (Krech and Crutchfield, 1948, p.152) and therefore, by definition, "relatively" difficult to change. It implies merely that these attitudes are relatively enduring within static social-psychological environments. It is possibly from the multiplicity of modern man's reference groups that the ideological lability referred to by Lifton derives. The implication is that traditional techniques of persuasion may be inappropriate when applied to such attitudes. This point can be appreciated most clearly by viewing people as producers, rather than mere passive consumers of attitudes. Expressed attitudes are themselves communications.

1.1 THE VALUE-INFORMATION CONTENT OF ATTITUDES

To the extent that attitudes represent patterned (i.e., nonrandom) responses of individuals to their psychological environments, they convey information. That is to say, if an individual P expresses an attitude in the presence of a second individual O, he thereby conveys information about himself to O. This information may or may not be useful to O in evaluating P.

If, for example, P meets O, a deeply committed pacifist, for the first time, and expresses a warlike attitude, O is likely to evaluate P unfavourably. It is clear that P's expressed attitude conveys information which enables O to evaluate him. If, on the other hand, O likes whiskey and soda, and P expresses a dislike for whiskey and soda, the information about P thus obtained is hardly likely to enable O to evaluate P. It can therefore be said that P's warlike attitude in the first example conveyed a considerable amount of value-information to O, while in the second example P's attitude conveyed very little value-information.

The value-information content of an expressed attitude is a product of the total information content of the attitude and the salience of the issue for the recipient. The total information content depends upon its probability in the ensemble of all possible attitudes toward the psychological object: had P in the first example above expressed an unfavourable attitude toward murder, very little information would have been conveyed and O would not have been able to evaluate him.

Had he, on the other hand, expressed a favourable attitude toward murder, a great deal of information would have been conveyed. The salience of the issue for the recipient depends upon his value system. The higher the salience in the recipient's value heirarchy of the issue, the higher the value-information content of the expressed attitude for that recipient. Thus P's warlike attitude in the above example is likely to convey little value-information to a recipient O for whom the pacifism/war issue has low salience.

More specifically, the value-information content of an attitude for the producer of the attitude is given by

$$\underline{Hv} = -\log\underline{P} \times \underline{S}$$

where $\underline{P}$ is the inferred probability of the attitude in the ensemble of all possible attitudes on the issue, and $\underline{S}$ is the inferred salience of the issue for the recipient. The true salience is defined by

$$\underline{S}(t) = \underline{r}^2$$

where $\underline{r}$ is the correlation between the recipient's favourable or unfavourable evaluations of members of a population of individuals and his subjective impressions of their attitudes on the issue. (It follows that $\underline{r}^2$ is the amount of variance in his evaluations of people accounted for by their inferred attitudes on the issue).

When the producer of the attitude knows the recipient very well

$$\underline{S} = \underline{S}(t)$$

holds approximately. Should he, however, lack any knowledge of the recipient, or should there be a large audience present, his estimate of the mean value of $\underline{S}(t)$ for the population can be substituted.

It follows that Hv represents the extent to which the producer of an attitude expects to be positively or negatively evaluated as a result of expressing that attitude.

A comment needs to be made on these derivations. "Man as an intuitive statistician" usually fails to extract all the information from a communication (Peterson and Beach, 1967). The inferred values of P and S are therefore likely to be conservative estimates of their true values. The subjective values, which are reminiscent of Rotter's (1954) "subjective probability of reinforcement", are therefore preferred. Also, the base of the logarithm, which represents the subjective number of alternatives, will in most cases be about 7 (Miller, 1956).

If it can be assumed that people are motivated to behave in a manner which is likely to result in their being favourably evaluated by others (cf. Festinger, 1954), then it can be deduced from the above discussion that attitudes of high value-information content (Hv) will be greatly determined by the subjective social environments of the attitude-producers. One may predict that such attitudes will be resistant to change through rational or personal appeal, but extremely susceptible to change in response to "changing social worlds".

To take an extreme imaginary example: suppose an individual who holds a certain attitude on an issue finds himself in a social situation in which he judges the issue to be highly salient, and he further judges his initial attitude to be shared by no other member of the group. In such a situation, since S is very high and P is very low, Hv is very high. If the individual is called upon to express an attitude on the issue, he will expect to be evaluated to a great extent by his attitude. Assuming that he wishes to be evaluated favourably, he is likely to modify his initial attitude in conformity with the group norm as he perceives it. The amount of attitude change will probably depend upon a number of personality factors, together with the salience of the issue for the individual himself.

The above discussion draws attention to a dimension of attitudes whose implications for this study will be amplified after a selective survey of the literature on attitude change, examining the extent to which this dimension has implicitly been considered by previous workers.

1.2 Attitude change.

The decline of the three great nineteenth century schools of psychology was accompanied by a three-front attack on several important fields of psychological investigation. The classic example is found in learning theory, but the field of attitude change provides an equally clear illustration.

The nineteenth century schools had concerned themselves with different sorts of problems. It is no accident that the groundwork of contemporary learning theory is to be found in the ideas of the early behaviourists, while modern motivation theory leans heavily on early psychoanalytic psychology, and present day ideas about perception/cognition derive in large measure from Gestalt Psychology (Boring, 1950). A tripartate classification of twantieth century approaches to attitude change may thus conveniently be labelled according to the theoretical orientation, as the S-R, the motivational, and the perceptual/cognitive approaches.

1.21 The S-R approach.

A vast amount of empirical research on attitude change was initiated at Yale University under the directorship of Carl. 1. Hovland. After working for some years with C.L. Hull on stimulus generalisation, Hovland was drawn into social psychology during the war, as a result of the need for empirical information concerning propaganda and counter-propaganda. The communication variables studied by these workers are traditionally classified according to the formula : "Who (source) says what (message) to whom (recipients) through which medium (channel) with what effect". (Smith, Lasswell, and Casey, 1946).

Concerning the source, Hovland and his co-workers have concentrated primarily on investigating the nature of credibility. It had already been demonstrated in research done before the war that communications emanating from high-prestige sources result in greater attitude change than those emanating from low-prestige sources

(e.g. Arnet, Davidson and Lewis, 1931; Bowden, Caldwell and West, 1934; and Kulp, 1934). However Hovland and Weiss (1951) contributed the non-obvious finding that the credibility effect dissipates over time. That is to say, there is a decrease in the effect of material emanating from high-prestige sources and an increase in the effect of material emanating from low-prestige sources. This "sleeper effect" was replicated by Weiss (1953), while Kelman and Hovland (1953) demonstrated that it is impossible to reduce the effect simply by reminding the audience of the source's high or low credibility. It was also demonstrated that credibility is compounded of "trustworthiness" and "expertness" in the eyes of the recipients (Hovland, Janis, and Kelly, 1953).

In investigating the variables of the message relevant in attitude change situations, the first problem tackled by Hovland and his collaborators was that of one-sided versus two-sided communications. The findings of this series of experiments are complicated. Two-sided (qualified) messages are most effective in inducing attitude change in individuals who are initially opposed to the point of view presented, while one-sided messages are more effective with recipients who are already convinced of the point of view being presented. A similar interaction was found with the level of education of the audience, better-educated individuals responding more favourably to two-sided messages and tending to be suspicious of one-sided messages. These findings were summarised by Hovland, Lumsdaine and Sheffield (1949). They have been replicated and extended by Insko (1962) and Wrench (1964), while Lumsdaine and Janis (1953) have demonstrated greater resistance to counter-propaganda resulting from two-sided communications.

The second message variable to be investigated was primacy versus recency. In the late 1950's, Hovland and his associates published the now well-known "The order of presentation in persuasion" (Hovland et. al., 1957). Prior to this publication, the literature on primacy-recency was contradictory. Lund (1925) had established the "law of primacy in persuasion", which states that when two sides of an argument are presented, the first presented side has the advantage. Subsequent investigation appeared at first to confirm the law (e.g. Knower, 1936), and then to contradict it (e.g. Cromwell, 1950), several writers reporting that recency was the dominating factor. Hovland et. al. (1957) replicated some of these experiments indicating that the primacy effect was at least extremely unstable. It has since been shown that the primacy effect interacts with a number of other message variables. Highly familiar material (Lana, 1961), controversial (Lana, 1963a), interesting (Lana, 1963b), and nonsalient (Rosnow and Goldstein, 1967) material makes for primacy. Their opposites yield recency (Lana, 1961). Attempts to fit these findings into a theoretical framework, according to reviews by Lana (1964) and McGuire (1966) have not been very successful. The best attempt is probably Miller and Campbell's (1959) adaptation of Ebbinghaus decay curves to predict conditions most favourable to primacy and recency effects.

A third message variable to be investigated by the S-R approach was the emotional versus rational dimension. Emotional appeals had already been found to be generally more effective (e.g. Hartmann, 1936), but there are probably interaction effects involving familiarity, "strength" of argument and the like (Sears and Freedman, 1965; Weiss, Rawson and Pasamanick, 1963). The Yale workers have concentrated more specifically

on the efficacy of fear-arousing appeals. Janis and Feshbach (1953) conducted a now-famous experiment demonstrating that the greater the threat, the less the resulting attitude change. However the generality of these results has recently been repeatedly challenged (e.g. Smith, 1966). McGuire (1967) has recently attempted to reconcile the conflicting findings on fear-arousing appeals by suggesting that high-threat appeals decrease audience receptivity to the message, at the same time as they increase the liability of the audience to yield to whatever is received. This results in a hypothetical nonmonotonic function for the threat (fear) - compliance relationship.

In studying variables of the recipients relevant to attitude change, the Yale school workers tried to isolate through experimental investigation the correlates of persuasibility. A general factor of persuasibility was identified, (Janis and Hovland, 1959), but persuasibility appears often to depend upon source, message, channel and situation factors. For example, Weiss and Fine (1955) demonstrated that hostile, extrapunitive personalities are most strongly affected by a message favouring harsh treatment of juvenile delinquents.

With respect to general persuasibility, the findings are somewhat confused. There is literature, for example, suggesting the relationship between I.Q. and persuasibility to be positive (Hyman and Sheatsley, 1947; Swanson, 1951), negative (Carment, Schwartz and Miles, 1963; Carment, Miles and Cervin, 1965), and Null (e.g. Murphy, Murphy and Newcomb, 1937). The relationship between sex and persuasibility has been clearly demonstrated by the Yale workers: females tend to be more susceptible to persuasive communications than males (Janis and Field,

1959; King, 1959; Whittaker, 1965). Numerous personality variables have been investigated as possible correlates of communication-free persuasibility. The one which has given the most consistent positive results is self-esteem. It appears that low self-esteem is predictive of susceptibility to social influence of any kind (Leventhal and Perloe, 1962; Dabbs, 1964; Silverman, 1964; Crowne and Conn, 1964; Cox and Bauer, 1964; Cohen, 1964; Gollob and Dittes, 1965). This personality variable has also appeared in the literature on susceptibility to hypnosis (Barber, 1964) and conformity (Crutchfield, 1955). It is one of the factors which will be investigated in the present study.

As far as the channel is concerned, results of research in the S-R tradition may be summarised without elaboration: other things being equal, face-to-face communication is most effective, followed in descending order of effectiveness by films, television, and radio, with the written word least effective of all. Thus the more impersonal the medium, the less attitude change is to be expected (see the review by Weiss, 1968).

The S-R approach to attitude change is characterised by a low degree of theorising and a high degree of experimental rigour. Perhaps it can best be described as a tactical approach rather than a strategic one; it is concerned with providing well-validated quantitative data concerning details of independent variable manipulation which are of immediate usefulness to people actually engaged in changing peoples' attitudes. This is perhaps not surprising when one considers the circum - stances which gave birth to the approach.

The highly artificial nature of the experimental situations from which the empirical findings described above were derived, raises the whole question of the extent to which these findings can be generalised to "real-life" situations. In a classic paper comparing the experimental and field-study approaches, Hovland (1959) has indulged in some trenchant self-criticism along these lines.

Firstly, in most of the experimental populations, high-school students and college sophomores are heavily overrepresented, but as Tolman has pointed out : "sophomores may not be people". In all probability, students, who are trained to be receptive to new ideas, are more persuasible than the general population. Secondly the experimental audience is a captive audience, while in the "real-life" situation it is restricted to those who expose themselves to the communications. Thirdly, the time-interval sampled in the experimental situations is usually very short, while in "real life" attitude change may often be a slow process occurring over a considerable period of time.

But the most devastating criticisms of the whole S-R approach are (a) that it is fitted to a naïve model of attitude change, and (b) that the issues almost invariably used in the experimental situations are of very low salience for the subjects. Hovland (1959) has made this latter point quite clear:

"We usually deliberately try to find types of issues involving attitudes which are susceptible to modification through communication. Otherwise we run the risk of no measurable effects, particularly with small-scale experiments" (p. 11).

The experiments are, in fact, largely confined to studies involving attitudes on nonsalient issues. A related fact is that the model (which is taken from consumer research) ignores the social context in which attitudes of high value-information operate and change. The message is viewed as emanating from a specified source, being transmitted through a particular channel, and reaching a series of discrete individuals. This model probably fits the case involving low-salience issues fairly well, but the powerful determining effects of groups on attitudes involving salient issues, is totally omitted from consideration. The approach is a truly stimulus-response one.

1.22 The motivational approach.

This approach to the study of attitudes in general is derivitive of psychoanalytic thinking. It is represented by the authoritarian personality study (Adorno et. al. 1950), and by Smith, Bruner and White's (1956) "Opinions and Personality". The only workers in this tradition who have made any significant contribution to the understanding of attitude change are Daniel Katz and his collaborators at Michigan University. In fact, to quite a large extent the approach is antagonistic to the idea of change, since attitudes are viewed as serving some necessary function in the individual's (more-or-less stable) motivational system. For example, the notion of persuading an authoritarian to hold non-authoritarian attitudes is nonsensical. What would be required is a complete restructuring of personality.

The contribution of Smith, Bruner and White (1956) was largely methodological. Since an attitude is seen as serving some specific function or functions in the individual's personality, it is disputed that attitudes are best investigated in an emotionally neutral setting. These workers have therefore developed a stress-interview technique of attitude assessment.

Katz and Stotland (1959) and Sarnoff and Katz (1954) have grouped the functions which attitudes are alleged to perform for the personality according to their motivational bases, as follows :

(a) The instrumental, adjustive or utilitarian function, upon which Bentham and the utilitarians constructed their model of man. A child develops a favourable attitude toward any segment of his environment which is associated with the satisfaction of his needs, and an unfavourable attitude toward one which thwarts or punishes him. Instrumental attitudes are means, either of reaching a desired goal, or of avoiding an undesirable one. The most common examples found in adult personalities are those attitudes held in order to be accepted as a member of some positively-valued reference group.

(b) The ego-defensive function, in which the person protects himself from having to acknowledge some basic facts about himself or the harsh realities of the external world. Rigid, moralistic attitudes, for examples, may serve the function of protecting an individual from an acknowledgement of his own sexual and aggressive impulses.

(c) The value-expressive function, in which the individual derives satisfaction from exercising his inherent drive for self-expression, self-realisation, or the like, and his need to establish his identity on matters which are central to him. Most authoritarian attitudes fall into this category.

(d) The Knowledge function, based on the individual's need to give structure to his universe. Stereotypes, as Walter Lippmann (1922) originally pointed out, " ... may not be a complete picture of the world, but they are a picture of a possible world to which we are adapted".

According to the theory, instrumental attitudes can be changed by changing a person's goals (e.g. reference groups), or by demonstrating to him that his goals are not best served by the attitudes which he holds. Value-expressive attitudes can be changed only by demonstrating to the individual a discrepancy between his values and his attitudes. Ego-defensive attitudes must be changed by removing the real or imagined threat. This is usually impossible in practice, but there is an alternative: the individual may be given insight into his own personality dynamics. Defensive attitudes flourish in a threatening atmosphere, so this is best accomplished in a relaxed, non-threatening setting. Finally, attitudes which serve the knowledge function can best be changed by exposing the individual to a range of experience at variance with his attitudes.

The S-R and motivational approaches to attitude change are, in a sense, complementary. The motivational approach deals with strategy (theory) while the S-R approach is concerned with tactics and empirical details.

It can readily be seen that the motivational approach concerns itself wholly with attitudes involving salient issues. It can not, therefore, explain the conditioning of attitudes involving low-salience issues, which has been demonstrated to occur by those who have taken the S-R approach to its absurdist teleological conclusion (Razran, 1940; Doob, 1947; Lott, 1955; Staats and Staats, 1958; Janis, Kaye and Kirschner, 1965; and Staats, 1967).

Coupled with this fact is the partial recognition by representatives of the motivational approach, especially Sarnoff and Katz (1954); Smith, Bruner and White (1956); and Katz and Stotland (1959), of the importance of group factors in understanding attitude change. However, if judged by the criterion of heuristic value, the theory of Katz and his co-workers has proved disappointing. On the other hand, Adorno's et. al. (1950) theory of authoritarianism, which is not of direct relevance to attitude change, has proved to be one of the most heuristic theories in the history of social psychology.

1.23 The perceptual/cognitive approach.

Under this heading can be subsumed the models deriving from the concepts of balance, congruity and dissonance. The concept of balance is due ultimately to Heider (1946), the congruity principle to Osgood and Tannenbaum (1955), and cognitive dissonance theory to Festinger (1957). Common to these formulations is the notion that thoughts, beliefs, attitudes and behaviour tend to organise themselves in meaningful and sensible ways, into a state of cognitive/perceptual consistency (Feldman, 1966). However, the methods used by individuals to achieve consistency are often highly irrational (Zajonc, 1960).

The original formalisation of the perceptual/cognitive approach derives from Fritz Heider's (1946) work on person perception. Heider focused his analysis on an individual's (P's) cognitive structure representing relations between himself, some other person (O), and some psychological object (X). P may perceive two kinds of relationships among the elements: liking (L), and unit relations (U), such as cause, possession and similarity. Each relationship may be positive or negative.

An individual's cognitive structure, comprising these three elements and their relationships, may be balanced or unbalanced. An unbalanced state exists only if there is one negative and two positives in the structure. For example, a state of balance would exist if P perceived that : P likes O, O dislikes X, and P dislikes X. An unbalanced state might be : P likes O, O possesses X, P dislikes X. The fundamental assumption is that an unbalanced state produces tension and generates forces to restore balance by changing one or more of the relationships. This assumption has received some empirical support (Jordan, 1953).

Cartwright and Harary (1956) have removed Heider's formulation onto a higher level of abstraction. Their generalisation allows any number of cognitive elements and relationships, and the degree of balance is given by the proportion of balanced cycles. Some empirical support for this extended model, similar to that cited for Heider's model, has been provided by Morrissette (1958).

Another generalisation of Heider's model was advanced by Newcomb (1953), who extended the system from purely cognitive relations to power relations, leadership relations, and so on. Newcomb was the first worker in this tradition to examine the factors determining the degree of "strain toward symmetry". In a situation in which P holds a different attitude toward X from a well-liked O, this depends upon : the degree of the perceived discrepancy between the PX and OX relations, the degree of attraction of P toward O, the salience of X for P, the degree of P's certainty concerning O's orientation toward X, and the degree to which X is relevant to the AO relationship. An implication of this analysis is that when an unbalanced state exists for P, various outcomes apart from change in attitude toward X or O are possible, however Newcomb offers no solution to the problem of predicting what changes will occur in a specified situation. Nevertheless, a variety of possible outcomes are taken into account in subsequent elaborations of the balance model, the most significant of which is Abelson and Rosenberg's (1958) "symbolic psychologic".

In 1954 Newcomb established a temporary residence in which seventeen students could live rent-free in return for offering themselves as subjects in a longitudinal experiment. The findings, which have been

replicated several times, were that those who were attracted to each other tended to agree on a wide range of (high salience) issues, and these similarities, real and perceived, increased over time. (Newcomb, 1956). These findings lend themselves readily to reinterpretation in terms of the value-information concept, since one would predict a desire to be positively evaluated by people to whom one is attracted; in an artifically mixed social group like Newcomb's, the subjects clearly have to choose their allegances.

Further indirect evidence for the Heider-Newcomb balance model has been reported by Burdick and Burns (1958), who obtained significant increases in G.S.R. in unbalanced "real-life" situations, in which the subjects disagreed with a well-liked experimenter.

Undoubtedly Newcomb's greatest contribution was a demonstration that attitudes are not inherent properties of individual personalities. Attitudes are not viewed as existing in social vacuums or intrapersonal settings (cf. 1.21 above); but as constituting the cells in a social matrix. This conception implies a potential changeability in attitudes of high value-information content which has not been fully appreciated by researchers in other traditions (Newcomb, 1961, 1963).

1.231 The principle of congruity.

This principle, which really amounts to a quantified method of describing perceptual/cognitive balance, was originally advanced by Osgood and Tannenbaum (1955). Heider's model had dealt with all-or-nothing "pro" or "con" attitudes, and despite Newcomb's demur, there had before 1955 been no method in existence for taking into account the quantitative aspects of attitudes in the prediction of attitude change from consistency theories.

Osgood and Tannenbaum's (1955) method of quantification is somewhat crude. A simple seven-point rating scale, derived from Osgood's (1952) semantic differential, is used to assess the degree of positive or negative affect associated with the psychological object. Sophisticated attitude scales are seldom used.

The principle of congruity holds that when attitude change occurs, it always occurs in the direction of increased congruity with the existing frame of reference. The paradigm is a situation in which P is confronted by some other individual O, toward whom P has some quantifiable attitude, and O proceeds to evaluate a psychological object X toward which P has a pre-existing attitude. Osgood and Tannenbaum (1955) provide a formula for predicting the attitude change (toward O and X) expected in this sort of situation. The formula states that the change in attitude toward the two congitive elements (O and X) will be inversely proportional to their degree of polarisation on the seven-point rating scale, with a correction for incredulity (in case Stokely Carmichael votes for Hubert Humphrey).

Fishbein and Raven (1962), and Fishbein (1963) have distinguished between beliefs about a psychological object and attitude toward that object, and have offered operational definitions of belief and attitude using methods derivitive of Osgood, Suci and Tannenbaum (1957). Anderson and Fishbein (1965) have tested Fishbein's formula for attitude change, which takes into account the total amount of affect associated with each of the individual's beliefs about the object, in contrast with Osgood and Tannenbaum's (1955) original formula which uses the mean affect associated with an individual's beliefs (only one rating is made). The empirical support for each of these formulae is disappointingly slight (see Anderson and Fishbein, 1965).

Considering the balance and congruity formulations together, it seems highly probable that the value-information content of attitudes is a determining factor of the amount of attitude change to be expected. The basic paradigm of both approaches is a situation in which P perceives a liked or disliked O evaluating explicitly or implicitly a liked or disliked X. The assertion is that this can affect P's attitude toward O and/or X. However no truly explanatory concept is offered to account for this effect.

Suppose, for example, an extremely well-liked O is perceived by P to evaluate extremely unfavourably the common psychological object X, and suppose further that P's initial rating of X was extremely favourable. Balance and congruity formulations would predict that P's attitude toward X will become less favourable, and similarly his attitude toward O. However no real explanation for this prediction is offered, save a postulated drive for perceptual/cognitive consistency.

It has been suggested that the degree of "relevance" of X to the P - O relationship is a determining factor of amount of attitude change (see above). The value-information content of P's initial attitude toward X is a more precise notion, which has the advantages of being measurable and affording some explanation of the predicted attitude change. By sticking to his initial attitude toward X, P perceives himself as a person who might be unfavourably evaluated by O. By adopting an attitude less favourable than his initial attitude toward X, he may perceive himself as someone less likely to be negatively evaluated by O. The extent to which these statements are valid is a simple function of the value-information content of P's initial attitude.

In the real-life situation, the potential audience of an expressed attitude is usually much larger than one. Thus the possibility of P's changing his attitude toward O rather than (or as well as) X seldom arises. In some circumstances, however, P may react in this way ("I don't care what O would think of me <u>because I don't like him</u>".). Here again any change will be determined by the value-information content of P's initial attitude. But it must be stressed that the balance/congruity formulations are slightly artificial in abstracting one element out of the individual's total social environments.

<u>1.232 Cognitive dissonance theory</u>.

This theory, originally put forward by Leon Festinger (1957) states that two cognitions " ... are in a dissonant relation if, considering these two alone, the obverse of one element would follow from the other" (p.13). Of all the cognitive/perceptual models, this one has generated the greatest volume of research on attitude change.

The basic assumption of dissonance theory is that dissonance, " ... being psychologically uncomfortable, will motivate the person to try to reduce dissonance" and " ... in addition to trying to reduce it, the person will actively avoid situations and information which would likely increase the dissonance" (Festinger, 1957, p.3.).

There are a number of possible modes of dissonance reduction in most situations. In general, the individual may decrease the number and/or importance of the dissonant elements, change one or more of the elements, or add new elements. Attitude change is often only one of several alternative methods of reducing dissonance in a dissonance-arousing situation (Cohen, 1964). Furthermore, dissonance is a quantitative concept : the amount of dissonance aroused by a given situation is a function of the ratio of dissonant to consonant cognitions, with each element weighted for its "importance" to the individual.

The burgeoning literature on cognitive dissonance has been reviewed by Asch (1958), Mowrer (1963), Jordan (1964), Chapanis and Chapanis (1964), Weick (1965), Bem (1967), Rhine (1967), and Elms (1967). The reviews of Mowrer, Jordan, Chapanis and Chapanis, Bem and Elms can be viewed as critiques, but impressive rejoinders have been written by Zimbardo (1964), Silverman (1964), Brehm (1965)and Mills (1967).

The three types of dissonance-arousing situations on which most research has been done involve post-decision situations, forced compliance situations, and situations in which the individual is confronted with dissonance-arousing communications (The classic attitude-change situations studied by workers following the S-R approach).

Cognitive dissonance theory predicts dissonance following decision, or commitment to an alternative, to the extent that the chosen alternative contains unattractive features and the nonchosen alternative attractive features to the chooser. Empirical support has been obtained for the deduced hypotheses that post-decision dissonance will lead to selective self-exposure to information supporting the decision, and that following decision the chosen alternative will become more attractive to the chooser and the nonchosen alternative less attractive. (Brehm, 1956, 1959, 1960; Ehrlich et. al., 1957; Mills, Aronson and Robinson, 1959; Adams, 1961; Rhine, 1967), although the results are somewhat equivocal.

When an individual is forced (either by reward or punishment) to commit himself publicly to an attitudinal position which differs from his initial attitude, dissonance theory predicts greater attitude change in the direction of the commitment the less the reward or punishment. This prediction is opposite to the prediction derivable from behaviour theory. Data collected by Festinger and Carlsmith (1959) and by Aronson and Mills (1959), support the dissonance point of view, although, needless to say, these experiments have aroused some controversy with workers adhering to the S-R approach.

In situations involving exposure of individuals to information discrepant with their prior attitudes, cognitive dissonance theory predicts attitude change, the amount of change depending upon such factors as the salience of the issue, the amount of effort expended in receiving the communication, and the subjectively felt freedom to have avoided the communication. These effects are well documented (Cohen, 1959; Cohen, Terry, and Jones, 1959; Brehm, 1960: and Zimbardo, 1960).

1.24 Overview

In his acceptance address upon receiving an award for distinguished contribution to science, Heider (1967) implicitly drew attention to the distinguishing characteristic of the perceptual/cognitive approach to attitude change, which clearly illustrates its Gestalt roots. Using Ross Ashby's terminology, he distinguished between man's nonsocial environment, which he described as poorly joined, and his social environment, which is richly joined. The perceptual/cognitive approach takes full cognisance of the essential interrelatedness of social cognitions. Attitudes are viewed as existing in an interpersonal setting, and a change in any part of the perceptual/cognitive system may affect a given attitude.

The value-information content of attitudes is a parameter which has not really been implicitly or explicitly considered. The S-R, motivational, and cognitive/perceptual approaches have been dealt with here in ascending rank order of the extent to which the approaches imply applicability to attitudes of high value-information content. This is found to correspond to the descending rank order of applicability of "standard" persuasive communications, which is to be expected if the analysis of value-information content in 1.1 above has any validity.

Fundamental attitude change on salient issues is undoubtedly a phenomenon frequently found in "real-life" situations (Lifton, 1968). Yet this phenomenon has seldom been demonstrated in research on attitude change. This may be because, in research following the S-R tradition, the factors of change in the social psychological environments of the subjects have not been manipulated, and in research following more socially oriented approaches, manipulation of the social psychological environments of the

~~subjects have not been manipulated, and in research following more socially oriented approaches, manipulation of the social psychological environments of the~~ subjects has usually been restricted to manipulating one element, or the attitude of one significant other. At some level of consciousness, subjects bring knowledge of their whole environments into the experimental situations.

There is evidence that "overheard" communications are more powerful in effecting attitude change than communications which appear to the subjects to be specifically directed at them (Walster and Festinger, 1962; Brock and Becker, 1965), although the second study failed to find equal effects with counterpropaganda. This is the closest any research has come to investigating attitude change in response to the indirect pressure of social norms. However, there is reason to suppose that such pressures are more capable of accounting for fundamental attitude change of attitudes of high value-information content than direct persuasive communications emanating from a specified source, or even overheard communications from conversations between two people. In view of this, the overlap between research on conformity and research on attitude change is surprisingly slight.

1.3 The present study

It has been shown that the value-information content of an attitude is given by

$$Hv = -\log P \times S$$

For the producer of an attitude, Hv represents the extent to which he expects to be favourably or unfavourably evaluated by others as a result of possessing the attitude. It has been deduced from this that

attitudes of high Hv are highly susceptible to change through pressure from diverse social norms.

The present study is an attempt

(a) to test this deduction empirically;

(b) to provide a laboratory analogue illustrating the perpetuation of divergent attitudinal norms in social groups; and

(c) to investigate some of the personality variables which may be related to attitude change involving high-Hv attitudes.

The first necessity was to create an experimental group situation in which the subjects infer their initial attitudes on some issue to contain considerable value-information, and in which the experimenter is able to manipulate the attitudinal norm. Since high Hv implies high S and low P, it was necessary to ensure that the issue was salient and the subjects' attitudes improbable.

In order to ensure high salience, the attitude-issue chosen for use in this study was attitudes toward Africans. There is hardly an issue more salient in the population of students from which the samples were drawn. It is even true to say that sociometric choices within the student population are associated to a noticeably large extent with assumed similarities or dissimilarities in attitude toward Africans. Thus, although Hv was not measured for each subject, it can safely be assumed that the issue was perceived as a salient one by all the subjects.

The other variable determining Hv is the inferred probability of the subject's attitude. Since the objective probability of attitudes toward Africans in the population is not open to manipulation by the

experimenter, it was decided to create laboratory "microcultures" in which the subjects were misled concerning the probabilities of their attitudes.

More specifically, the initial subjects were placed in an Asch-type situation, in which they were confronted by a unanimous majority of group members (actually confederates of the experimenter) who expressed a monolithic extreme attitude toward Africans (either extremely favourable or extremely unfavourable). Each group member responded orally with agreement or disagreement to an inventory of statements about Africans, the initial naïve subjects responding last to each statement. Except in the unlikely case where the naïve subject agrees with the unanimous majority of confederates' responses to every statement, he is led to believe that his pre-existing attitude is highly improbable, at least within the microculture. It follows, since the issue has been selected for its salience, that Hv is high for the subjects' initial attitudes.

The attempt to provide a laboratory analogue of the perpetuation of norms in social groups was inspired by Sherif's (1936) classic experiments on norm formation, Rose and Felton's (1955) "experimental histories of culture"; Gerard, Kluckhohn and Rapoport's (1956) studies of the evolution of "microcultures"; and Jacobs and Campbell's (1961) experiments on the perpetuation of arbitrary traditions in laboratory microcultures.

Rose and Felton (1955) originally attempted to demonstrate the perpetuation of norms which transcend the replacement of individual members of the group. In Rose and Felton's study, group interpretations of Rorschach cards were used, the Gerard, Kluckhohn and Rapoport (1956) study used instances of a difficult puzzle series, and in the Jacobs and

Campbell (1961) experiments, the original autokinetic effect used by Sherif (1936) was demonstrated. The present study uses high-Hv attitudes.

Once the extreme attitudinal norm has been established in each group, the confederates are removed one by one and replaced by naïve subjects, the hypothesis being that the naïve subjects will become the unwitting transmitters of the extreme norm to each new generation. That is to say, as each new group member responds to the pressure of the extreme attitudinal norm by changing his attitude in the direction of conformity with it, so he in turn becomes a bearer of the norm and helps to place pressure on the next subject to enter the group.

There are two experimental conditions. In one condition the confederates establish a norm extremely favourable toward Africans, while in the other a norm extremely unfavourable toward Africans is inculcated. The assumption is that the first condition will lead to attitude change on the part of the subjects in the direction of a more favourable attitude toward Africans, and vice-versa in the second condition, and furthermore that these changes will continue to be observed in successive generations as the confederates are removed and replaced by naïve subjects. This assumption is a reasonable one if the literature on conformity has any applicability and if the analysis of the value-information content of attitudes is valid.

Comparatively low correlations have been obtained between attitudes toward Africans and authoritarianism among South African university students (e.g. van den Berghe, 1962), although authoritarianism does appear to account for some small part of the variance in attitude scores. This is to be expected in view of the high salience of the issue: attitudes

toward Africans among South African university students can be expected to depend to a very large extent upon normative pressures. van den Berghe has commented on the low correlation between "race attitudes" and authoritarianism:

"In a ..... country like South Africa, the social pressure toward colour prejudice is such that it will be found among people who have no personality disposition to it at all". (van den Berghe, 1962, p. 63).

It nevertheless remains necessary to account for individual differences. These differences are no doubt partly a result of the different social pressures to which different individuals are subjected. It is the main aim of this study to investigate the extent to which attitudes toward Africans are subject to modification through the pressure of social norms. However individual differences in attitudes toward Africans may be related to personality variables apart from authoritarianism. To be more specific, if there are personality variables predictive of conformity, then one might expect these variables to be predictive of attitude toward Africans given knowledge of the normative pressures operating on the individuals. The general failure to find any sovereign personality traits associated with attitude toward Africans in South Africa is reminiscent of the prolonged search in the 1920s and 1930s for the general traits of leaders. In the latter case it was eventually appreciated that situational factors are at least as important in understanding leadership as personality traits (see e.g. Gouldner, 1950). The present study is a move in the same direction for attitudes.

Unfortunately the search for personality variables associated with conformity has not been altogether successful either. In a recent review, Hollander and Willis (1967) suggest that in general, personality

factors interact with situational factors in predicting conformity. Thus the position is very complex. Nevertheless, it is not unreasonable to suppose that, holding the situation constant in the laboratory, it may be possible to isolate personality variables which interact with the experimental treatments to predict final attitude toward Africans. These variables will be the ones which are predictive of conformity in the type of situation created by the experimental set-up.

In the hope of finding such interactions, the following personality variables were measured in the present study :

(a) Authoritarianism, which is expected to be no more or less predictive of attitude toward Africans than in previous studies, but is expected nevertheless to account for some of the variance. If authoritarianism is related to conformity in the type of situation created in the laboratory, it may in addition interact with the experimental treatments in predicting final attitude.

(b) Independence of judgment, which has been demonstrated to be highly predictive of independence in an Asch-type situation similar to the ones used in this study (Barron, 1968).

(c) Self-esteem, which is known to be related to attitude change in the more general sense (see 1.21 above). This variable and variable (b) may be predictive of attitude change given knowledge of the normative pressure to which the subject is subjected: they may interact with the experimental treatments (favourable and unfavourable norms) in predicting post-change favourableness toward Africans in the subjects.

2. EXPERIMENTAL DESIGN

Probably the most widely applicable serious criticism that can be levelled against research on attitude change to date concerns the extent to which the attitude change achieved in the laboratory resembles attitude change in a naturalistic setting. The experimental situations are usually artificial and contrived, thus severely limiting the "external validity" (Campbell and Stanley, 1963) or "generality" (Sidman, 1960) of the findings.

However, more realistic experiments raise a plethora of design problems. Firstly, the problems of experimental manipulation are usually enlarged. Secondly, problems of experimental control tend to become intractable, thereby placing a query over the internal validity of the findings. Finally, designs involving the use of subjects prior to obtaining their consent violate the ethical injunctions laid down by the A.P.A.

A laboratory study of attitude change should usually be designed so as to provide as close an analogue of "real-life" attitude change as possible, bearing these difficulties in mind. Pre-post test designs are generally quite unsuitable for research in this area. There now exists a vast amount of evidence concerning the powerful effects on subjects of the demand characteristics of experimental situations (e.g. Orne, 1962). Even the most artless subject knows if he is tested twice, that he is expected by the experimenter to display attitude change, and the nature of the experimental manipulation can barely leave any doubt as to the direction of the desired change. The results of a great proportion of laboratory studies of attitude change can be accounted for by

such demand characteristics as well as by the hypotheses under investigation. The mere repetition of a measure may account for the results as well as does the manipulation of the independent variable.

Clearly the first requisite for drawing any conclusions about the effect of the experimental manipulation is that one has an opportunity to observe the outcome of both a manipulation and a non-manipulation condition. It is for this reason that a pre-post test design with a control group is very often used. However more sophisticated researchers, in order to control for the effects of mere repetition of the measure, sometimes include two further control groups, yielding a design which has become known as the Solomon four-group design (Solomon, 1949):

Group I	pretest	manipulation	posttest
Group II	pretest		posttest
Group III		manipulation	posttest
Group IV			posttest

This is a very exact design, but it is also very exacting. It provides information about the effect of the manipulation, the effect of pretesting, and the effect of the interaction of pretesting with experimental manipulation, but twice as many subjects are required.

What is not always fully appreciated is that much of the information provided by the Solomon four-group design is redundant. Researchers in the field of attitude change are seldom concerned with investigating the effects of pretesting or repetition of the measure. These effects can be perfectly adequately <u>eliminated</u> (though not <u>measured</u> of course) by the design recommended in a different connection by Campbell and Stanley (1963):

Group I	manipulation	posttest
Group II		posttest.

Campbell and Stanley are quick to suggest that there is likely to be some reluctance to give up the pretest because it establishes that the experimental and control groups were really equivalent. It may require a conscious effort of will, however, to remember that it is random assignment of subjects to the two groups, not pretesting, that is likely to ensure equivalence in a randomised groups design. When matching is unfeasible (as it often is in the field of attitude change), this design might be the most useful.

For the present experiment, a modification of the Campbell-Stanley design was used :

Group I	manipulation P	posttest
Group II	manipulation A	posttest
Group III		posttest.

P and A refer to manipulations which are intended to have opposite effects on the posttest results. Their inclusion enormously increases the power of the design. Manipulation P refers to the exposure of the subjects to social pressure designed to render their attitudes more favourable toward Africans (more pro-African) while manipulation A is intended to render the subjects' attitudes less favourable toward Africans (more anti-African) through exposure to an anti-African norm.

The manner of posttesting differed slightly between the experimental and control conditions. In the experimental groups, the subjects responded orally to items on an attitude scale, while the subjects

in the control group responded in writing on an individual basis. However the design allows for an investigation of the effects of the two methods of posttesting (irrespective of manipulation) by a comparison of groups I and II with group III.

Furthermore the initial subjects in each experimental group are exposed to normative pressure which is directly controlled by the experimenter, while subjects entering the group at subsequent generations are exposed to increasingly indirect pressure. This may result in the subjects being exposed to decreasingly powerful pressure, and therefore less attitude change may be expected in subjects entering the group in later generations than the change expected in the initial subjects. The data in the present study are collected in such a way as to enable comparisons between the groups separately at each generation in addition to the gross overall comparison of the mean attitude scores of the three groups.

Finally a word has to be said about the manner of investigating the effect of personality variables on attitude change in the two experimental groups. The personality variables were manipulated post hoc by selection of subgroups from the experimental subject pool. In order to be able to examine the effects of these variables on attitudes toward Africans and on attitude change, the subjects in the experimental groups were arranged in three 3 x 2 factorial designs, comprising 3 random levels on each personality measure x 2 experimental conditions. The posttest attitude scale scores are the dependent variable. Those personality variables which are predictive of conformity may be expected to interact with the experimental condition in predicting posttest attitude.

2.1 Hypotheses

Hypothesis 1 : Subjects in condition P will become significantly more favourable in their attitudes toward Africans, and subjects in condition A will become significantly less favourable.

Hypothesis 2 : The amount of attitude change displayed by the subjects will decline over successive generations of the microculture.

Hypothesis 3 : Independence of judgment will interact with the experimental treatments in predicting attitude, independent subjects being less influenced by the normative pressure than yielding subjects.

Hypothesis 4 : Self-esteem will interact with the experimental treatments in predicting attitude, subjects of low self-esteem being more influenced by the normative pressure than subjects of high self-esteem.

Hypothesis 5 : Authoritarianism will be negatively related to favourableness toward Africans irrespective of the experimental treatment.

3. DEVELOPMENT OF THE ATTITUDE SCALE

A truly powerful scale for measuring attitudes toward Africans among University of Cape Town students should possess all the following attributes :

(a) It should be standardised on a sample drawn from the same population as the population on which it is to be used;

(b) It should be unidimensional, measuring only attitudes toward Africans;

(c) It should generate a wide range of scores;

(d) It should possess a wide diversity of item content, i.e., its unidimensionality should not result from the fact that it merely contains rephrasings of the same statement.

(e) It should be corrected as far as possible for response sets and styles; and

(f) It should be reliable and valid.

In order to satisfy condition (a) it was decided to develop and standardise the scale on a sample of University of Cape Town students. To meet criterion (b) Guttman's (1944, 1947) scalogram analysis technique suggests itself. However this technique does not guarantee criteria (c) and (d), two characteristics of attitude scales which are best achieved by using Thurstone's (1929, 1931) equal-appearing interval judgment technique. This latter technique has, however itself suffered severe criticism on various grounds, one of which is that there is no criterion on which to select the most discriminating items.

Likert's (1932) summated rating technique ensures that only the most discriminating items are included in the scale. However the reliability and validity of Likert scales tend usually to be even lower than those of Thurstone scales (see Edwards, 1957a).

The method finally decided upon was the scale-discrimination technique of Edwards and Kilpatrick (1948, Edwards, 1957a). This synthesis of several procedures yields a method of attitude scaling which retains all the advantages, and obviates most of the disadvantages of Thurstone, Likert and Guttman scales. Unidimensionality, discriminating power, item diversity, a wide range of scores and reliability are all guaranteed. The technique is naturally not economical in time and energy.

3.1 Selection of items

In general, psychologists tend to be vague about the sources from which they obtain statements as raw material for developing attitude inventories. Some are probably written by the investigators, while others are obtained from newspaper articles, books and magazines relating to the psychological object. Such items can be criticised on the grounds that they do not always represent sufficiently common and currently-held opinions. The investigator's horse-sense thus sets an upper limit to the usefulness of the scale.

The source from which all the inventory statements used in the present study were drawn, was a series of protocols of small-group discussions among first-year psychology students at various South African universities, stimulated by a controversial tape-recorded political speech. The statements elicited from these group discussions had been carefully edited for purposes of an undergraduate research project at the University of Cape Town, (Callias, 1963).

One hundred evaluative statements referring to Africans were selected from these protocols according to the informal criteria for selecting attitude scale statements which have been set out by Wang (1932), Likert (1932) and Edwards (1957a). Some of the statements were slightly rephrased : wherever the words "non-White", "native", "non-European", "Bantu", etc., appeared, the word "African" was substituted, since these words are themselves attitude-expressive. It was felt desirable to hold the value-loading of the word constant, and to ensure that the psychological object is unambiguously implied by the items in the scale.

3.2 Scale and Q values

Each statement was printed on a card, and the cards were arranged in bundles containing the hundred statements in random order together with eleven cards numbered 1 to 11.

The bundles were distributed among a judging group of second-year psychology students at the University of Cape Town, who were requested to spread the numbered cards out in front of them, with No. 1 at the extreme left and No. 11 at the extreme right. On card No. 6. they were asked to write "neutral".

This judging group was then requested to sort the hundred statements into eleven piles, from the least favourable toward Africans on the left to the most favourable toward Africans on the right, with pile No. 6. containing statements judged to be neutral toward Africans.

Inevitably, several judges responded with their own agreement or disagreement with the statements, instead of the degree of favourableness toward Africans which the statements expressed. In an effort to detect this,

two statements which seemed prima facie to the experimenter to be most unfavourable toward Africans, and two which seemed to be most favourable were selected, and any arrangement by a member of the judging group which placed any of these statements in one of the middle five categories was discarded arbitrarily. Furthermore, following the traditional procedure in constructing Thurstone scales, any arrangement which placed 30 or more statements in one category was discarded on the assumption that the judge was careless or lazy. The responses of 50 judges remained, and from these responses scale and Q values were calculated. Research by Nystrom (1933), Uhrbrock (1934), Rosander (1936), Ferguson (1939) and Edwards and Kenny (1946) indicates that reliable values can be obtained using a judging group as small as this.

A typical cumulative proportion graph obtained for one of the statements is shown in Fig. 2.

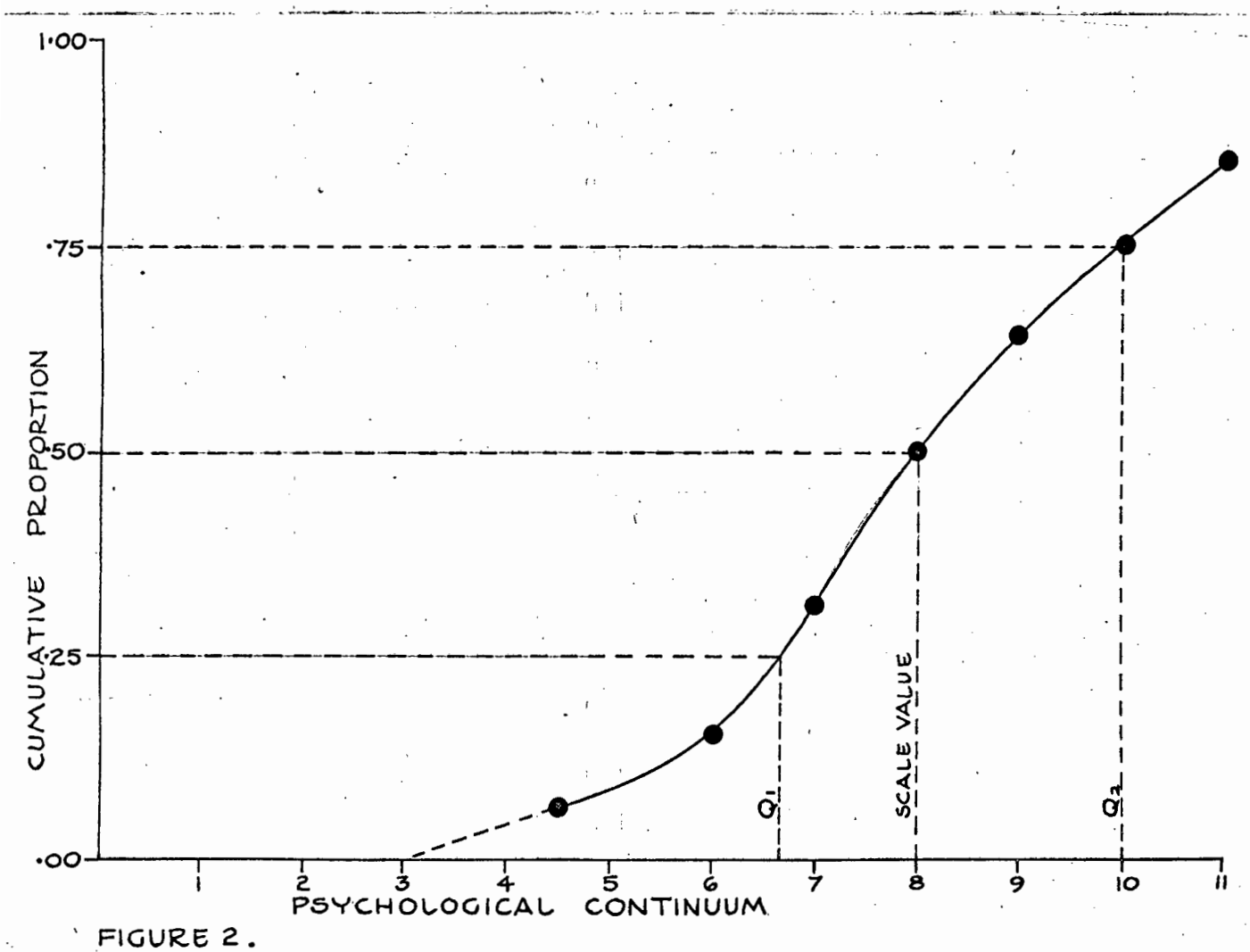


FIGURE 2.

3.3 Summated rating responses

The 45 statements obtaining the highest Q values (i.e., those statements found most "ambiguous" by the judging group) were discarded, and the remaining 55 statements were retained for Likert scaling.

These statements were printed in the form of an inventory with four forcing response categories : "strongly disagree"; "disagree"; "agree"; "strongly agree" after each item. The omission of a neutral response category was decided upon in the light of evidence that it makes lazy responses more difficult and minimises "evasiveness" (cf. Levinson's discussion in Adorno et. al., 1950).

The response categories were weighted 0 through 3 such that 3 always indicated the response most favourable toward Africans. The direction of the weighting (which can be ambiguous in statements approaching neutrality on the Thurstone continuum) was not decided upon arbitrarily as is customary in constructing Likert scales, but was determined by the position of the statements on the Thurstone continuum.

The summated rating scale was distributed among a group of students enrolled for the introductory course in psychology at the University of Cape Town, and a score was obtained for each respondent by summing his scores for each item.

Once again the returns were scrutinised for any obviously careless or facetious responses. Such returns, together with those in which items were omitted, were discarded, leaving 165 returns for item analysis.

3.4 Item analysis

The top 25 percent and bottom 25 percent of respondents (in terms of their total Likert scores) were identified as the "High" and "Low" groups. For each statement, a distribution was obtained showing the frequency of responses in each response category for the High and Low groups. A typical distribution is given below :

Category	Low	High
3	6	35
2	25	5
1	8	0
0	1	0
	40	40

The response categories were dichotomised as illustrated by drawing a horizontal line so as to minimise the total number of responses in the Low group above the line and maximise the number of responses in the High group above the line. New weights of 0 and 1 were assigned to each statement following the dichotomy. The four forcing response categories were retained, but they were interpreted dichotomously in subsequent analyses. The phi coefficients of the statements scored in this way were determined from Guilford's (1941) nomographs in order to avoid tedious computations.

3.5 Scalogram analysis

The 55 statements were then ranked in ascending order of their Thurstone scale values. 28 statements with relatively high phi coefficients (representing high discriminating power or validity) were selected, ensuring, however, that a wide range of Thurstone scale values was represented in the items selected. Two forms of the scale (A and B) were then prepared by assigning items with alternate scale values to either form.

Instead of obtaining responses from a fresh group of respondents for purposes of scalogram analysis, the responses of 100 of the 165 respondents used in the summated rating procedure were randomly chosen, and their responses were re-scored using the new dichotomised response weights.

Applying scalogram analysis to each form separately, coefficients of reproducibility of ·762 and ·762 were obtained. After removing the two items from each form which accounted for most of the error, Reps. were increased to ·825 for form A, and ·864 for form B.

The two equivalent forms of the resulting scale are given below, with lines drawn for each statement under the set of response categories which is scored 1. All other responses are scored 0.

FORM A

1.	The Africans should be liberated now.	SD	D	A	SA
2.	The Africans are not capable of being educated or civilised.	SD	D	A	SA
3.	Africans are still essentially barbarians.	SD	D	A	SA
4.	Africans are not fit for the opportunities given to Europeans.	SD	D	A	SA
5.	Trying to educate the African only results in uprisings and clashes.	SD	D	A	SA
6.	Africans are uncivilised.	SD	D	A	SA
7.	If the Africans enjoyed better environmental conditions, in time they would have as many prominent people as Whites have.	SD	D	A	SA
8.	Africans enjoy their low standard of living.	SD	D	A	SA
9.	Africans are slovenly, dirty, and not house-proud.	SD	D	A	SA
10.	The African is basically peace-loving, but the government's racial policy incites him to violence.	SD	D	A	SA
11.	Africans would not be able to appreciate their rights if we had complete democracy.	SD	D	A	SA
12.	It will take years before we can give the African equal rights without disastrous results.	SD	D	A	SA

FORM B

1.	If the Africans absorb the Europeans, civilisation will flourish.	SD	D	A	SA
2.	The African is ignorant and savage.	SD	D	A	SA
3.	Africans are not ready for freedom yet.	SD	D	A	SA
4.	Africans are quite happy to live in absolutely disgraceful conditions.	SD	D	A	SA
5.	The African is essentially lazy.	SD	D	A	SA
6.	Intermarriage with Africans would degrade the White race.	SD	D	A	SA
7.	Africans should gradually be given more and more say in the government.	SD	D	A	SA
8.	Africans are on a par with Whites.	SD	D	A	SA
9.	The Africans are several decades behind the Europeans in moral development.	SD	D	A	SA
10.	Africans are too lazy and ignorant to support themselves.	SD	D	A	SA
11.	Educated Africans are as good as Whites.	SD	D	A	SA
12.	Africans bring their bad habits to town with them.	SD	D	A	SA

3.6 Properties of the scale

The scale consists of two equivalent forms containing twelve statements each. The response to each statement is scored 1 or 0, giving the scale as a whole a range of scores from 1 to 24. None of the statements in the scale is ambiguous.

The statements are taken from widely divergent points on the Thurstone continuum. They therefore represent both favourable and unfavourable opinions concerning Africans. This ensures that the scale is corrected for acquiescence response set (Edwards, 1957b), and that it does not contain simple rephrasings of the same opinion.

Response sets such as "extremeness" and "evasiveness" (Fredericksen and Messick, 1959), are probably minimised by the use of four forcing response categories with neutral responses forbidden.

The coefficients of reproducibility of the two forms (•864 and •825) give the scale as a whole a Rep. of about •85, which implies that the scale is satisfactorily unidimensional. Green (1954) has pointed out that the value of Rep. must be considered in conjunction with the mean of the modal response categories in making inferences about dimensionality. The mean of the modal response categories in the present scale is •67, which is fairly low. (The range of modal response categories is •51 - •79 for form A and •51 - •84 for form B.). We can infer, therefore, that this scale is largely unidimensional.

The phi coefficients in Form A range from •51 - •73 with a mean of •65; in form B the range is •54 - •83 with a mean of •69. Thus the scale as a whole has a mean phi coefficient of •67 indicating that the discriminating power is extremely high. This is a most encouraging

figure, especially when one notes that Edwards and Kilpatrick (1948) did not originally attain such a high discriminating power for their scale.

Evidence for the equivalent-form reliability of the scale is available in unpublished undergraduate research projects at the University of Cape Town. Reanalysing correlations between the two forms by applying the Brown-Spearman formula (see McNemar, 1949), figures ranging from ·88 to ·95 are obtained. (The Brown-Spearman formula gives the reliability of the whole test as twice the correlation between the halves divided by one plus the correlation between the halves).

Finally, concerning the validity of the scale, no direct evidence is available, unless one accepts Guilford's interpretation of the mean phi coefficient (in this case ·67) as equivalent to actuarial validity. However this figure and the Rep. = ·85, imply when considered together that the scale measures some attitude validly. Perhaps a measure of construct validity will accrue to the scale in the course of the present study.

4. METHOD

4.1 Subjects

The Ss who took part in this experiment were 226 students at the University of Cape Town. Completely random selection of Ss and assignment to conditions was not feasible, but care was taken to avoid as far as possible any systematic bias in selection and assignment of Ss to conditions.

The control group comprised 166 students enrolled for the introductory course in psychology. The experimental groups P and A consisted of 30 unselected Ss each. The experimental Ss were recruited in groups of 7 or 9 by simply approaching strangers on the campus and asking them to volunteer as subjects. Those doing the recruiting made sure that they approached only total strangers, and the potential volunteers were told simply that the experiment involved attitudes.

4.2 Instruments

The dependent variable was measured by means of the attitude scale described in chapter 3. The independent variables under consideration were firstly the experimental treatment (P, A or Control) which was manipulated by assigning subjects to different conditions, and secondly three different personality variables : self-esteem, authoritarianism and independence of judgment.

Self-esteem was measured by means of a specially constructed scale to measure self-ideal discrepancy. This scale is similar to the Self and Ideal Q sorts used by Rogers and Dymond (1954) to evaluate the progress of psychotherapy, but it is presented in a form more closely resembling the Semantic Differential of Osgood, Suci and Tannenbaum (1957). The scale is given in Appendix A.

The scale consists of twenty-two bipolar adjective pairs selected from a thesaurus, each pair being separated by a seven-point rating scale. In order that the operational definition of self-esteem should reflect the common-sense notion of the term as closely as possible, twenty-two strongly evaluative high-frequency word-pairs were chosen.

Each S was required to respond to the scale twice, indicating firstly the degree to which the adjectives apply to himself, and secondly the degree to which they apply to his ideal self. The measure of correspondence chosen was the D score (Osgood and Suci, 1952). The D score is actually a measure of lack of correspondence between the two sets of responses (i.e. discrepancy), a high score indicating low agreement. It was computed by finding the discrepancy between the two responses on each bipolar adjective pair, squaring these discrepancies, summing the squares, and extracting the square root of this sum.

Authoritarianism was measured by means of a forced-choice F scale, constructed along the lines laid down by Strickland and Janicki (1965) and Bryne and Bounds (1964). It consists of 15 items, each item comprising one F-positive statement and one Christie and Garcia (1951) reversal, the two being separated by a six-point rating scale (see Appendix B). The F-positive statements are all from Adorno et. al. (1950, Pp. 250 - 257), except two which are from Christie and Garcia (1951, p. 464). The reversals are all from Christie and Garcia, p. 150, and they include the five that Byrne and Bounds found to be most reliable. The scale was scored in the normal way, each item being assigned a score of 1 through 7, with the absent mid-point or neutral response being scored 4 (Ss are free to omit any items they are unable to decide upon). The scores are then summed, yielding a minimum of 15 and a maximum of 105.

There is at the moment a lively controversy in the literature concerning the effect of acquiescence response set on scores obtained from the original California F scale (see, e.g. Rorer, 1965, Peabody, 1966), Samelson and Yates, 1967 and Guilford, 1967). The techniques of counter-balancing (Byrne and Bounds, 1964) and the forced-choice format (Berkowitz and Wolkon, 1964), which are used in the present scale, were developed in order to correct for acquiescence and also to make narrower interpretation of the scores possible. The investigations of Dustin and Davis (1967) and Sheffield and Byrne (1967) have ensured that meaningful results can be obtained in this way.

Without wishing to enter the controversy, it is necessary to point out that, in the present study, it is highly desirable to be able to interpret the F scores free of acquiescence. If a relationship is found between authoritarianism and attitude change, for example, it would not be very interesting if it could be explained by the acquiescence factor in the F scale. While recognising that conformity is one of the alleged characteristics of authoritarian personalities (although Weiner and McGinnies, 1961, failed to find empirical evidence for the relationship), it was felt desirable to eliminate acquiescence response set from the measure of authoritarianism. For these reasons the forced-choice F scale described above was developed for use in this study.

Independence of judgment was measured by means of the Independence of Judgment Scale (Barron, 1968) which is given in Appendix C. This scale was developed by Barron specifically, in order to discriminate between independent Ss and yielding Ss in an Asch-type situation like the one used in the present study. The items were culled from such sources as Murray's "Explorations in Personality" (Murray, 1938), the E, F and PeC scales of

the California Public Opinion Study (Adorno et. al., 1950), and scales developed at the Institute for Personality and Research to measure such variables as "originality" and "personal soundness".

For the purposes of the present experiment, only those items which discriminated at the 1 per cent level between independents and yielders were used. As in the original Barron-Asch study (Barron, 1968), each item is followed by two response categories, (True, False), and each response is scored 1 or 0 according to whether the response is in an independent or yielding direction respectively. These scores are summed to give a total score for each S. A high score thus indicates independence of judgment.

4.3 Treatments

All Ss were posttested by being asked to respond with their own opinions to the attitude scale described in chapter 3. However the nature of the experimental manipulations demanded a slightly different mode of response in the experimental conditions from that in the control condition. The control Ss were required to fill in the questionnaire individually and in writing, giving their names at the top of the page, whereas the experimental Ss in both the P and A conditions responded orally in a group situation while the experimenter noted their responses.

4.31 Experimental manipulations

The first two experimental groups P(0) and A(0) consisted of 9 Ss each. The 9 Ss arrived at the experimental room and joined with 4 confederates of the experimenter in each case. The Ss were led to believe that the confederates were also naïve Ss and were recruited in the same way as themselves.

After an initial check that none of the Ss knew each other or any of the confederates, each S was assigned a number and assured anonymity. The experimenter then requested the five people who arrived first to remain behind, and the remaining people to go to another room. The four confederates and one naïve S thus remained, while the other eight Ss were directed to separate rooms and requested to wait their turns.

The four confederates and the naïve S were seated in a semi-circle facing the experimenter, with the naïve S on the experimenter's extreme right. They were then told:

"I have here a list of statements about Africans, taken from group discussions held among students a while ago. They are all real statements: they haven't been thought up by me. They have been cast in the form of a questionnaire with four forcing response categories. What I want you to do is respond to each of these statements with one of the following : strongly disagree or disagree; agree or strongly agree. You will notice that there is no neutral category. To some statements you may want to give a neutral response. Or you may want to qualify your response, or say "it depends". In any case, you must choose whichever of the four responses best fits your true attitude, however inadequately. Any questions?".

The experimenter then proceeded to read out the first statement. Each group member responded to the statement in turn, the naïve S responding last. The experimenter made a note of all the responses. The procedure was repeated for each of the 24 items in the attitude scale. In group P(0) the confederates were instructed to give as strongly pro-African responses as they felt they could plausibly give, and vice-versa for the A(0) group. It will be remembered that the statements are specifically selected to span the complete

Thurstone continuum. This means that some statements are rather extreme. It was felt that if the confederates gave the most extreme responses possible even to the extreme statements, the Ss might suspect deception. (This assumption later turned out to be unwarranted).

After the whole scale had been gone through once, the first confederate was asked to leave the group and call in the next S. The remaining Ss were requested to move round one place to the left to make room for the new S. The whole procedure was then repeated, with the three remaining confederates responding first to each statement. The results for this second generation were noted separately.

The procedure was repeated for 9 generations, with the "youngest" member of the microculture giving his response last in each case. By the fifth generation, all the confederates had left the group. By the ninth generation, there was no S present in the group who was ever in the group contemporaneously with any of the confederates.

The experimental paradigm of groups (0) and A(0) may be diagrammatically illustrated as follows : (P.T.O.)

GENERATIONS

	1	2	3	4	5	6	7	8	9
1st confed:	X								
2nd " :	X	X							
3rd " :	X	X	X						
4th " :	X	X	X	X					
1st S:	0	0	0	0	0				
2nd S:		0	0	0	0	0			
3rd S:			0	0	0	0	0		
4th S:				0	0	0	0	0	
5th S:					0	0	0	0	0
6th S:						0	0	0	0
7th S:							0	0	0
8th S:								0	0
9th S:									0

This procedure was found to be tedious and repetitive. Furthermore the rule followed by the confederates in giving the most extreme responses to the statements that they felt they could plausibly give, led to sufficiently diverse and nonunanimous responses among the confederates for the experimenter to feel that the tension in the group was noticeably released.

While the results from these groups were retained for analysis, the following modifications were introduced and adhered to in groups P(1), P(2), P(3) and A(1), A(2) and A(3):

(a) The groups were reduced in size to four (initially three confederates and one naïve S). The literature (Asch, 1951, Goldberg, 1954, Kidd, 1958 and Campbell and Jacobs, 1961) suggests that this will not have resulted in any great reduction in the power of the normative pressure.

(b) For each generation, only one form of the scale was used, starting with form A in the first generation in each case. This meant that each of the Ss who was present in the group for the maximum of four generations, responded to the whole scale (forms A and B) twice.

(c) Various personality measures were taken for each S. While waiting his turn before entering the group, and after passing through the group, each S responded to the Self-Ideal discrepancy, Independence of Judgment and Forced-choice F scales.

(d) Finally, each S was submitted to a post-experimental interview. The interviews were deliberately unstructured in order to maximise the probability of obtaining unexpected information of a qualitative nature. However, among the questions asked in all the post-experimental interviews are those given in appendix D.

(e) The confederates gave the most extreme responses possible to each item. The experimental paradigm for groups P(1), P(2), P(3), and A(1), A(2) and A(3) is illustrated below:

GENERATIONS

	1	2	3	4	5	6	7
Form:	A	B	A	B	A	B	A
1st confed:	X						
2nd " :	X	X					
3rd " :	X	X	X				
1st S:	0	0	0	0			
2nd S:		0	0	0	0		
3rd S:			0	0	0	0	
4th S:				0	0	0	0
5th S:					0	0	0
6th S:						0	0
7th S:							0

By the fourth generation, the group consisted entirely of naïve Ss in each case, and by the seventh generation there were no contemporaries of the confederates left in the group.

5. RESULTS

The dependent variable (from which attitude change has to be inferred) is attitude toward Africans as measured by the scale described in chapter 3. In the control condition, one full attitude scale score is available for each S, since each S responded once to the equivalent forms A and B of the scale. However, in the experimental conditions the position is slightly complicated.

In experimental groups P(0) and A(0), each S responded to the whole scale (forms A and B) once for each generation that he was present in the group. Thus for each of these Ss there are 5 scores, except the last four Ss who were present in the group for 4, 3, 2, and 1 generations respectively. Similarly (but not identically) in groups P(1), P(2), P(3) and A(1), A(2) and A(3), each S responded four times to alternating forms A and B of the scale (one form for each generation) except the last three Ss, who responded thrice, twice and once respectively, the last S responding to form A only.

It was therefore arbitrarily decided to use for initial gross analysis the first full attitude scale score obtainable from the responses of each S. This rule was followed in obtaining an attitude score for each S except the last Ss in experimental groups P(1), P(2), P(3) and A(1), A(2) and A(3), since each of these Ss was present in the group for one generation only and thus responded to only one form of the scale. Each of these Ss' half-score was doubled in order to make the scores commensurate with those of the other Ss. The high equivalent-form reliability of the scale (at least ·88) suggests that this procedure will not have introduced very much error.

The scores obtained in this way for the total sample of Ss ($N = 226$) assigned to each of the three conditions can be summarised as follows:

Group:	Control ($n = 166$)	A($n = 30$)	P($n = 30$)
Mean:	9.80	10.56	14.27

The control condition generated the lowest mean score, followed by experimental condition A, with experimental condition P showing the most favourable mean attitude toward Africans. To test the significance of the differences between these three means, Mc Guigan (1968) recommends Duncan's Range Test. Applied to this data, it yields Se = 6.133. As indicated, the difference between the means of the control and P conditions is significant ($Rp = 3.26$, $p < .01$); the difference between the means of conditions A and P is likewise significant ($Rp = 3.143$, $p < .05$); and the difference between the means of the control and A conditions is nonsignificant ($Rp = 2.41$).

It appears that, considering Ss from all generations of the experimental groups together, the experimental treatment P succeeded in introducing Ss to express a significantly more favourable mean attitude toward Africans than would be expected had they responded on an individual basis. However the experimental treatment A did not apparently have a nett effect of lowering the mean score significantly.

5.1 Analysis by generations

A more detailed representation of the results is given by plotting the score for each naïve S in each generation. A detailed representation of the scores of the eighteen Ss in experimental groups P(0) and A(0) is given in figure 3. The successive scale scores for each S is represented by an unbroken line spanning the number of generations the S was present in the group.

Figure 4 represents the averaged results of groups P(0) and A(0). For each generation, the mean attitude scale score obtained by the naïve Ss in the two groups is plotted. In addition, for purposes of comparison, a baseline representing the mean attitude score obtained by the control group Ss is plotted repetitively for each generation.

Figures 5, 6, 7, 8, 9 and 10 represent the results for the other experimental groups in a similar fashion. Figure 11 represents the averaged results of the six four-person groups combined, and Figure 12 the averaged results of all the groups.

The differences between the mean attitude scores for the two conditions show a gradual decline over generations. In order to test the significance of these differences at each generation, t-tests (one-tailed) were computed using the grouped results represented in Figure 12. The value of t shows a corresponding gradual decline :

	GENERATION					
	1	2	3	4	5	6
t =	.974	6.37	1.82	1.51	.658	.536
$p <$	.2	.01	.05	.1	.3	.3

Using the means for each group instead of individual scores, we get (with $n = 8$):

	GENERATION					
	1	2	3	4	5	6
t =	.974	2.99	.739	2.67	.426	.945
$p <$	.2	.025	.25	.025	.35	.2

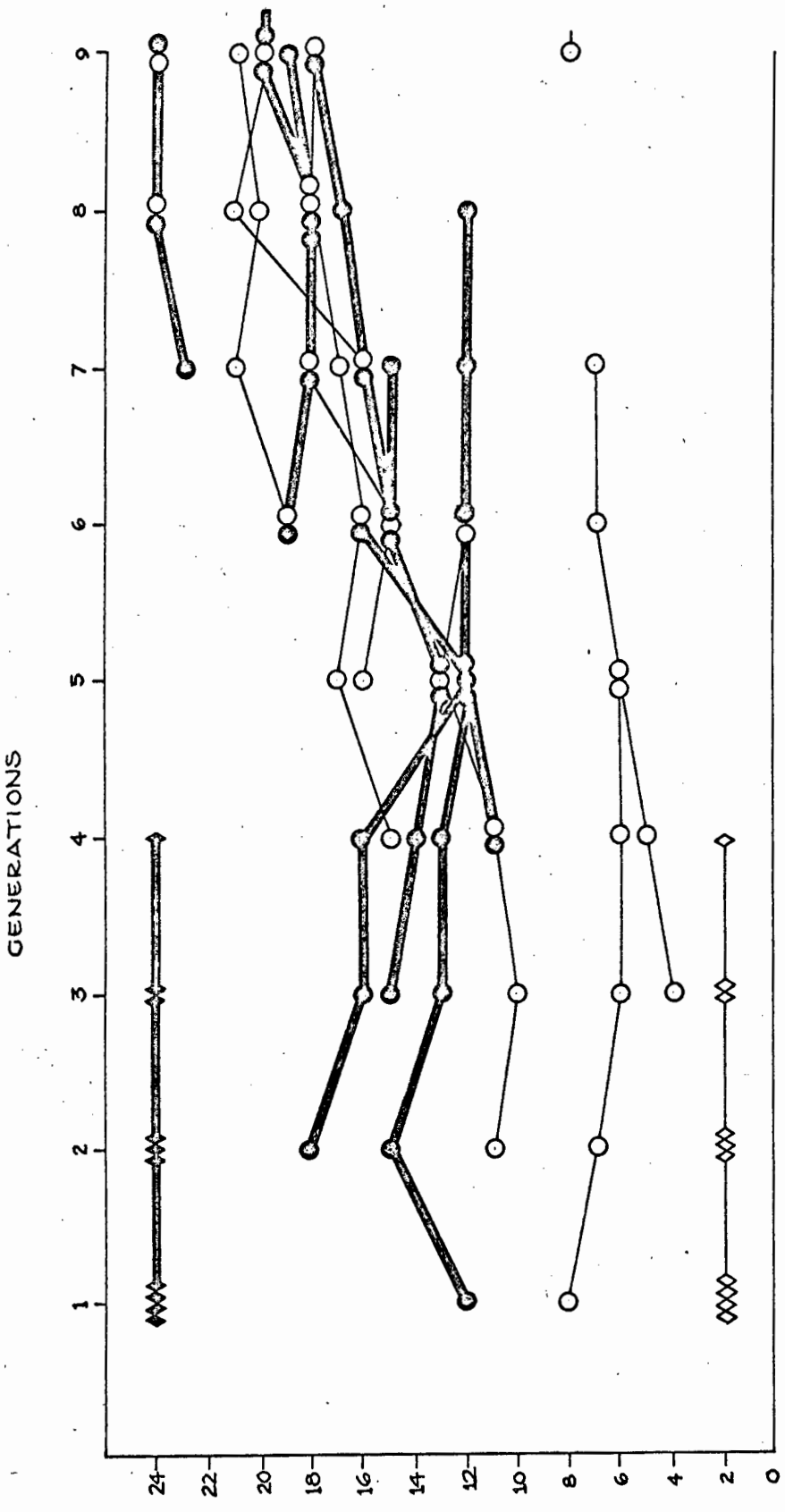


FIGURE 3. DETAILED RESULTS OF GROUPS P(0) & A(0)

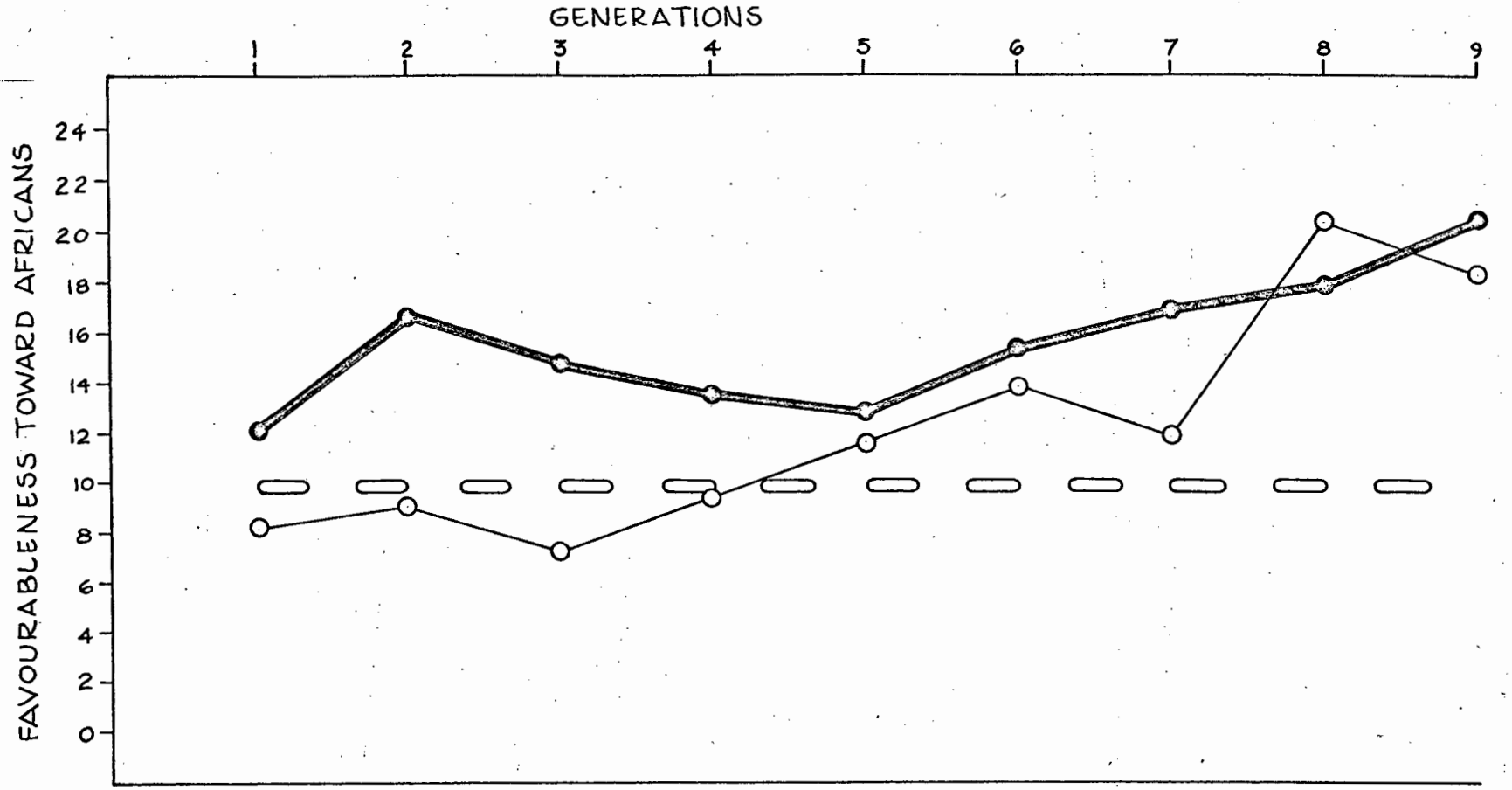


FIGURE 4. AVERAGED RESULTS OF GROUPS P(0) & A(0)

KEY: — Ss P(0)
— Ss A(0)
— BASELINE (CONTROL GROUP EXTRAPOLATED)

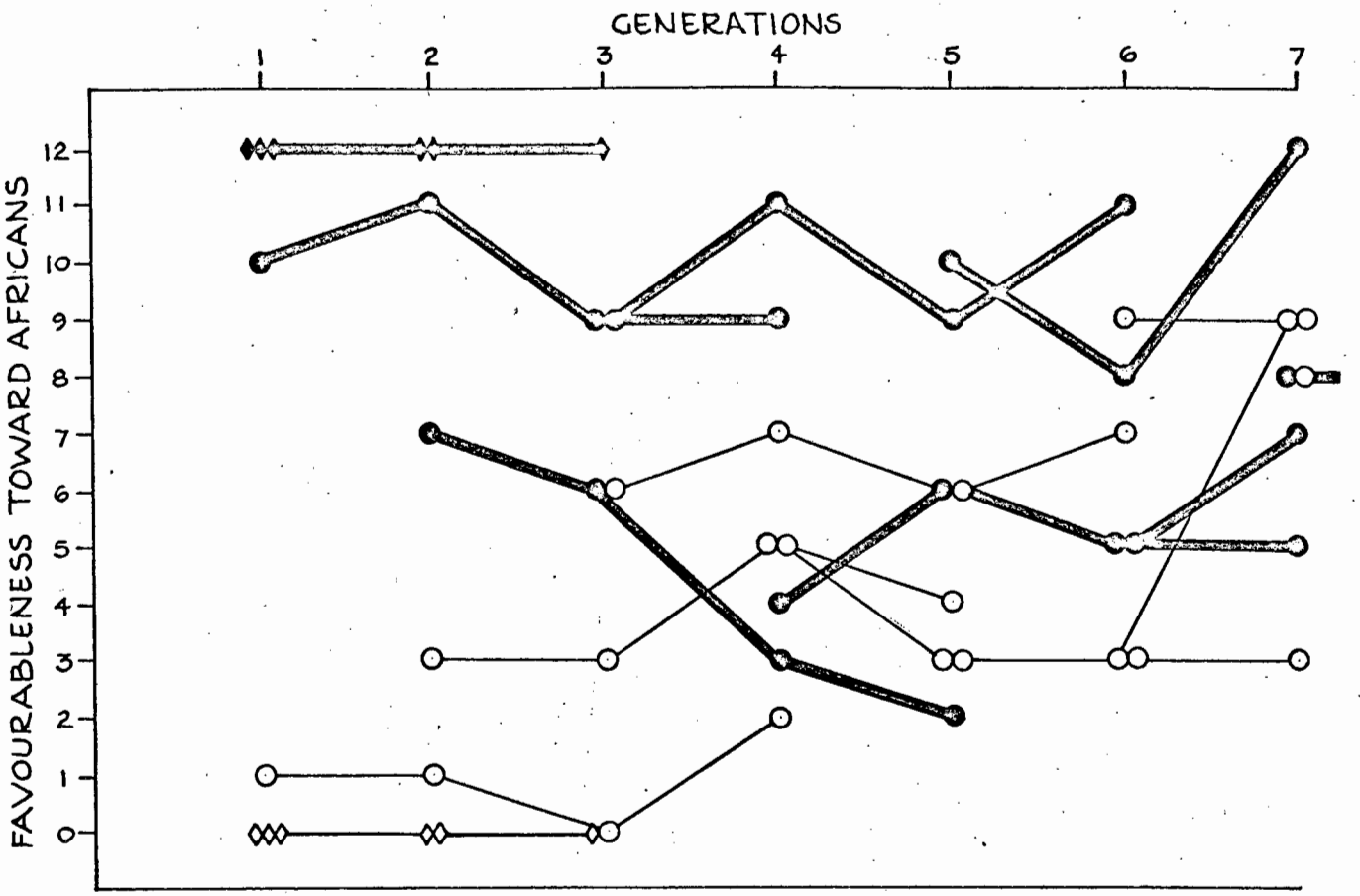


FIGURE 5. DETAILED RESULTS OF GROUPS P(1) & A(1)

KEY: — Ss P(1)
— Ss A(1)
— CONFEDERATES P(1)
— CONFEDERATES A(1)

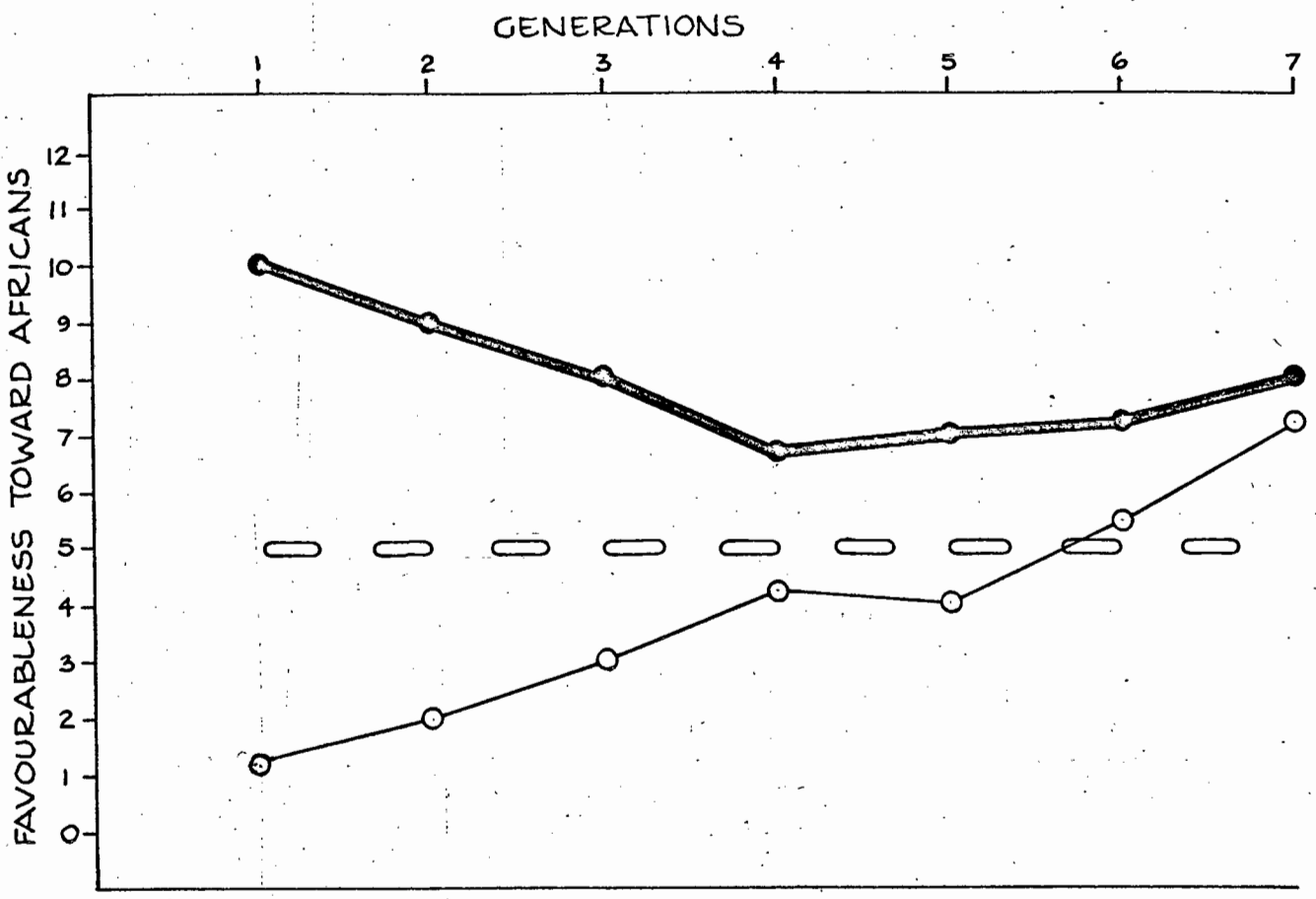


FIGURE 6. AVERAGED RESULTS OF GROUPS P(1) & A(1)

KEY: — Ss P(1)
— Ss A(1)
— BASELINE (CONTROL GROUP EXTRAPOLATED)

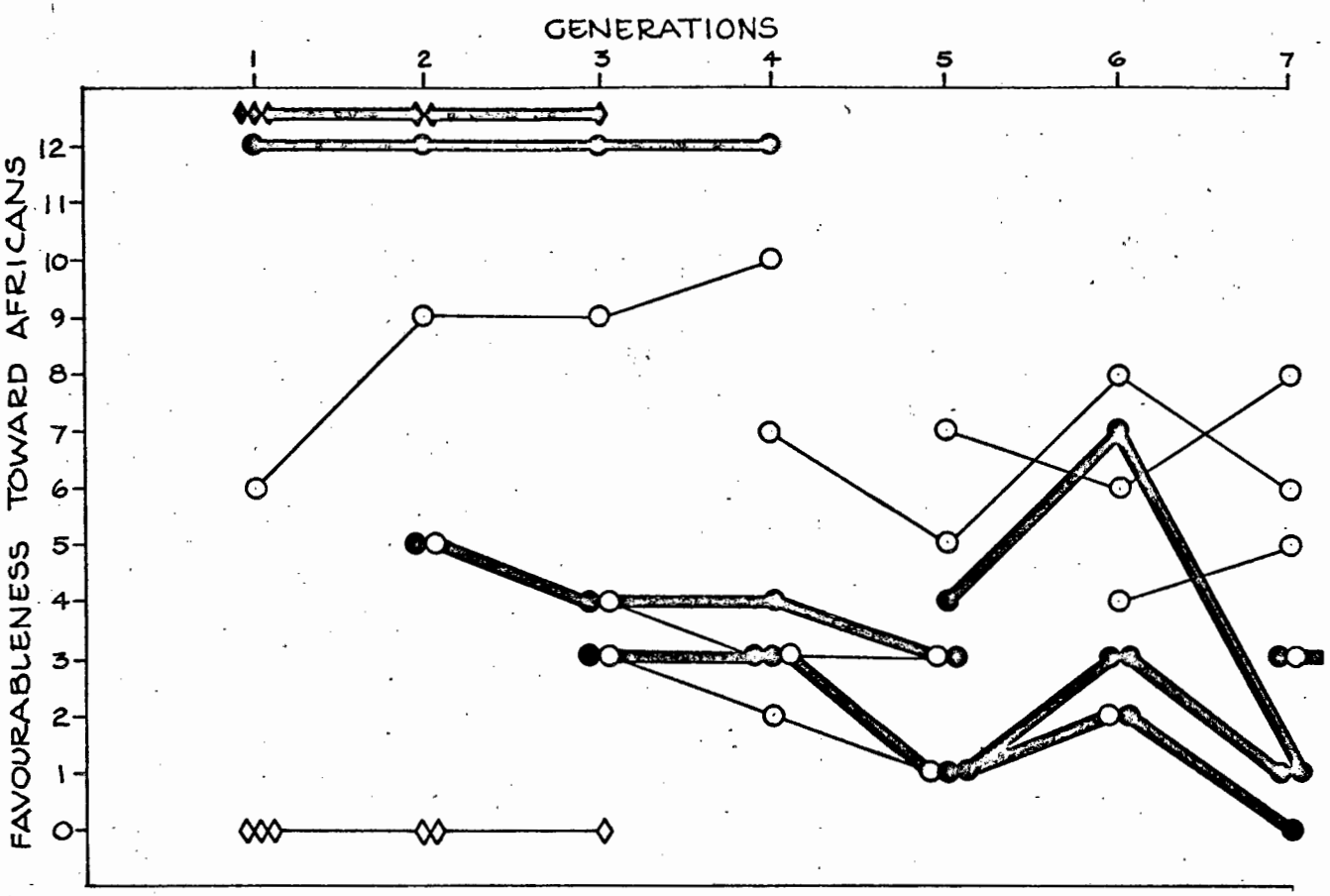


FIGURE 7. DETAILED RESULTS OF GROUPS P(2) & A(2)

KEY: — Ss P(2)
— Ss A(2)
— CONFEDERATES P(2)
— CONFEDERATES A(2)

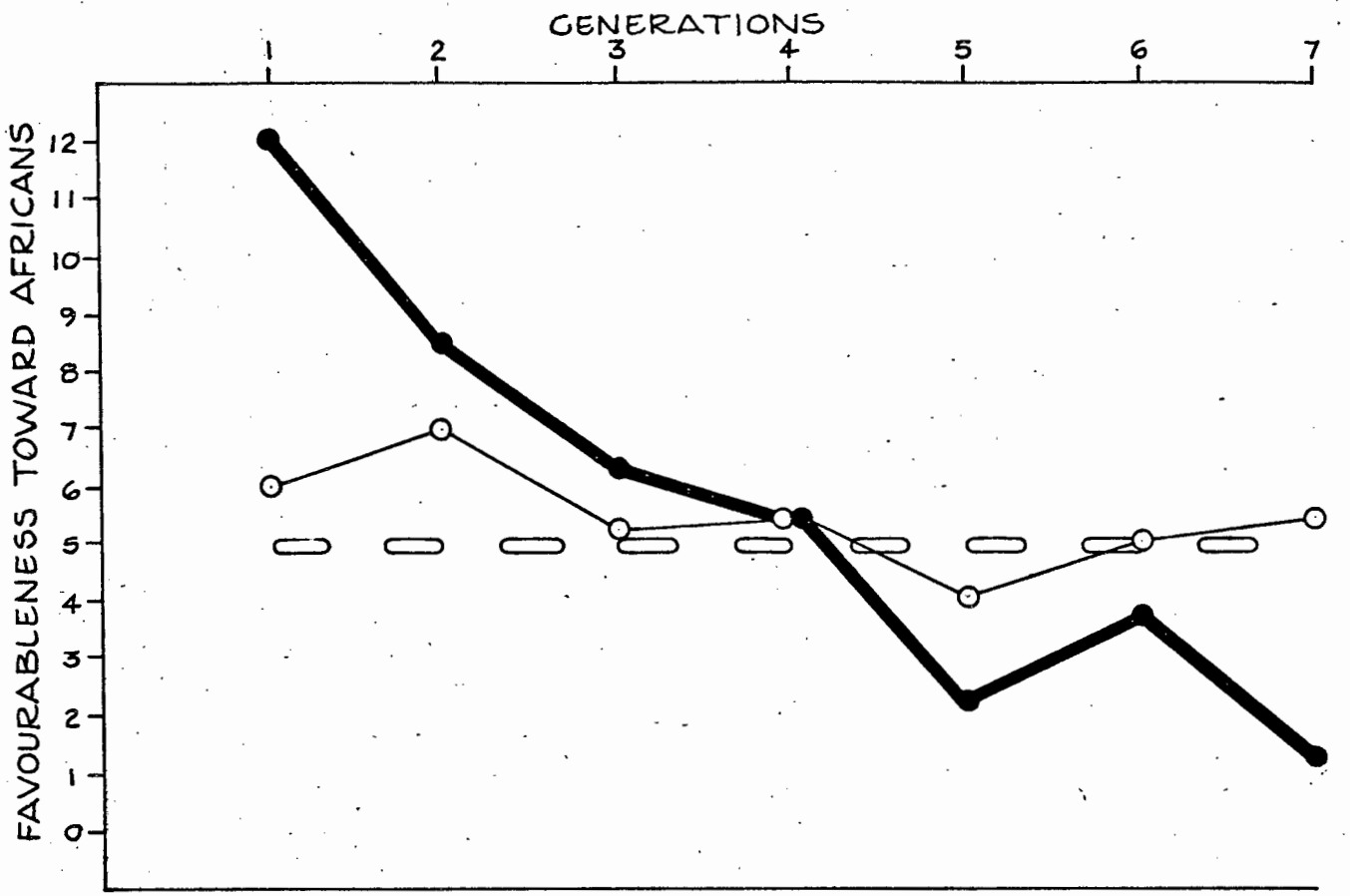


FIGURE 8. AVERAGED RESULTS OF GROUPS P(2) & A(2)

KEY: — Ss P(2)
— Ss A(2)
— BASELINE (CONTROL GROUP EXTRAPOLATED)

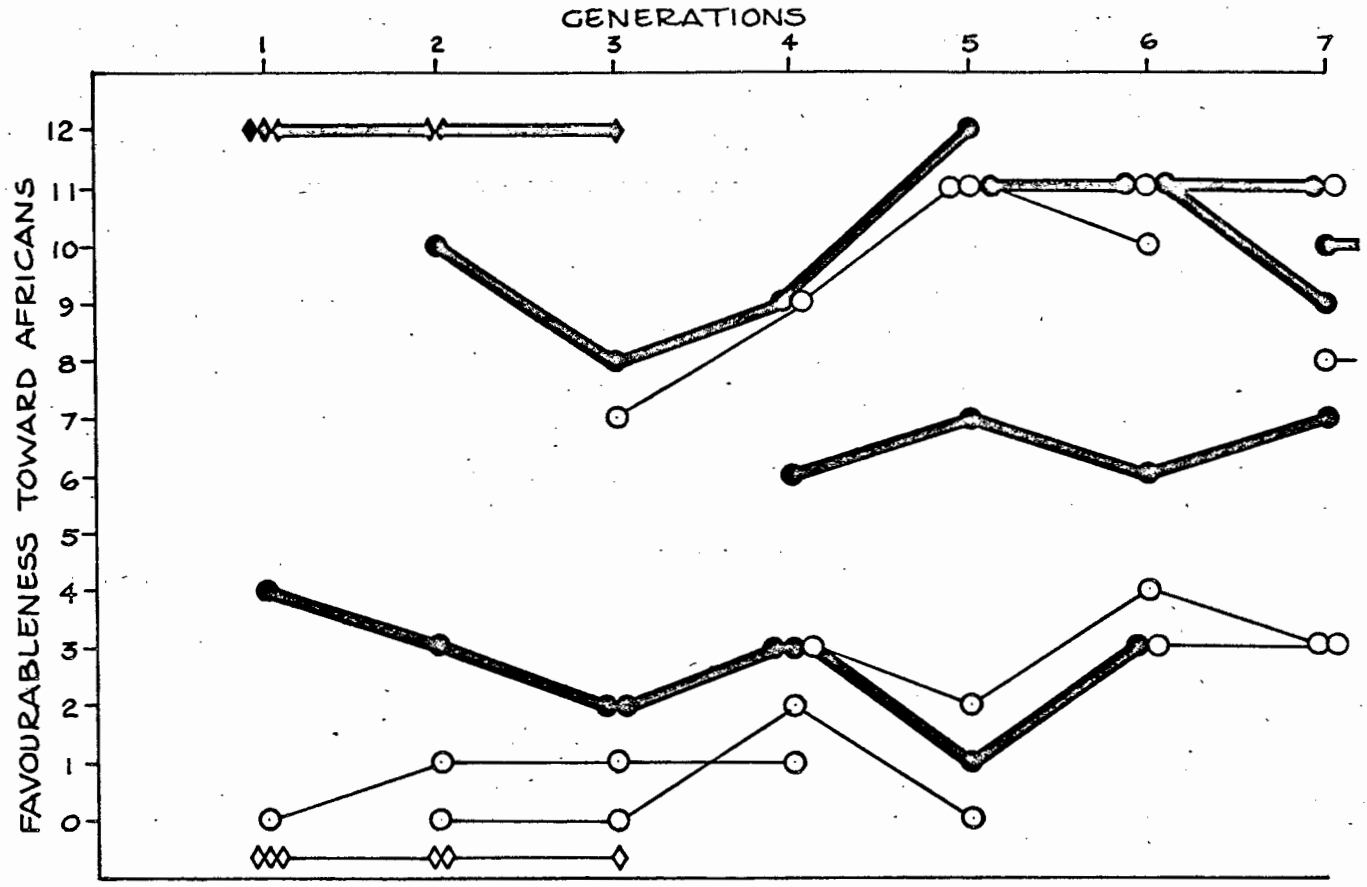


FIGURE 9. DETAILED RESULTS OF GROUPS P(3) & A(3)

KEY: — Ss P(3)
— Ss A(3)
— CONFEDERATES P(3)
— CONFEDERATES A(3)

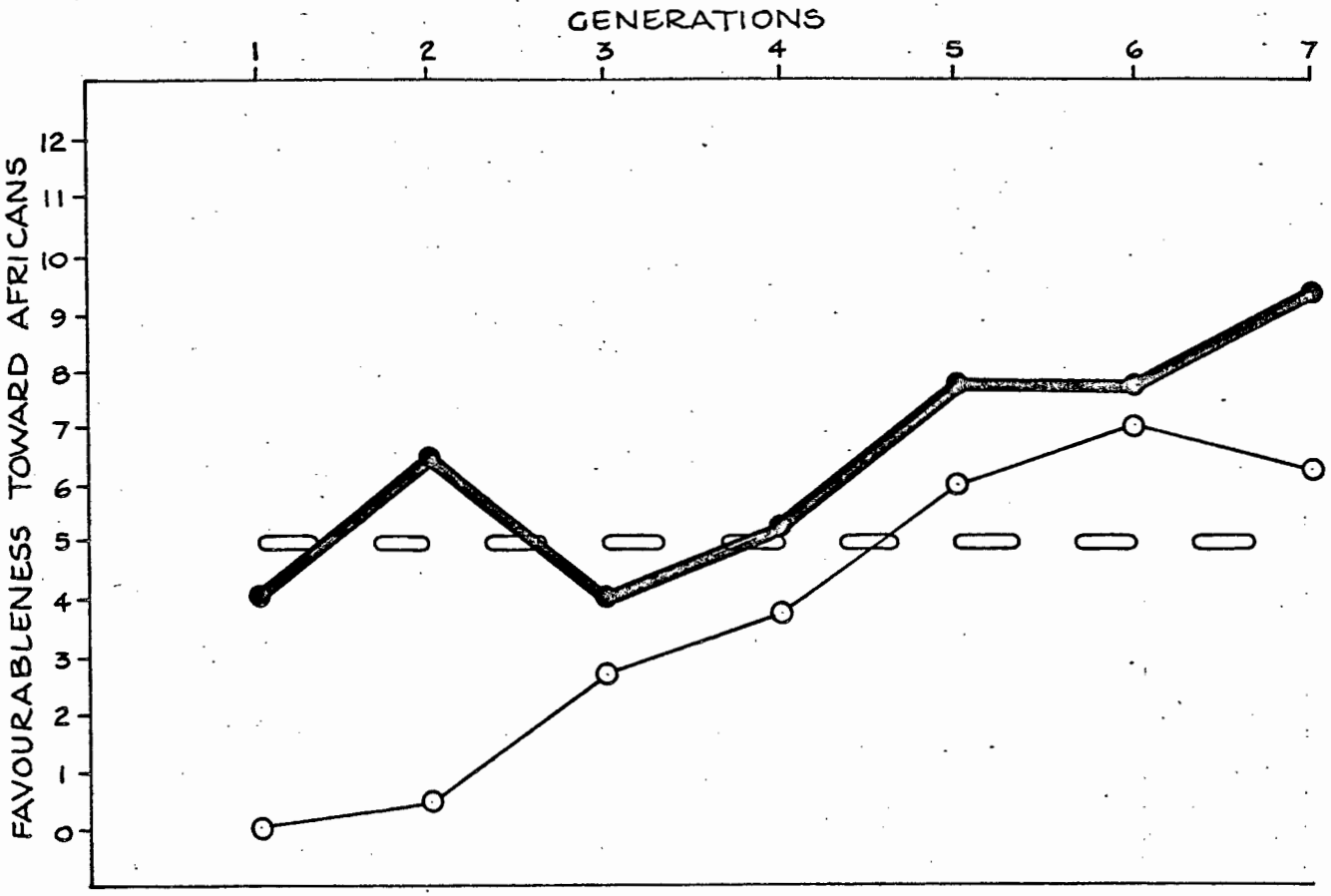


FIGURE 10. AVERAGED RESULTS OF GROUPS P(3) & A(3)

KEY: — Ss P(3)
— Ss A(3)
— BASELINE(CONTROL GROUP EXTRAPOLATED)

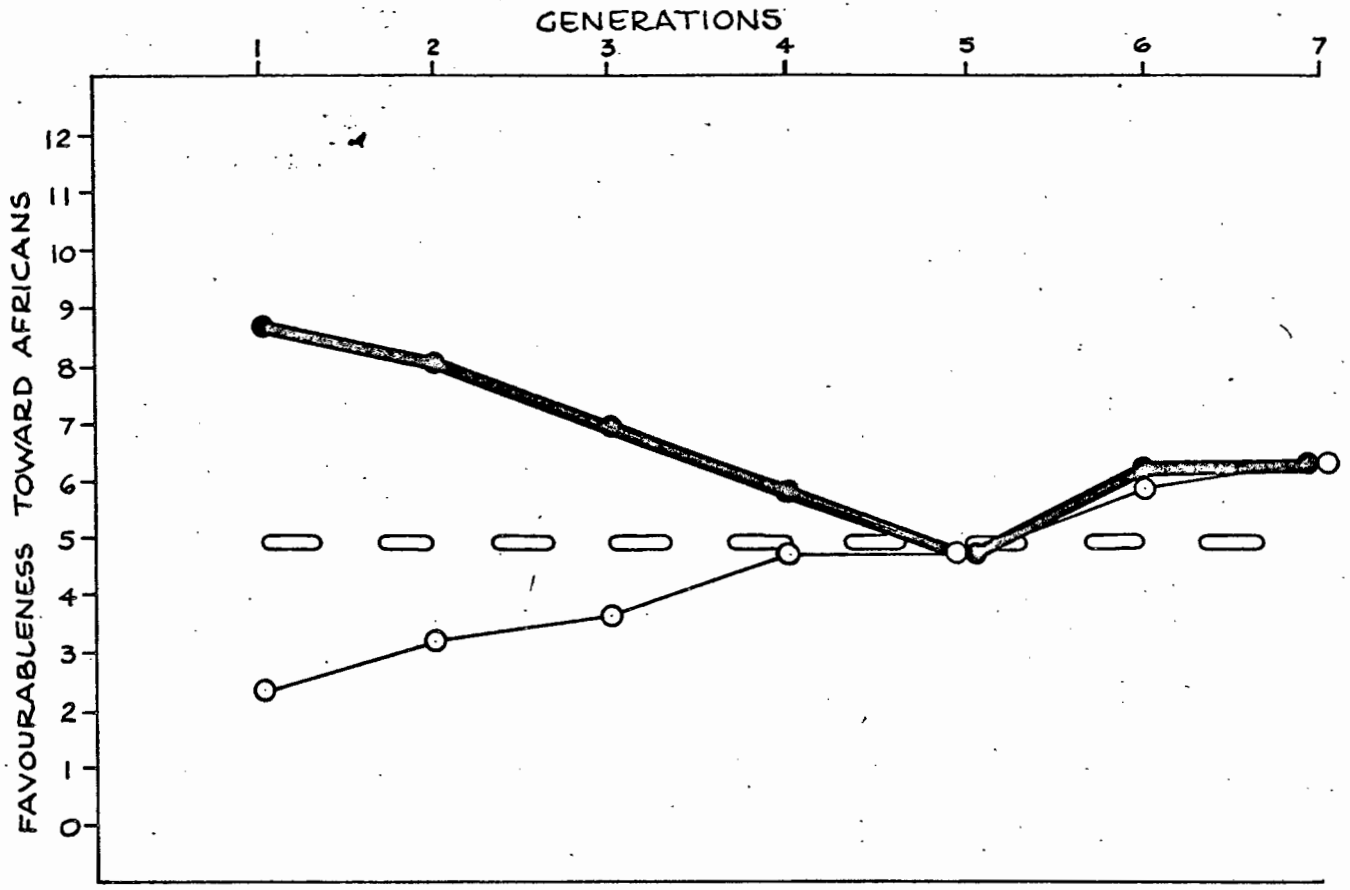


FIGURE 11. AVERAGED RESULTS OF GROUPS P(1), P(2), P(3) & A(1), A(2), A(3)

KEY: — Ss P(1), P(2), P(3)
— Ss A(1), A(2), A(3)
— BASELINE (CONTROL GROUP EXTRAPOLATE)

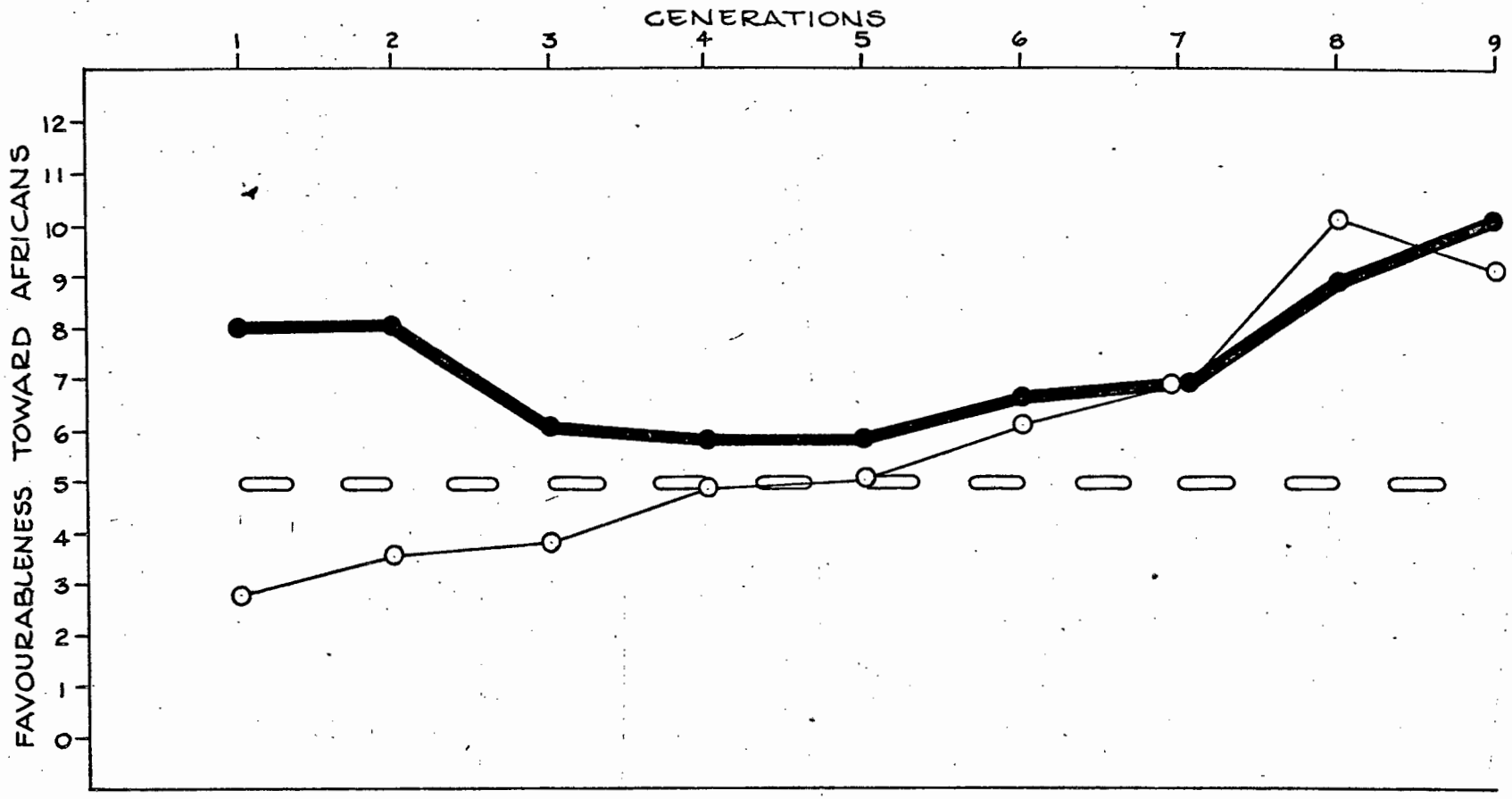


FIGURE 12. AVERAGED RESULTS OF GROUPS P(0), P(1), P(2), P(3) & A(0), A(1), A(2), A(3)

KEY: — Ss P(0), P(1), P(2), P(3)
— Ss A(0), A(1), A(2), A(3)
— BASELINE (CONTROL GROUP EXTRAPOLATED)

The surprisingly low values of *t* for generation 1 are probably due to the fact that only one naïve *S* was present in each group at the first generation, and therefore *n* is small.

A crucial question which has to be answered is whether the radically different norms established by the confederates in the two experimental conditions survived the total replacement of these confederates by naïve *Ss*. In other words, are the differences between the means in Figures 4, 6, 8 and 10 significant even after the *direct* influence of the confederates has been removed and the groups are made up entirely of naïve *Ss*? This can not be answered from the results in Figure 12, since the generation at which the removal of the last confederate took place depended upon the size of the group (Figure 12 contains data from 5-person groups and 4-person groups).

For this reason a further *t* - test was computed using the mean scores for the *Ss* present in each group, the first generation after the removal of the last confederate. Comparing the means for the two conditions, $t = 1.985$, $p < .05$ (one-tailed). Therefore the differences between the means of the two conditions survived the total replacement of the norm-generating confederates by naïve *Ss*.

5.2 Change over generations

It is apparent from Figure 12 that the pro- and anti-African norms introduced into the experimental groups resulted in attitude change in the *Ss*. However it is equally clear that the power of these norms declined over generations.

There are two ways in which this might have occurred. The attitude of each *S* may have tended to revert back to a less extreme level over generations, or each new *S* entering the group may have displayed less attitude

change than his predecessor, tending to be less extreme from the start of his existence in the group.

Both effects may have operated simultaneously. The analysis of the value-information content of attitudes in conjunction with cognitive dissonance theory, however, would predict little (if any) change in attitude on the part of individual Ss over successive generations.

In order to investigate the significance of within-S change over trials (generations), a number of Sign Tests for matched pairs of scores were computed. The last S in each group had, of course, to be omitted from these calculations.

For the significance of the proportion of Ss changing between their first and last trials away from the norm set by the confederates, $z = 1.25$, $p < 1.0$, which is not significant (one-tailed).

On the other hand, a significant proportion of Ss became more favourable toward Africans from their first to their last trials, irrespective of which condition they had been assigned to ($z = 2.18$, $p < .03$, two-tailed). This unexpected effect is not significant between first and second or first and third trials for each S.

It is interesting to note in passing here that of 52 Ss present in the groups for at least two generations, only 11 achieved the same attitude score on the first and last trials. An examination of Figures 3, 5, 7 and 9 will give some idea of the radical fluctuations which took place in some of the Ss over generations.

The decline in the power of the norms induced by the experimental manipulations does not appear to be explicable in terms of intra-individual attitude change over generations. The other possibility is that each new S in the group tended to be less extreme than his immediate predecessor.

For the proportion of Ss achieving a more moderate average attitude score than their immediate predecessors, = 3.85, $p <$ .025, one-tailed). The phenomenon of declining norms over generations is thus accounted for. The converging graphs in Figure 12 can now be seen in terms of the decreasing effectiveness of the norms in inducing attitude change in new Ss entering the groups.

5.3 Weighting ratios

Not one single S (in the experimental conditions, out of $n = 60$) achieved an attitude score as extreme as that of the confederates. Confederates in groups P(1), P(2) and P(3) gave responses which would result in the maximum score of 24 on the scale, while confederates in conditions A(1), A(2) and A(3) gave responses equivalent to a score of 0. In the control condition ($n = 166$) four Ss achieved a score of 24 and two Ss scored 0.

It is desirable to know how influential the norm was in determining the attitudes of the experimental Ss, in comparison with all other factors which determine their attitudes taken together.

Unfortunately it is not possible to make the necessary calculations for all the experimental Ss. While the norm confronting the first naïve S during the first generation was unanimous, and therefore unitary and quantifiable, the situation from the second generation on was variable and

ephemeral. Furthermore, in groups P(0) and A(0) even the confederates were not always unanimous, nor did they invariably give the most extreme possible responses. For these reasons the following calculations were confined to the first naïve Ss in groups P(1), P(2), P(3) and A(1), A(2) and A(3).

The weighting for the P condition is given by the formula.

$$\frac{\text{(MEAN ATTITUDE IN P CONDITION)} - \text{(MEAN ATTITUDE IN CONTROL CONDITION)}}{\text{(NORM)} - \text{(MEAN ATTITUDE IN P CONDITION)}}$$

Substituting in this formula, a weighting ratio of 1.13 is obtained. An analagous computation for condition A yields a weighting ratio of 1.10.

These figures indicate that the norms in the two experimental conditions were approximately as powerful in influencing the responses of the first naïve Ss as all other determining factors considered together. In fact, in both cases the Ss attached more weight to the attitudes expressed by the confederates than to all factors determining the attitudes of Ss in an individual setting. These findings demonstrate a startling susceptibility of high- Hv attitudes to modification through normative pressure.

5.4 Personality factors

It has been shown that the attitudes expressed by the confederates in the experimental conditions determined to a considerable extent the sttitudes of the Ss. The influence of the confederates upon the responses of the Ss was direct and powerful in the first generations, and indirect and less

powerful in later generations. It is now desirable to determine what other factors determined the Ss attitudes.

An inspection of Figures 3, 5, 7 and 9 reveals that a great deal of variance remains to be accounted for. What factors, apart from the manipulations might reasonably be expected to account for the remaining variance?

For one thing, it can be surmised that normative pressure from reference groups outside the experimental situation was present in the Ss minds inside the experimental situation. It is beyond the scope of this study to investigate these extra-experimental social factors directly.

Another set of potential sources of variance includes more-or-less stable individual differences, or personality traits. Three of the personality variables most likely to account for variance in the dependent variable were measured. They were measured by means of the Self-Ideal discrepancy Scale (S-I D), the forced-choice F scale (F) and the Independence of Judgment Scale (IJ). Three of the Ss in groups P(1), P(2), P93) and A(1), A(2) and A(3) had to be omitted from calculations involving these measures because, for one reason and another, they failed to complete all the forms.

5.41 Correlational data

For N = 39, a Pearson product-moment intercorrelation matrix was computed, in order to determine any relationships among the personality variables themselves :

	S - 1 O	F	IJ
S - 1 D		- ·041	- ·095
F			- ·597 +
IJ			

The only high correlation is the correlation between F and IJ, and this negative correlation is significant ($p < .01$).

In order to ascertain the degree of linear relationship between each of these three personality variables and the measure of avourableness toward Africans, computations could be based upon all avariable scores. However personality factors may be associated with attitudes indirectly : they may have affected the degree to which the Ss evinced attitude change as a result of normative pressure. Since the amount of normative pressure was relatively slight for later generations in each group, it was decided to confine the computations to the scores of the Ss in the first two generations in each group. In this way the power of the norms was held more-or-less constant. It is then possible to calculate not only the degree of linear relationship between each personality variable and favourableness toward Africans, but also the degree of linear relationship between each personality variable and amount of conformity to the group norms.

Before proceeding with these calculations, it was desirable for purposes of generalisation to know whether this relatively small group of Ss was fairly representative of all Ss as far as the distribution of personality scores was concerned. A comparison of the means and standard deviations of the three personality measures, for the whole experimental group of Ss and for the selected subgroup, is reassuring :

ALL Ss (N = 39)

	Mean	Standard Deviation
S - 1 D	7.7226	2.3640
F	47.7436	11.1844
I J	5.3846	1.6954

FIRST TWO Ss IN EACH GROUP (n = 12)

	Mean	Standard Deviation
S - 1 D	7.3350	1.9465
F	51.3333	12.3387
I J	5.1667	1.8505

A measure of conformity for Ss in the P condition is given by their scale scores indicating degree of favourableness toward Africans (since the norm = the maximum score for the scale, approx.). For the Ss in the A condition, conformity is given by the maximum scale score minus the scores for each S (since the norm = the minimum scale score, approx.). The results of computations of correlation coefficients between each of the personality variables and the attitude and conformity scores respectively is given below :

	CONFORMITY	ATTITUDE
S - 1 D	- .053	- .001
F	.013	- .357
I J	.286	.543 +

With such a small *n*, it is important not to overinterpret *r*s which look high but do not reach significance. The only significant *r* here is between independence of judgment and favourableness toward Africans. This correlation is positive (·543) and $p < .05$. The amount of variance in the attitude scores accounted for by independence of judgment is given by $V = r^2 = .296$. We can conclude that, in the case of the first two *S*s in each group (who were confronted with the most powerful norms), approximately 30 per cent of the variance is accounted for by this factor. (The expected negative correlation between independence of judgment and conformity was not found).

A further inference from the correlational data is permissible. Since authoritarianism and independence of judgment are (significantly) negatively correlated, it follows that the negative correlation found between authoritarianism and favourableness toward Africans (- ·357) is probably not due to chance, although it does not reach significance because of the small *n*. It can tentatively be inferred that approximately 13 per cent of the variance in attitudes toward Africans is due to authoritarianism.

5.42 Analyses of Variance

It has been hypothesised that some of the personality variables will interact with the experimental treatment to determine the *S*s scores on the attitude measure. In order to test for these possible interactions, and to supplement the purely linear interpretations of relationships derivable from the correlational analysis, three 3 x 2 factorial designs were abstracted from the data and analysed by mixed-model analyses of variance.

The Ss were ranked according to their scores on each of the three personality measures separately, and in each case the rank was divided at the tertiles, giving a low (L), medium (M) and a high (H) group. The factorial designs then each comprised three random levels of the personality variable X two treatments.

This procedure inevitably involved a small amount of subject loss. Whenever it was necessary to discard Ss, the rule was followed of always discarding those who entered the groups latest, since these Ss were least affected by the manipulated independent variable (see 5.2 above). The resulting designs, with ns used for analysis, are given diagrammatically below:

SELF-ESTEEM X TREATMENT (N = 30)

	H S - 1 D	M S - 1 D	L S - 1 D
P	n = 5	n = 5	n = 5
A	n - 5	n - 5	n - 5

AUTHORITARIANISM X TREATMENT (N - 30)

	H F	M F	L F
P	n = 5	n = 5	n = 5
A	n = 5	n = 5	n = 5

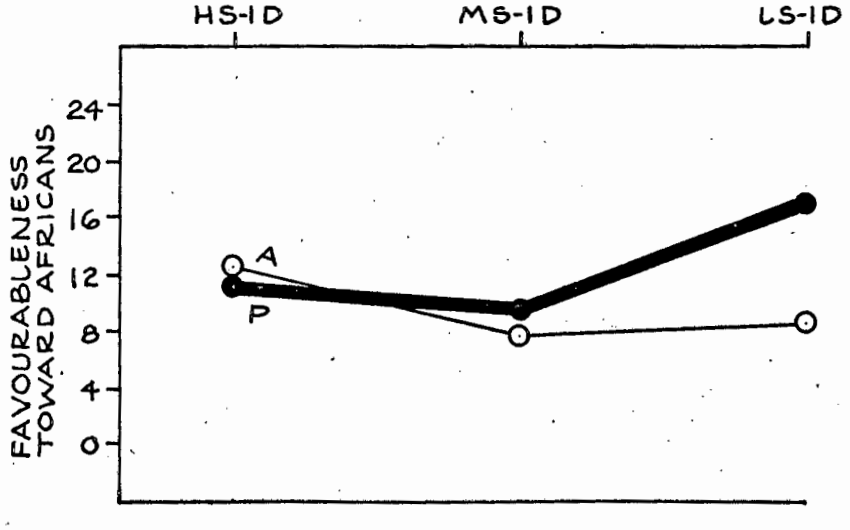
INDEPENDENCE OF JUDGMENT X TREATMENT (N - 24)

	H I J	M I J	L I J
P	n = 4	n = 4	n = 4
A	n = 4	n = 4	n = 4

The results of the analyses of variance may be summarised as follows :

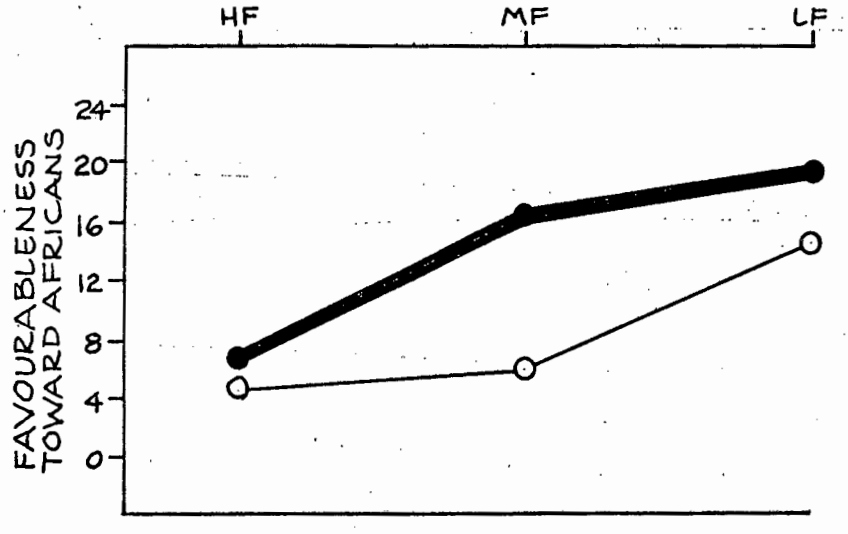
SELF-ESTEEM X TREATMENT

Source of variance	SS	d.f.	M.S.	F	p<
Treatment	95.3	1	95.30	1.65	n.s.
S - 1 D	81.9	2	40.95	.49	n.s.
Treatment x S - 1 D	115.8	2	57.90	.69	n.s.
Within-cell	1013.0	24	84.41		
TOTAL	1306.0	29			



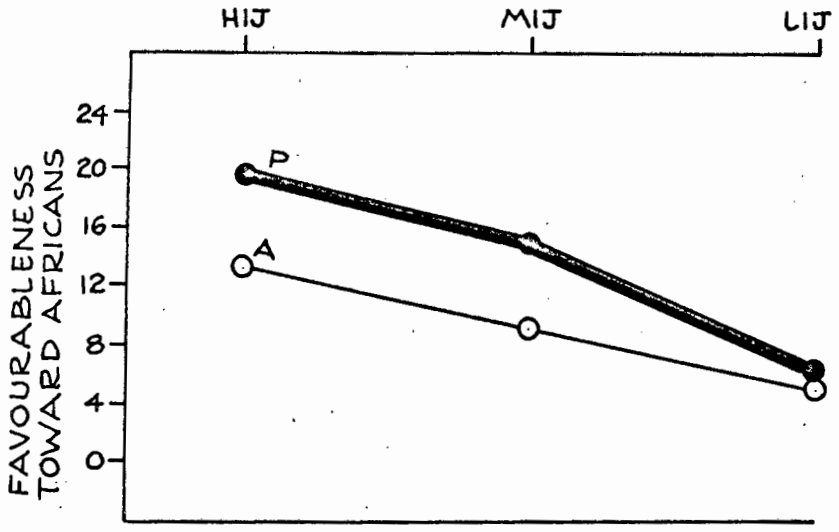
AUTHORITARIANISM X TREATMENT

Source of variance	SS	d.f.	M.S.	F	p <
Treatment	253.33	1	253.33	6.7	.2
F	661.00	2	330.50	23.39	.01 +
Treatment x F	84.90	2	42.45	3.00	.1
Within-cell	329.20	24	14.13		
TOTAL	1338.43	29			



INDEPENDENCE OF JUDGMENT X TREATMENT

Source of variance	SS	d.f.	M.S.	F	p <
Treatment	140.00	1	140.0	36.9	.05 +
IJ	500.10	2	250.1	8.6	.01 +
Treatment x IJ	7.60	2	3.8	.13	n.s.
Within-cell	528.80	18	29.4		
TOTAL	1176.50	23			



The conclusions that can be drawn from these analyses, are that the following factors account significantly for the variance in attitudes toward Africans:

(a) The treatment (P or A);

(b) Authoritarianism; and

(c) Independence of Judgment.

None of the interactions is significant, although authoritarianism x treatment approaches significance. We may tentatively speculate that Ss obtaining an intermediate score on the authoritarianism measure are most susceptible to attitude change. It has been pointed out in 1.1 above that the salience of an issue to an individual may influence the extent to which he is susceptible to attitude change on that issue through normative pressure. An interaction between authoritarianism and treatment would be easily interpretable along these lines; such an interaction makes sense.

5.5 Qualitative data: post-experimental interview

It is of the utmost importance to the interpretation of these findings, to know whether a significant number of Ss saw through the deception. It was chiefly for this reason, but also to determine the personal reactions of the Ss that the post-experimental interview was conducted.

An examination of the answers of the Ss to the question :"What do you think the purpose of the experiment was?" reveals that not one single S guessed the true intentions of the experimenter. Most of the Ss thought the purpose of the experiment was to survey "attitudes", "opinions of students", or "prejudice". One S even suggested that the purpose was "to find out about Africans"!

Even after the Ss were given a clue to the real purpose ("Did you feel under pressure?") only five Ss admitted feeling any pressure. Two of these five were first-generation entrants into the groups who were faced with the most extreme pressure. All five of the Ss who admitted feeling pressure qualified it with "slightly" or "a little". After being debriefed, two Ss said they saw what was going on ("Do you have any further comments which might interest us?").

Far from consciously feeling that they were being influenced by the others in the group, many Ss were "surprised" or "disgusted" at the others ("What were your reactions to the others in the group?"). The reasons typically given are mutually contradictory : either the others "had fixed ideas" or "they contradicted themselves". One S gave the more probable reason : "I got annoyed with one obvious Nat.". One S who had claimed to have felt no pressure thought that the others in the group "were looking at

me in an unfriendly way. I was asked to give opinions to which I am entitled". Several Ss spontaneously volunteered the ironical opinion that the group was fairly representative of campus opinion.

6. CONCLUSIONS

The main conclusions that can be drawn from the results given in Chapter 5 are given below :

(a) Experimental manipulation P was successful in influencing the attitudes of the Ss in a direction more favourable toward Africans, but manipulation A seemed only partially successful in influencing Ss in an unfavourable direction. Hypothesis 1 is thus partially confirmed.

(b) The amount of attitude change shown by the Ss gradually declined over generations, but remained significant beyond the total replacement of the norm-generating confederates by naïve Ss, who themselves became the unwitting indoctrinators of "younger" group members. Hypothesis 2 is confirmed.

(c) The decline in amount of attitude change over generations was not due to Ss reverting to their previous attitudes, but was due to each new S being confronted by a weaker norm upon entering the group, and thus tending to show less attitude change than his predecessor.

(d) The attitudes of the Ss exposed to the most powerful norm (the first naïve Ss in groups P(1), P(2), P(3), and A(1), A(2) and A(3) were influenced more by the norm generated by the confederates than by all other factors added together.

(e) The personality characteristic : independence of judgment was one such other factor, accounting for approximately 30 per cent of the variance in the scores irrespective of manipulation. Independent Ss tended to be more favourable toward Africans. Hypothesis 3 is not confirmed.

(f) Authoritarianism also accounts for a small part of the variance in attitude scores (approximately 13 per cent), the authoritarian Ss expressing attitudes significantly less favourable toward Africans. Hypothesis 5 is confirmed.

(g) The interaction and authoritarianism x treatment approaches significance. Moderately authoritarian Ss seemed to be more highly influenced by the normative pressure than either high or low authoritarianism is highly predictive of attitude irrespective of treatment.

(h) Self-esteem is not predictive of attitude or attitude change in any way. Hypothesis 4 is not confirmed.

(i) The experimental manipulations were highly plausible, none of the Ss apparently seeing through the deception and few being aware of the normative pressure that changed their attitudes.

7. DISCUSSION

It is possible to view social attitudes as "acquired behavioural dispositions" or "syndromes of response consistency" operationally indistinguishable from habits in general. In one form or another, this is currently a fairly widespread conception of social attitudes. Campbell (1963) has spelt out most clearly the basic assumptions implied by such an approach.

The model can not be right or wrong; it can rather be said to be more or less useful. Certainly, for the psychologist interested in investigating attitude change, it seems to have proved less useful (see Chapter 1). One of the implications of the model is that attitudes can be changed only by the slow processes of conditioning, counterconditioning and extinction. In fact, any changes which cannot be accounted for by such processes must be assigned to the ubiquitous dust-heap of "error variance". Attitudes must be viewed as "syndromes of response consistency" which remain invariant through all transitory changes in the individual's social and nonsocial environment.

The present study is, in part, an indication of the amount of information which is liable to be lost through such a restricted conception. The fact that many of an individual's attitudes can be seen as proceeding from groups, real or imagined, to which he belongs, refers himself, or aspires has, of course been recognised by psychologists for a very long time. On the other hand, there are probably "syndromes of response consistency" toward social objects which can be isolated in individuals, although this is not a statement susceptible to empirical disproof. However that may be, it has been argued in the present dissertation that attitudes of high value-information content are unlikely to fall into this category, and the surprisingly wide variability in response to transitory environmental changes is quite dramatic-

ally demonstrated for one class of high-Hv attitudes.

Three interrelated outcomes of the present investigation which were entirely unexpected, can retrospectively be interpreted as a further vindication of the theoretical framework in which it was cast. Firstly, the normative pressure under which the subjects in the P condition were placed, was more effective in changing their attitudes in a direction more favourable toward Africans, than was the A treatment effective in achieving the opposite result. Secondly, the norm in the A condition "evaporated" noticeably more quickly over generations than did the norm in the P condition. Finally, a significant proportion of subjects became more favourable toward Africans over trials. In addition it might be mentioned that the point of resolution in the final generations of the experimental groups after the effects had entirely vanished, was found to be higher in both treatment conditions (though not significantly so) than the mean score of the control group.

The most parsimonious interpretation that can be placed on this set of interrelated outcomes, is that the method of posttesting the experimental subjects somehow induced a measure of attitude change. It seems that there was a tendency for subjects in the experimental groups (regardless of treatment) to express attitudes more favourable toward Africans than the control subjects, especially as the tension in the group decreased.

This effect is easy to account for in retrospect. All the subjects knew that the research project was somehow connected with the Psychology Department of the University of Cape Town. The department has a reputation among students of being relatively radically oriented. A few weeks prior to

the experimental testing, in fact, the local daily newspapers both carried front-page stories about the Psychology Department's unanimous support for a student sit-in protesting against conduct of the University Council over the appointment of an African lecturer.

With more insight, the experimenter might have predicted, even before conducting the experiment, that a second (pro-African) normative pressure would inevitably be placed on all experimental subjects, irrespective of treatment condition. Such a prediction would have led to hypotheses analagous to the unexpected findings. The precise rationale for the hypotheses would have been that the subjects would be likely to fear negative evaluation by the experimenter for holding anti-African opinions.

The interpretation which has been given to the unpredicted findings focuses attention on an uncontrolled source of variance in the results of the experiment. It was entirely to be expected that with the use of attitudes containing so much value-information, normative pressure from reference groups brought into the experimental room inside the subjects' heads was likely to influence their responses. Such effects are not only uncontrolled, but also uncontrollable in principle. And yet a very large proportion of the variance in the dependent variable was accounted for by the normative pressure in the actual experimental treatments. The responses of the first subjects in each group were in fact determined more by the manipulated normative pressure than by all other factors added together (reference groups and personality variables included). The implication is that the subjects were deeply influenced by the norm of an entirely ad hoc group of strangers, which had no particular instrumental significance for them. The findings contain a dynamic portrait of Protean Man in action.

The results would have possessed less potential explanatory power, had the subjects been submitted to some grossly out-of-the-way or abnormal procedures in order to induce attitude change. However, on the contrary, the post-experimental interview protocols show clearly that the subjects regarded the whole procedure as entirely run-of-the-mill, even dull. There is no indication that the experimental subjects reacted essentially differently from the way they customarily react in any social situation involving a discussion of Africans, despite all the data collected specifically, to detect such differences.

Experiments on attitude change, in which the subjects are entirely unaware of any real or expected change, are disappointingly rare in the literature. Most experiments involve bombarding the subjects with "propaganda" communications. Such procedures may be entirely inappropriate in the modification of attitudes containing a great deal of value-information, and they are certainly contrived. In the "real-life" situation, fundamental changes in this class of attitudes seldom (if ever) follows from the reception of a specifiable persuasive communication. It occurs simultaneously with the establishment of new social contacts or exposure to new reference groups, or so the analysis of value-information in Chapter 1 suggests. In addition, information about the norms of these groups is almost invariably conveyed to the individuals indirectly.

Some evidence has been cited in Chapter 1 that "overheard" communications may be inherently more persuasive than direct communications, possibly because the individual's defenses are not aroused and attention is detracted from the (potentially embarrassing) change in attitude. In this connection it is interesting to consider Robert Rosenthal's (1967) most

recent and ongoing research. Rosenthal has shown that if schoolteachers are presented with a randomly selected list of pupils, and are told that the results of "psychological testing" suggest that these pupils are likely to "bloom" scholastically during the year, these pupils do in fact "bloom" significantly more than other pupils. The self-fulfilling prophecy is conveyed through some subtle communication, far more effective than influences school teachers are able voluntarily to muster, between teacher and pupils. Similar subtle communications, with equally dramatic effects, have frequently been demonstrated to occur without awareness between scientific experimenters and their assistants. Again similarly, young children probably acquire language without formal instruction far more quickly and efficiently than their more intelligent elders do with all the advantages of modern technological instruction. (Wiener, 1954).

It is partly as a result of a preoccupation with "direct" communication that attitude-change research to date has failed to produce any well-validated analogue of the phenomenon of deep attitudinal conversion. The same preoccupation may account, in part, for a general failure to obtain unambiguous information concerning the personality correlates of persuasibility. The present study has taken one halting step in the direction of greater realism in these regards.

Some of the data concerning personality and attitude change in the present study are difficult to interpret. Authoritarianism and Independence of Judgment were both found to be predictive of attitude toward Africans. The finding that independent subjects had attitudes more favourable toward Africans than yielding subjects, is not altogether surprising when one considers the (macro)-cultural norms operating on the subjects. However the subjects of

independent judgment were apparently not independent in the experimental manipulations: they displayed as much attitude change as the yielding subjects. Furthermore, the well-established relationship between self-esteem and susceptibility to social influence was not replicated. And finally, extreme authoritarianism and extreme non-authoritarianism seemed to be predictive of resistance to attitude change, although this tendency was not significant.

The failure to find any clearcut personality correlates of attitude change, either by correlational analysis or by analysis of variance, was disappointing. There are two possible explanations for the failure : either a series of Type II errors was made; or the attitude change and conformity demonstrated in the experimental situations was quite unlike the attitude change and conformity described in the literature from which the hypotheses concerning possible personality correlates were derived.

The first explanation is prima facie improbable. The second, on the other hand, is extremely plausible. A fundamental aim of the present study was to demonstrate certain properties of attitudes containing high value-information, which are not to be expected in the types of attitudes upon which most of the experimental literature on attitude change is based.

A major limitation of the present study is that it does not include duplicated procedures using attitudes of low value-information content. Only once this has been done will it be possible to make any conclusive statement regarding the specificity of the findings over a restricted range of attitude variables. The study has created a need for further research along these lines.

8. SUMMARY

(a) Attention was drawn to the information about an individual conveyed by his expressed attitudes. A dimension of attitudes, consisting of the amount of latent value-information which they contain, was identified and defined. It was deduced that attitudes of high value-information content are potentially highly susceptible to change through changing normative pressure.

(b) The literature on attitude change was selectively reviewed from the point of view of the extent to which different approaches to attitude change have considered attitudes of high value-information content. It was shown that whereas most research on attitude change has been restricted to attitudes low on this dimension, the extent to which theoretical conceptions of attitude change take account of social factors, is related to the extent to which they imply applicability to attitudes of high value-information content.

(c) An experimental design, involving attitude manipulation through Asch-type normative pressure, was described, and methods of maximising value-information, including the use of attitudes toward Africans, were proposed.

(d) The development of a scale to measure attitudes toward Africans using the scale-discrimination technique was described. The properties of the scale, including unidimensionality, discriminating power and diversity of item content, were set out. The instruments chosen for the measurement of personality were discussed.

(e) The experimental treatments, involving the creation of laboratory microcultures, were described. Starting with a standard Asch situation, the confederates are removed one by one and replaced by additional naïve Ss. The norm introduced by the confederates is thus expected to be transmitted for several generations, each new naïve S becoming an unwitting collaborator in the conspiracy.

(f) The results of the experiment were presented, the most notable among them being : attitude change in the direction of a more favourable attitude toward Africans was more successfully achieved than the reverse; the amount of attitude change displayed by the Ss declined over generations of the laboratory microcultures, but remained significant beyond the total replacement of the confederates with naïve Ss; and Independence of Judgment and authoritarianism were predictive of attitude toward Africans but not of attitude change.

(g) The results were discussed, some limitations of thestudy were mentioned, and suggestions for further research were offered.

REFERENCES

ABELSON, R.P., and ROSENBERG, M.J. Symbolic psychologic: A model of attitudinal cognition. Behav. Sci., 1958, 3, 1 - 13.

ADAMS, J.S. Reduction of cognitive dissonance by seeking consonant information. J. abnorm. soc. Psychol., 1961, 62, 74 - 78.

ADORNO, T.W., FRENKEL-BRUNSWIK, Else, LEVINSON, D.J., and SANFORD, R.N. The Authoritarian Personality. New York : Harper, 1950.

ANDERSON, LYNN, R. and FISHBEIN, M. Prediction of attitude from the number, strength, and evaluative aspect of beliefs about the attitude object: a comparison of summation and congruity theories. J. pers. soc. psychol., 1965, 3, 437 - 443.

ARNET, C.E., DAVIDSON, H.H., and LEWIS, H.N. Prestige as a factor in attitude change. Sociol. soc. Res. 1931, 16, 49 - 55.

ARONSON, E., and MILLS, J. The effect of severity of initiation on liking for a group. J. abnorm. soc. Psychol., 1959, 59, 177 - 181.

ASCH, S. E. Effects of group pressure upon the modification and distortion of judgments. In H. Guetzkow (Ed.), Groups, leadership and men. Pittsburgh: Carnegie Press, 1951, 177 - 190.

ASCH, S.E. Review of L. Festinger : A theory of cognitive dissonance. Contemp. Psychol., 1958, 3, 194 - 195.

BARBER, T.X. Hypnotisability, suggestibility, and personality: V. A critical review of research findings. Psychol.Rep., 1964, 14, 299 - 320.

BARRON, F. Creativity and personal freedom. New York: Van Nostrand., 1968.

BEM, D.J. Self-perception : An alternative interpretation of cognitive dissonance phenomena. Psychol. Rev., 1967, 74, 183 - 200.

BERKOWITZ, L. and WOLKON, G.H. A forced-choice form of the F scale - free of acquiescence response set. Sociometry, 1964, 27, 54 - 65.

BORING, E.G. A history of experimental psychology. New York: Appleton-Century-Crofts, 1950.

BOWDEN, A.O., CALDWELL, F.F. and WEST, G.A. A study in prestige. Amer.J. Sociol., 1934, 40, 1932 - 204.

BREHM, J.W. Post-decision changes in the desirability of alternatives. J. abnorm.soc.Psychol., 1956, 52, 384 - 389.

BREHM, J.W. Increasing cognitive dissonance by a fait accompli. J. abnorm.soc.Psychol., 1959, 58, 379 - 382.

BREHM, J.W. Attitudinal consequences of commitment to unpleasant behaviour. J. abnorm. soc. Psychol., 1960, 60, 379 - 383.

BREHM, J.W. Comment on :"Counter-norm attitudes induced by consonant versus dissonant conditions of role-playing." J. exp. Res. Pers., 1965, 1, 61 -64.

BROCK, T.C., and BECKER, L.A. Ineffectiveness of "overheard" counter-propaganda. J. pers. soc. Psychol., 1965, 2, 654 - 660.

BURDICK, H.A. and BURNES, A.J. A test of "strain toward symmetry" theories. J. abnorm. soc. Psychol. 1958, 57, 367 - 369.

BYRNE, D., and BOUNDS, C. The reversal of F scale items. Psychol. Bull., 1964, 14, 216.

CALLIAS, Maria. Unpublished paper, UCT, 1963.

CAMPBELL, D.T. Social attitudes and other acquired behavioural dispositions. In S. Koch, Psychology: A study of a science. New York: McGraw-Hill, 1963, Pp. 94 - 172.

CAMPBELL, D.T. and JACOBS, R.C. The perpetuation of an arbitrary tradition through several generations of a laboratory microculture. J. abnorm. soc. Psychol., 1961, 62, 649 - 658.

CAMPBELL, D.T., and STANLEY, J.C. Experimental designs for research on teaching. In N. L. Gage (Ed.), Handbook of research on teaching. Chicago: Rand McNally, 1963. Pp. 171 - 246.

CARMENT, D.W., MILES, C.G., and CERVIN, V.B. Persuasiveness and persuasibility as related to intelligence and extraversion. Brit. J. soc. clin. Psychol., 1965, 4, 1 - 7.

CARMENT, D.W., SCHWARTZ, F.S., and MILES, C.G. Persuasiveness and persuasibility as related to intelligence and emotional responsiveness. Psychol. Rep., 1963, 12, 767 - 772.

CARTWRIGHT, D., and HARARY, F. Structural balance: A generalisation of Heider's theory. Psychol. Rev., 1956, 63, 277 - 293.

CHAPANIS, N.P. and CHAPANIS, A. Cognitive dissonance: Five years later. Psychol. Bull., 1964, 61, 1 - 22.

CHRISTIE, R., and GARCIA, J. Sub-cultural variation in Authoritarian personality. J. abnorm. soc. Psychol., 1951, 46, 457 - 469.

COHEN, A.R. Communication discrepancy and attitude change: a dissonance theory approach. J. Pers., 1959, 27, 386 - 396.

COHEN, A.R. Attitude change and social influence. New York: Basic Books, 1964.

COHEN, A.R., TERRY, H.I., and JONES, C.B. Attitudinal effects of choice in exposure to counterpropaganda. J. abnorm.soc. Psychol., 1959, 58, 388 - 391.

COX, D.F. and BAUER, R.A. Self-confidence and persuasibility in women. Pub. Opin. Quart., 1964, 28, 453 - 466.

CROMWELL, H. The relative effect on audience attitude of the first versus the second argumentative speech of a series. Speech Monogr., 1950, 17, 105 - 122.

CROWNE, D.P. and CONN, L.K. The hypnotic enhancement of self-esteem and persuasibility. Cited in R. L. Rosnow and G. J. Robinson, Experiments in persuasion. New York: Academic Press, 1967, P. 199.

CRUTCHFIELD, R.S. Conformity and character. Amer. Psychologist, 1955, 10, 191 - 198.

DABBS, J.M. Self-esteem, communicator characteristics, and attitude change. J. abnorm. soc. psychol., 1964, 69, 173 - 181.

DOOB, L.W. The behaviour of attitudes. Psychol. Rev., 1947, 54, 135 - 156.

DUSTIN, D.S. and DAVIS, H.P. Authoritarianism and sanctioning behaviour. J. pers. soc. Psychol., 1967, 6, 222 - 224.

EDWARDS, A.L. Attitude scale construction. London: McGraw-Hill, 1957a.

EDWARDS, A.L. The social desirability variable in personality assessment and research. New York: Dryden, 1957b.

EDWARDS, A.L., and KENNY, K.C. A comparison of the Thurstone and Likert techniques of scale construction. J. Appl. Psychol., 1946, 30, 72 - 83.

EDWARDS, A.L. and KILPATRICK, G.P. A technique for the construction of attitude scales. J. appl. Psychol., 1948, 32, 374 - 384.

EHRLICH, D., GUTTMAN, I., Schönback, P., and Mills, J. Post-decision exposure to relevant information. J. abnorm. soc. Psychol., 1954, 98 - 102.

ELMS, A.C. Role playing, incentive and dissonance. Psychol. Bull., 1967, 68, 132 - 148.

FELDMAN, S. Cognitive consistency. New York : Academic Press, 1966.

FERGUSON, L.W. The influence of individual attitudes on construction of an attitude scale. J. soc. Psychol., 1935, 6, 115 - 117.

FESTINGER, L. A theory of cognitive dissonance. New York: Harper and Row, 1957.

FESTINGER, L. and CARLSMITH, J.M. Cognitive consequences of forced compliance. J. abnorm. soc. Psychol., 1959, 58, 203 - 210.

FISHBEIN, M. An investigation of the relationships between beliefs about an object and the attitude toward that object. Hum. Relat., 1963, 16, 233 - 239.

FISHBEIN, M. and RAVEN, B.H. The AB scales : An operational definition of belief and attitude. Hum. Relat., 1962, 15, 35 - 44.

FREDERIKSEN, N., and MESSICK, S. Response set as a measure of personality. Educ. Psychol. Measmt., 1959, 19, 137 - 157.

GERARD, R.W., KLUCKHOHN, C., and RAPOPORT, A. Biological and cultural evolution: Some analogies and explorations. Behav. Sci., 1956, 1, 6 - 34.

GOLDBERG, S.C. Three situational determinants of conformity to social norms. J. abnorm. soc. Psychol., 1954, 49, 325 - 329.

GOLLOB, H.F., and DITTES, J.E. Effects of manipulated self-esteem on persuasibility depending on threat and complexity of communication. J. pers. soc. Psychol., 1965, 2, 195 - 201.

GOULDNER, A.W. Situations and groups : The situationist critique. In A. W. Gouldner (Ed.) Studies in leadership. New York: Harper, 1950. Pp. 25 - 33.

GREEN, B.F. Attitude measurement. In G. Lindzey (Ed.), Handbook of Social psychology. Cambridge: Addison-Wesley, 1954, Pp. 335 - 369.

GUILFORD, J.P. The phi coefficient and chi square as indices of item validity. Psychometrika, 1941, 6, 11 - 19.

GUILFORD, J.P. Response biases and response sets. In M. Fishbein, Readings in attitude theory and measurement. New York: Wiley, 1967.

GUTTMAN, L. A basis for scaling qualitative data. Amer. sociol. Rev., 1944, 9, 139 - 150.

GUTTMAN, L. The Cornell technique for scale and intensity analysis. Educ. Psychol. Measmt., 1947, 7, 247 - 280.

HARTMANN, G.W. A field experiment on the comparative effectiveness of "emotional" and "rational" political leaflets in determining election results. J. abnorm. soc. Psychol., 1936, 31, 99 - 114.

HEIDER, F. Attitudes and cognitive organisation. J. Psychol., 1946, 21, 107 - 112.

HEIDER, F. On social cognition. Amer. Psychologist, 1967, 22, 25 - 31.

HOLLANDER, E.P., and WILLIS, R.H. Some current issues in the psychology of conformity and nonconformity. Psychol. Bull., 1967, 68, 62 - 76.

HOVLAND, C.I. Reconciling conflicting results derived from experimental and survey studies of attitude change. Amer. Psychologist. 1959, 14, 8 - 17.

HOVLAND, C.I., JANIS, I.L., and KELLEY, H.H. Communication and persuasion. New Haven: Yale Univ. Press, 1953.

HOVLAND, C.I., LUMSDAINE, A.A., and SHEFFIELD, F.D. The effects of presenting "one side" versus "both sides" in changing opinions on a controversial subject. In C. I. Hovland et. al. Experiments on mass communication. Princeton Univ. Press, 1949, 201 - 227.

HOVLAND, C.I., MANDELL, W., CAMPBELL, E.H., BROCK, T.C., LUCHINS, A.S., COHEN, A.R., McGUIRE, W.J., JANIS, I.L., FEIERABEND, R.L., and ANDERSON, N.H. The order of presentation in persuasion. New Haven: Yale Univ. Press, 1957.

HOVLAND, C.I., and WEISS, W. The influence of source credibility on communication effectiveness. Pub. Opinion. Quart., 1951, 15 , 635 - 650.

HYMAN, H.H. and SHEATSLEY, P.B. Some reasons why information campaigns fail. Pub. opin. Quart., 1947, 11, 412 - 423.

INSKO, C.A. One-sided versus two-sided communications and counter-communications. J. abnorm. soc. Psychol., 1962, 65, 203 - 206.

JANIS, I.L. and FESHBACH, S. Effects of fear-arousing communications. J. abnorm. soc. Psychol., 1953, 48, 78 - 92.

JANIS, I.L., and FIELD, P.B. Sex differences and personality factors related to persuasibility. In I. L. Janis and C. I. Hovland (Eds.), Personality and persuasibility. New Haven: Yale Univ. Press, 1959. Pp. 55 - 68.

JANIS, I.L., and HOVLAND, C.I. Personality and persuasibility. New Haven: Yale Univ. Press, 1959.

JANIS, I.L., KAYE, D., and KIRSCHNER, P. Facilitating effects of "eating-while-reading" on responsiveness to persuasive communications. J. pers. soc. Psychol., 1965, 1, 181 - 186.

JORDAN, N. Behavioural forces that are a function of attitudes and of cognitive organisation. Hum. Relations, 1953, 6, 273 - 287.

JORDAN, N. The mythology of the non-obvious - Autism or fact? Contemp. Psychol., 1964, -, 140 - 142.

KATZ, D., and STOTLAND, E. A preliminary statement to a theory of attitude structure and change. In S. Koch (Ed.), Psychology: A study of a science. Vol. 3. New York: McGraw-Hill, 1959. Pp. 423 - 475.

KELMAN, H.C., and HOVLAND, C.I. "Reinstatement" of the communicator in delayed measurement of opinion change. J. abnorm. soc.Psychol., 1953, 48, 327 - 335.

KIDD, J.S. Social influence phenomena in a task-oriented group. J. abnorm. soc. Psychol., 1958, 56, 13 - 17.

KING, B. T. Relationships between susceptibility to opinion change and childrearing practices. In I.L. Janis and C. I. Hovland (Eds.), Personality and persuasibility. New Haven: Yale Univ. Press, 1959. Pp. 207 - 221.

KNOWER, F. H. Experimental studies of changes in attitudes: 11. A study of the effect of printed argument on changes in attitude. J. abnorm. soc. Psychol., 1936, 30, 522 - 532.

KRECH, D., and CRUTCHFIELD, R.S. Theory and Problems of Social Psychology. New York. McGraw-Hill, 1948.

KULP, D.H., Prestige as measured by single-experience changes and their permanency. J. educ. Res., 1934, 27, 663 - 672.

LANA, R.E. Familiarity and the order of presentation of persuasive communications. J. abnorm. soc. Psychol., 1961, 62, 573 - 577.

LANA, R.E. Controversy of the topic and the order of presentation in persuasive communications. Psychol. Rep., 1963, 12, 163 - 170.

LANA, R.E. Interest, media, and the order effects in persuasive communications. J. Psychol., 1963b, 56, 9 - 13.

LANA, R.E. Three theoretical interpretations of order effects in persuasive communications. Psychol. Bull., 1964, 314 - 320.

LEVENTHAL, H., and PERLOE, S.I. A relationship between self-esteem and persuasibility. J. abnorm. soc. Psychol., 1962, 64, 385 - 388.

LIFTON, R.J. Protean Man. Partisan Rev., 1968, XXXV, 13 - 27.

LIKERT, R. A technique for the measurement of attitudes. Archives Psychol., 1932, 140.

LIPPMANN, W. Public opinion. New York. Macmillan, 1922.

LOTT, Bernice E. Attitude formation: The development of a colour-preference response through mediated generalisation. J. abnorm.soc. Psychol., 1955, 50, 321 - 326.

LUMSDAINE, A.A. and JANIS, I.L. Resistance to counter-propaganda produced by a one-sided versus a two-sided propaganda presentation. Publ.Opin. Quart., 1953, 17, 311 - 318.

LUND, F.H. The psychology of belief: a study of its emotional and volitional determinants. J. abnorm. soc. Psychol., 1925, 20, 174 - 196.

McGUIGAN, F.J. Experimental Psychology: A methodological approach. London : Prentice-Hall, 1968.

MCGUIRE, W.J. Attitudes and opinions. Ann. Rev. Psychol., 1966, 17, 487 - 490.

MCGUIRE, W. J. Personality and susceptibility to influence. In Rosnow, R.L., and Robinson, E.J. Experiments in persuasion. New York: Academic Press, 1967.

McNEMAR, Q. Psychological statistics. New York: Wiley, 1949.

MILLER, G.A. The magical number seven, plus or minus two: some limits on our capacity for processing information. Psychol. Rev., 1956, 63, 81 - 96.

MILLER, N., and CAMPBELL, D.T. Recency and primacy in persuasion as a function of the timing of speeches and measurements. J. abnorm.soc. Psychol., 1959, 59, 1 - 9.

MILLS, J. Comment on Bem's "Self-perception : an alternative interpretation of cognitive dissonance phenomena. Psychol. Rev., 1967, 74, 535.

MILLS, J., ARONSON, E., and ROBINSON, H. Selectivity in exposure to information. J. abnorm. soc. Psychol., 1959, 59, 250 - 253.

MORRISSETTE, J. An experimental study of the theory of structural balance. Hum. Relat., 1958, 11, 239 - 254.

MOWRER, O.H. Cognitive dissonance or counterconditioning? A reappraisal of certain behavioural paradoxes. Psychol. Rec., 1963, 13, 197 - 211.

MURPHY, G., MURPHY, L.B., and NEWCOMB, T.M. Experimental social psychology. New York: Harper and Row, 1937.

MURRAY, H.A. Explorations in personality. New York: Oxford Univ. Press, 1938.

NEWCOMB, T.M. An approach to the study of communicative acts. Psychol.Rev., 1953, 60, 394 - 404.

NEWCOMB, T.M. The prediction of interpersonal attraction. Amer.Psychologist, 1956, 11, 575 - 586.

NEWCOMB, T.M. The acquaintance process. New York: Holt, Rinehart and Winston, 1961.

NEWCOMB, T.M. Persistence and regression of changed attitudes: long-range studies. J. soc. Issues, 1963, 19, 3 - 13.

NYSTROM, G.H. The measurement of Filippino attitudes toward America by the use of Thurstone technique. J. soc. Psychol., 1934, 4, 249 - 252.

ORNE, M.T. On the social psychology of the psychological experiment: With particular reference to demand characteristics and their implications. Amer. Psychologist, 1962, 17, 776 - 783.

OSGOOD, C.E. The nature and measurement of meaning. Psychol. Bull., 1952, 49, 197 - 237.

OSGOOD, C.E., and SUCI, G.J. A measure of relation determined by both mean difference and profile information. Psychol. Bull., 1952, 49, 251 - 262.

OSGOOD, C.E., SUCI, G.T. and TANNENBAUM, P.H. The measurement of meaning. Urbana: illinois Press, 1957.

OSGOOD, C.E., and TANNENBAUM, P.H. The principle of congruity in the prediction of attitude change. Psychol. Rev., 1955, 62, 42 - 55.

PEABODY, D. Authoritarianism scales and response bias. Psychol. Bull., 1966, 65, 11 - 23.

PETERSON, C.R., and BEACH, L.R. Man as an intuitive statistician. Psychol. Bull., 1967, 68, 29 - 46.

RAZRAN, G.H.S. Conditioned response changes in rating and appraising sociopolitical slogans. Psychol. Bull., 1940, 37, 481.

RHINE, R.J. Some problems in dissonance theory research on information selectivity. Psychol. Bull., 1967, 68, 21 - 28.

ROGERS, C.R., and DYMOND, R.F. Psychotherapy and personality change. Chicago: Chicago Univ. Press, 1954.

ROKEACH, M. Authoritarianism scales and response bias: comment on Peabody's paper. Psychol. Bull., 1967, 67, 349 - 355.

RORER, L.G. The great response-style myth. Psychol. Bull., 1965, 63, 129 - 156.

ROSANDER, A.C. The Spearman-Brown formula in attitude scale construction. J. exp. Psychol., 1936, 19, 480 - 495.

ROSE, E., and FELTON, W. Experimental histories of a culture. Amer.sociol. Rev., 1955, 20, 383 - 392.

ROSENTHAL, R. Self-fulfilling prophecies. Comment in Sci.Amer., 1967, 217, 54 - 59.

ROSNOW, R.L., and GOLDSTEIN, J.H. Familiarity, salience, and the order of presentation. Cited in. Rosnow, R.L., and Robinson, E.J. Experiments persuasion. New York: Academic Press, 1967, p 102.

ROTTER, J.B. Social learning and clinical psychology. Englewood Cliffs: Prentice-Hall, 1954.

SAMELSON, F., and YATES, J.F. Acquiescence and the F scale : old assumptions and new data. Psychol. Bull., 1967, 68, 91 - 103.

SARNOFF, I., and KATZ, D. The motivational bases of attitude change. J. abnorm. soc. Psychol., 1954, 49, 115 - 124.

SEARS, D.O., and FREEDMAN, J.L. Effects of expected familiarity with arguments upon opinion change and selective exposure. J. pers. soc. Psychol., 1965, 2, 420 - 426.

SHEFFIELD, J., and BYRNE, D. Attitude similarity - dissimilarity, authoritarianism and interpersonal attraction. J. soc. Psychol., 1967, 71, 117 - 123.

SHERIF, M. The psychology of social norms. New York: Harper and Row, 1936.

SIDMAN, M. Tactics of scientific research. New York: Basic Books, 1960.

SILVERMAN, I. In defense of dissonance theory: Reply to Chapanis and Chapanis. Psychol. Bull., 1964, 62, 205 - 209.

SILVERMAN, I. Differential effects of ego threat upon persuasibility for high and low self-esteem subjects. J. abnorm. soc. psychol., 1964, 69, 567 - 572.

SMITH, B.L., LASSWELL, H.D., and CASEY, R.D. Propaganda, communication and public opinion. Princeton : Princeton Univ. Press, 1946.

SMITH, M.B. Three textbooks: a special review. J. exp. soc. Psychol., 1966, 2, 114.

SMITH, M.B., BRUNER, J.S., and WHITE, R.W. Opinions and personality. New York: Wiley, 1956.

SOLOMON, R.L. An extension of the control-group design. Psychol. Bull., 1949, 46, 137 - 150.

STAATS, A.W. An outline of an integrated learning theory of attitude formation and function. In M. Fishbein (Ed.): Readings in attitude theory and measurement. New York : Wiley, 1967, Pp. 373 - 376.

STAATS, A.W. and STAATS, Carolyn K. Attitudes established by classical conditioning. J. abnorm. soc. Psychol., 1958, 57, 37 - 40.

STRICKLAND, L.H., and JANICKI, W.P. An alternative form of a forced-choice F scale. Psychol. Rep., 1965, 16, 933 - 940.

SWANSON, C.E. Predicting who leans factual information from the mass media. In H. Guetzkow (Ed.) Groups, leadership and men: research in human relations. Pittsburgh: Carnegie Press, 1951.

THURSTONE, L.L. Theory of attitude measurement. Psychol., Bull., 1929 36, 222 - 241.

THURSTONE, L.L. The measurement of social attitudes. J. abnorm. soc. Psychol., 1931, 26, 249 - 269.

THURSTONE, L.L., and CHAVE, E.J. The measurement of attitude. Chicago: Chicago Univ. Press, 1929.

VAN DEN BERGHE, P.L. Race attitudes in Durban, South Africa. J. soc.Psychol., 1962, 57, 55 - 72.

WALSTER, Elaine and FESTINGER, L. The effectiveness of "overheard" persuasive communications. J. abnorm. soc. Psychol., 1962, 395 - 402.

WANG, K.A. Suggested criteria for writing attitude statements. J. soc. Psychol., 1932, 3, 367 - 375.

WEICK, K.E. When prophecy pales: the fate of dissonance theory. Psychol.Rep., 1965, 16, 1261 - 1275.

WEINER, H., and McGINNIES, E. Authoritarianism, conformity and confidence in a perceptual judgment situation. J. soc. Psychol., 1961, 55, 77 - 84.

WEISS, W. Effects of the mass media of communication. In G. Lindzey and E. Aronson (Eds.). Handbook of social Psychology (2nd ed.). Reading: Addison-Wesley, 1968.

WEISS, W., and FINE, B.J. Opinion change as a function of some intra-personal attributes of the communicatees. J. abnorm. soc.Psychol., 1955, 51, 246 - 253.

WEISS, R.F., RAWSON, H.E., and PASAMANICK, B. Argument strength, delay of argument, and anxiety in the "conditioning" and "selective learning" of attitudes. J. abnorm. soc. Psychol., 1963, 67, 157 - 165.

WHITTAKER, J.O. Sex differences and susceptibility to interpersonal persuasion. J. Soc. Psychol., 1965, 66, 91 - 94.

WIENER, N. The human use of human beings. New York: Doubleday, 1954.

WRENCH, D.F. The perception of two-sided messages. Human. Relat., 1964, 17, 227 - 233.

ZAJONC, R.B. The concepts of balance, congruity, and dissonance. Pub. Opin. quart., 1960, 24, 280 - 296.

ZIMBARDO, P.G. Involvement and communication discrepancy as determinants of opinion conformity. J. abnorm. soc. Psychol., 1960, 60, 86 - 94.

ZIMBARDO, P.G. A reply to Jordan's attack on dissonance theory. Contemp. Psychol., 1964, 9, 332 - 333.

NAME: .....

Indicate position with an X

		3	2	1	0	1	2	3	
1.	big								small
2.	smooth								rough
3.	careful								carefree
4.	warm								cold
5.	loud								quiet
6.	sensitive								insensitive
7.	severe								lenient
8.	peaceful								agressive
9.	cautious								risky
10.	proud								humble
11.	soft								hard
12.	sharp								blunt
13.	forward								reserved
14.	full								empty
15.	optimistic								pessimistic
16.	obedient								disobedient
17.	tall								short
18.	sociable								unsociable
19.	organized								disorganized
20.	tolerant								intolerant
21.	fearless								fearful
22.	vain								modest

OPINION QUESTIONAIRE

The following statements refer to opinions regarding a number of issues. You are asked to state your own opinion. Please respond by circling the code closest to your own feelings.

e.g.

Chewing bubble gum is a bad habit.	SA MA A A MA SA	Chewing bubble gum is a good habit.

S.A. = Strongly agree
MA = Mostly agree
A = Agree

1.	One of the most important things children should learn is when to disobey authorities.	SA MA A A MA SA	Obedience and respect for authority are the most important virtues children should learn.
2.	Books and the cinema ought not to deal so much with the unpleasant and seamy side of life; they ought to concentrate on themes that are entertaining or uplifting.	SA MA A A MA SA	Books and the cinema ought to give a more realistic picture of life even if they show that evil sometimes triumphs over good.
3.	Insults to our honour are not always important enough to bother about.	SA MA A A MA SA	An insult to our honour should always be punished.
4.	Nowdays more and more people are prying into matters that should remain personal and private.	SA MA A A MA SA	There are times when it is necessary to probe into even the most personal and private matters
5.	It is alright for people to raise questions about even the most sacred matters.	SA MA A A MA SA	Every person should have complete faith in some supernatural power, whose decisions he obeys without question.
6.	Young people sometimes get rebellious ideas, but as they grow up they ought to get over them and settle down.	SA MA A A MA SA	If it were not for the rebellious ideas of youth there would be less progress in the world.
7.	People ought to pay more attention to new ideas even if they seem to go against the South African way of life.	SA MA A A MA SA	The true South African way of life is disappearing so fast that force may be necessary to preserve it.
8.	What youth needs most is strict discipline, rugged determination and the will to work and fight for family and country.	SA MA A A MA SA	In the long run it is better for our country if young people are allowed a great deal of personal freedom and are not strictly disciplined.

9.	An urge to jump from high places is probably the result of unhappy personal experiences rather than something inborn.	SA	MA	A	A	MA	SA	Some people are born with an urge to jump from high places.
10.	It is essential for learning or effective work that our teachers or supervisors outline in detail what is to be done and exactly how to do it.	SA	MA	A	A	MA	SA	You will do better work in the long run if you do things your own way rather than by following tried and true procedures.
11.	It is highly unlikely that astrology will ever be able to explain anything.	SA	MA	A	A	MA	SA	Some day it will probably be shown that astrology can explain a lot of things.
12.	No weakness or difficulty can hold us back if we have enough will power.	SA	MA	A	A	MA	SA	There are many difficulties a person cannot overcome no matter how much will-power he has.
13.	The findings of science may someday show that many of our most cherished beliefs are wrong.	SA	MA	A	A	MA	SA	Science has its place, but there are many important things that can never possibly be understood by the human mind.
14.	No sane, normal, decent person would ever think of hurting a close friend or relative.	SA	MA	A	A	MA	SA	It is only natural for people to sometimes have thoughts about hurting a close friend or relative.
15.	In spite of what you read about the wild sex life of people in important places the real story is about the same in any group of people.	SA	MA	A	A	MA	SA	The wild sex life of the old Greeks and Romans was tame compared to some of the goings on in this country even in places where people might least expect it.

ATTITUDE SCALE

		True	False
1.	What the youth needs most is strict discipline, rugged determination, and the will to work and fight for family and country.	....	....
2.	Some of my friends think that my ideas are impractical if not a bit wild.	....	....
3.	Kindness and generosity are the most important qualities for a wife to have.	....	....
4.	I have seen some things so sad that I almost felt like crying.	....	....
5.	I don't understand how men in some European countries can be so demonstrative to one another.	....	....
6.	I must admit that I would find it hard to have for a close frined a person whose manners or appearance make him somewhat repulsive, not matter how kind or brilliant he might be.	....	....
7.	A person should not probe too deeply into his own and other people's feelings, but take things as they are.	....	....
8.	I prefer team games to games in which one individual competes against another.	....	....
9.	I could cut my moorings - quit my home, my family, and my friends - without suffering great regrets.	....	....
10.	What this country needs most, more than laws and political programmes, is a few courageous, tireless, devoted leaders in whom the people can put their faith.	....	....
11.	I acquired a strong interest in intellectual and esthetic matters from my mother.	....	....
12.	Human nature being what it is, there will always be war and conflict.	....	....
13.	I believe you should ignore other people's faults and make an effort to get along with almost everyone.	....	....
14.	The best theory is the one that has the best practical applications.	....	....
15.	I like to fool around with new ideas, even if they turn out later to be a total waste of time.	....	....
16.	The unfinished and the imperfect often have greater appeal for me than the completed and polished.	....	....
17.	I would rather have a few intense friendships than a great many friendly but casual relationships.	....	....

2/ .....

INTERVIEW SCHEDULE

1. Did you enjoy taking part in this experiment?
2. What do you think the purpose of the experiment was?
3. What were your reactions?
4. Did you feel under pressure?
5. What did you feel about the others in the group?

DEBRIEFING

6. Do you have any further comments which might interest us? Any questions?

TABULATED RAW SCORES.

:itudes.

•)), generation

1	2	3	4	5	6	7	8	9
12	15	13	13	12	16	15	12	18
	18	16	16	12	15	12	17	20
		15	14	13	12	16	18	24
			11	12	15	18	24	19
				13	19	23	18	20
$\overline{X}$ 12.00	16.50	14.66	13.50	12.40	15.40	16.80	17.80	20.20

.), generation

1	2	3	4	5	6	7
10	11	9	9	2	11	5
	7	6	3	9	5	12
		9	11	6	8	7
			4	10	5	8
$\overline{X}$ 10.00	9.00	8.00	6.75	7.00	7.25	8.00

:), generation

1	2	3	4	5	6	7
12	12	12	12	3	3	0
	5	4	4	1	2	1
		3	3	1	7	1
			3	4	3	3
$\overline{X}$ 12.00	8.50	6.33	5.50	2.25	3.75	1.25

TABULATED RAW SCORES.(contd.)

P(3), generation	1	2	3	4	5	6	7
	4	3	2	3	12	3	7
		10	8	9	1	6	11
			2	3	7	11	9
				6	11	11	10
$\bar{X}$	4.00	6.50	4.00	5.25	7.75	7.75	9.25

A(0), generation	1	2	3	4	5	6	7	8	9
	8	7	6	6	6	12	7	18	18
		11	10	11	13	7	17	18	21
			4	5	6	16	18	20	20
				15	17	15	21	21	24
					16	19	16	24	8
$\bar{X}$	8.00	9.00	6.66	9.25	11.60	13.80	11.80	20.20	18.20

A(1), generation	1	2	3	4	5	6	7
	1	1	0	2	4	7	9
		3	3	5	6	3	3
			6	7	3	3	9
				5	3	9	8
$\bar{X}$	1.00	2.00	3.00	4.75	4.00	5.50	7.25

A(2), generation	1	2	3	4	5	6	7
	6	9	9	10	3	2	6
		5	4	3	1	8	8
			3	2	5	6	5
				7	7	4	3
$\bar{X}$	6.00	7.00	5.33	5.50	4.00	5.00	5.50

A(3)

TABULATED RAW SCORES. (contd.)

A(3), generation	1	2	3	4	5	6	7
	0	1	1	1	o	10	3
		0	0	2	11	4	11
			7	9	2	11	3
				3	11	3	8
$\bar{X}$	0.00	0.50	2.66	3.75	6.00	7.00	6.25

Personality.

P(1)	S	D	F	IJ
	4	7.35	41	7
	5	6.40	42	5
	6	8.83	53	6
	7	10.15	50	5
	8	data not collected		
	9	9.64	33	6
	10	7.75	61	3
P(2)	4	5.83	39	8
	5	8.49	55	5
	6	7.21	68	2
	7	7.61	65	5
	8	12.12	42	7
	9	7.35	42	7
	10	8.12	m62	5

TABULATED RAW SCORES (contd.)

	S	D	F	IJ
P(3)	4	7.81	61	4
	5	10.86	32	6
	6	5.39	60	3
	7	7.42	50	6
	8	6.25	41	7
	9	4.69	41	5
	10	7.49	31	8
A(1)	4	7.48	55	7
	5	4.47	55	6
	6	data not collected		
	7	data not collected		
	8	3.32	42	6
	9	5.10	28	9
	10	7.55	42	6
A(2)	4	6.16	28	5
	5	7.55	63	2
	6	5.83	59	4
	7	11.22	66	7
	8	9.22	35	6
	9	8.83	54	4
	10	7.14	44	6
A(3)	4	10.50	46	5
	5	5.10	59	2
	6	4.90	50	5
	7	13.00	47	4
	8	13.27	37	7
	9	7.14	40	3
	10	6.16	43	6