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THE MEANING OF RORSCHACH WHITE SPACE RESPONSES

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THE MEANING OF RORSCHACH WHITE SPACE RESPONSES

CHAPTER I

INTRODUCTION

The use of inkblots in personality diagnosis and evaluation began with the efforts of a Swiss psychiatrist, Hermann Rorschach, who employed them in what he considered to be a practical and simple method of differential diagnosis. His investigations culminated in the publication of Psychodiagnostics in 1921, an original and monumental contribution to personality research and diagnosis.

Since the publication of Psychodiagnostics, numerous books and hundreds of articles have been written on the development of the Rorschach test as well as its experimental verification, its validity, its use as a research instrument and its clinical applications. Not only has Rorschach's terminology penetrated into the vocabulary of the psychologist, psychiatrist, social worker, anthropologist, and industrial personnel manager, but lately it has appeared in ordinary speech. This test, in such wide usage, has become the subject of extensive investigation from many points of view. Critical evaluation has focused on both the test's potentialities and its limitations. It has been viewed both as the clinical instrument par excellence, which reveals all nuances of

personality, and, on the other hand, as a method without validity, theory, or rationale which is systematically misapplied and misused. Even when one considers all of the reported studies, basic theoretical issues remain unsolved. Considerable doubt as to the validity of basic Rorschach concepts exists and many Rorschach hypotheses have been challenged.

Rorschach's genius is demonstrated in his recognition that factors other than content are significant in making a differential diagnosis. The description of these other factors, a method of scoring them, and basic research in establishing their interpretive meaning were all developed by Rorschach. The major elements of his scoring system, although elaborated, have remained unchanged.

In presenting the present series of plates to four hundred and five individuals, including normal and psychotic subjects, Rorschach observed that some subjects responded not only to the black and colored parts of the figures but to the white spaces as well. Rorschach referred to such responses as intermediate forms.

Rorschach's extensive work with the inkblots led him to postulate the existence of a relatively stable personality characteristic which he called a "tendency to opposition." This oppositional trend was, according to Rorschach, reflected by the subject's use of white space areas in the figures. Through an elaboration of this assumption, he subdivided oppositional tendencies into three types: contrariness, indecisiveness, or feelings of inadequacy, depending upon whether the Erlebnistypus, or experience type, is extratensive, ambiequal, or introversive. In Psychodiagnostics Rorschach states:

> Space responses always indicate some sort of oppositional trend. When the experience type is extratensive, this takes the form of some "outward" opposition, defiance, a tendency to indulge in polemics, to make contradictions and to be aggressively stubborn. (33, p. 200)

In an interpretation of a protocol Rorschach concludes:

> These (S) represent the factors struggle; they are the "fighting factors." Their effect extends to the intelligence and shows an attitude of energetic oppositionalism so that the subject attempts to demonstrate viewpoints which are usually overlooked. They thwart the suggestibility evidenced by the CF responses and represent negative suggestibility which is in itself an evidence of conflict against being suggestible. (33, p. 150)

There is fairly extensive agreement among Rorschach workers concerning the psychological values to be assigned to the space response. According to Beck

> The attraction to the white space stems from an attitude, and as such its psychic composition is primarily affective. Structurally, however, the response refers to a selected D or Dd, and thereby belongs, strictly speaking, in the intellective sphere. From the fact that these two psychologic activities converge to produce it, the inference follows that it projects an intellectual reaction that has first been permeated and worked over by a special attitude. S attends to what he does attend to, selects certain elements in his environment for exploitation, in consequence of this attitude. It predetermines what stimuli he responds to.
>
> In any event, the personality significance of white space selection includes always a nucleus of contrariness. Generically it consists fundamentally of self-will . . . .
>
> The specific personality value of the white space response, S, is in fact protean. In the healthy and intelligent individual, it stands for a resolution and perseverance that carries him through, in spite of obstacles and disappointments, to a well understood objective . . . . It is absent, or low in quantity, in passive individuals . . . .
>
> On the other hand, the component it stands for may reinforce character and ability in such a way that S holds to his course to the benefit of his society in the long run. Hypothecating Rorschach tests for the great rebels of history, whatever their field of endeavor, we may be sure that their records would include an adequate sprinkling of white space responses. (7, pp. 46-7)

In a later publication Beck says:

> Tenacity as a form of stubborness is among the traits which

high white space percentage projects. This is the more so when the s percent is a reversal of figure and ground.

Quantity of s is, in fact, some measure of the persistence with which the patient is likely to hold to a course whether it is a good one for the personality or bad. Thus the many s found in most paranoids are the stickiness of these patients to their ideas. It effects that recalcitrance with which, come the hell and high water of any logic, they cling to their delusions.

Contrarily, a low percentage of space responses or total lack of them in a test record confirms findings of passivity. It may be a lead to suggestibility. (9, pp. 61)

Another eminent Rorschach authority, Klopfer, states:

S responses are related to an oppositional tendency in the intellectual sphere, the strength of the tendency being related to the daringness in the use of white space. S implies an intellectual kind of opposition, a putting of the self across; it is the competitive or self-assertive aspect of intellectuality . . .

Where there is exaggerated emphasis on S, particularly in main locations that reflect a daring use of S, the hypothesis is that the subject's emphasis on doing things differently and asserting himself competitively or stubbornly occurs at too high a cost to his own balanced perception of reality. (21, pp. 309-10)

Further endorsement of interpreting the white space response in terms of the experience balance can be found in contemporary texts and manuals (1, 10, 14, 22, 26).

Although Rorschach workers are in general agreement as to the interpretation of space responses, this agreement does not extend to scoring procedures and the number of space responses required to indicate oppositional trends. Beck (7), for example, gives equal weight to both main and additional space responses, stating that differential weighting merely complicates scoring procedures without adding diagnostic usefulness. Klopfer (22), on the other hand, does not advocate inclusion of additional space responses in the scoring summary at all. Munroe (28) and Buhler and LaFever (14) give a weight of one-half to each additional space response but do not present any reason for such a

procedure. Rorschach (33) made no distinction but merely scored S, regardless of size, location, or usage. Beck (9), in a recent publication, states that he now uses percent of total responses rather than the absolute number of white space responses for a standard of quantity.

While clinical observations have tended to support the assumption that white space responses reflect oppositional trends, actually white space responses have been subjected to little experimental study. Space responses have received much attention in clinical reports because of their significance in indicating hostility, but in this field, too, there has been very little work directed to testing the oppositional hypothesis experimentally. "Resistiveness has just been taken for granted, and S has been accepted as its Rorschach manifestation because it gives valid findings: the more S, the more stubborn or negativistic the individual." (8, pp. 113)

Various research designs have been utilized in attacking the general problem of the validation of the Rorschach test. As is usually true, an important task confronting the investigator is the selection of suitable criteria to which personality variables can be related. According to Beck (6), the most fruitful approach is an operational criterion in which not only the definition of the concept of personality itself but also its component processes are described in terms of actual behavior.

The majority of Rorschach validation studies are comparisons of Rorschach test findings with clinical findings. The work of Rorschach (33), Beck (5), Piotrowski (29), Hertz (17), Klopfer (20), and Meltzer (25) are in this class. On the other hand, relatively few

studies have been reported in which Rorschach findings are correlated with independent and experimentally controlled behavioral criteria. Excellent illustrations of an experimental approach to the validation of the Rorschach is Rockwell, Welch, Kubis, and Fisichelli's (32) study of changes in palmar skin resistance during the Rorschach, and Williams' (49), and Baker and Harris' (3) work on "intellectual control," Steisel's (44) study on suggestibility, Klein and Schlesinger's (19) study on "form boundedness," and Smith and George's (42) work on "experimental stress."

Validation studies concerned primarily with the space response are relatively few in number. A review of the available evidence on the relationship between the space response and oppositional behavior reveals some contradictory findings. A number of studies have reported a positive relationship between the occurrence of space responses and anti-social behavior. Approximately ten years after the publication of Psychodiagnostics, Boss (11) reported a study wherein he examined seventy-five anti-social psychopaths and ranked them according to deviation from social standards. No statistical data were presented, but Boss considered his results to be a confirmation of Rorschach's hypothesis. "The more white space a subject produces the greater the evidence for character deviation with respect to social standards" (11, pp. 574). However, since Boss ranked his subjects partly on the basis of their Rorschach records, it is difficult to assess the degree of support this evidence gives to Rorschach's hypothesis.

Zulliger (51) has also reported similar findings: a positive relationship between Rorschach white space responses and anti-social

behavior. Each of the studies cited above present some serious methodological defects and neither study includes a comparison with an adequate control group. Endacott's (15) study, in which delinquent boys were compared with several normal control groups, failed to show any significant differences among the groups in the frequency of occurrence of space responses.

Rabin (30), in a study of "Rorschach Test Findings in a Group of Conscientious Objectors" used thirty-two members of the C. P. S. (conscientious objectors) from the New Hampshire State Hospital as subjects. A majority of the subjects were college graduates and of superior intellectual endowment. The Rorschach test was administered according to standard procedure. Analysis of Rorschach results revealed only two records with no space responses. According to Rabin:

> It is difficult to partial out the effects of S on the different personality configurations. However, one thing appears quite clearly, that there is a predominance of "oppositional tendencies" in this group of conscientious objectors to the extent of designating it as a basic personality trait. It shows good consistency with their actual behavior; i.e. being objectors. (30, p. 516)

In a general research project, Rapaport (31) tested two hundred and seventeen hospitalized and fifty-four non-hospitalized subjects. He classified them in twenty-two groups on the basis of diagnosis and found that a group of fourteen patients whose diagnosis was "Paranoid Condition" had the highest relative incidence of space responses. According to Rapaport "the oppositional implications of projective delusions are relatively clear cut in such cases. (31, pp. 178)

Three relatively recent studies specifically designed to evaluate the validity of the space response have been reported. Fonda (16)

administered group Rorschachs and correlated standard S with the personality factors, Agreeableness, Cooperativeness, and Inferiority Feelings found on the Inventory of Factors GAMIN. He also correlated standard S and the question mark ? score of the Guilford-Martin Personnel Inventory. Fonda interpreted the ? score to mean either an inability or an unwillingness to give a definite "yes" or "no" answer. Although he found a low positive correlation between standard S and the ? score, no relationship was demonstrated between standard S scores and the inventory factors. Since no relationship was found between white space and the three GAMIN factors, his study can be interpreted only as partial support for the hypothesis.

Ingram (18) proposed to predict the aggressive behavior expected from two groups which were differentiated on the basis of the number space responses produced by the members of each group. The standard for quantity was adopted from Beck (7). Selection of subjects was based on the number and type of space responses produced. For her experimental group, only subjects who reported two or more reversals were selected. Subjects of the two groups were first given the Rorschach and then subjected to intellectual and interpersonal frustration. Results from the intellectual test, the Seashore Pyramid Puzzle, and the interpersonal frustration, an interview, were correlated with the Rorschach test evidence and rated on two scales: First on a scale of Aggression which had as variables Assertion, Initiative, Persistence, Resistance, and Hostility and next on a scale of Non-Aggression which had as variables Cooperation and Rapport. Her results showed that of the five aggressive variables the most reliabley rated were initiative, persistence,

and hostility. Of the two non-aggressive variables, rapport, was the more reliably rated. The major conclusions of her study were: (a) the high white space group was more aggressive (in a participatory, interactive way) in a frustrating interview situation than the low white space group; (b) the high white space group was no more aggressive than the low white space group in a situation of intellectual challenge wherein social interaction was at a minimum; (c) the judges' impressions of aggression as inferred from the total Rorschach record were but slightly related to aggression as measured in the interview and puzzle situation.

The most recent investigation designed to study the validity of the inferences drawn from the Rorschach white space response is that of Bandura (4). In this study eighty-one University of Iowa High School students were tested individually with the Rorschach. Ratings on fifty-nine of the subjects, twenty-seven of whom presented introversive and thirty-two of whom presented extratensive experience types, were made by five teachers with respect to negativism, assertiveness, inadequacy feelings, and self-distrust. These ratings served as the independent criterion measures against which the Rorschach hypotheses were tested. Bandura found that without reference to experience type, the number of space responses showed a significantly positive relationship to the ratings of negativism. On the other hand, he found the experience type to have no influence on the nature of the relationship between the space response and the behavior ratings. Similarly, without reference to experience type, no significant relationship was obtained between the number of space responses and ratings of assertiveness, inadequacy

feelings, and self-distrust. From these findings Bandura concluded that the usefulness of the experience type classification in the interpretation of the space response is unsubstantiated and should be discontinued. Finally, his data offered partial support for Rorschach's hypothesis that the space response reflects an oppositional tendency.

Autokinetic Movement in Personality Studies

Use of the autokinetic phenomenon as a means of studying human behavior is not new. Two years after Sherif's classic study (37), Varvel (46), recognizing the applicability of the phenomenon to the study of personality and to the validation studies of projective techniques, outlined several methods of putting it to use. Since then it has been used by various investigators in the clinical area. For example, Shuey (41) employed it in his "Typological Approach to the Study of Human Behavior." Voth (47) completed a study entitled "A Preliminary Study of Personality Types Through Autokinetic Movement Phenomenon." Later, in a more extensive study, Voth (48) found pronounced individual differences in autokinetic behavior among various patients in mental institutions. Temerlin (45), in his study, "Individual Differences in the Perception of Visual Apparent Movement: Implication for Psychotherapy," concluded that the people who exhibit little judgmental variability in the autokinetic situation tend also to reveal little behavioral variability in psychotherapy. Conversely, people whose initial therapeutic behavior tends to be variable, flexible, and productive exhibit increased judgmental variability in the autokinetic situation.

Less numerous are Rorschach validation studies using the autokinetic phenomenon. One of the first reported is that of Schumer (35).

She found that individuals classified as "movement oriented" on the Rorschach revealed less convergence toward a group norm in the autokinetic situation than did "non-movement oriented" individuals.

The most recent experiment utilizing the autokinetic phenomena in a Rorschach study is that of Linton (23). She investigated relationships between eleven Rorschach variables and change of judgments of autokinetic movement under the influence of planted judgments given by the experimenter's confederate. Forty-five male freshmen at Brooklyn College were tested in the autokinetic situation and then given the Rorschach test. Change of judgment was found to be closely related to the following Rorschach measures: (a) high W; (b) low P; (c) M type; (d) Hd equal to or greater than H; (e) Animal type; (f) F% of fifty or more; (g) M:Sum C, with Sum C equal to or greater than M.

In the field of social psychology, the autokinetic phenomenon has become widely accepted as a means of studying social influence. This is especially true of social influence insofar as it is concerned with prestige suggestion.

Prestige Suggestion Studies

The earliest study comparable with the present research was that of Sherif (37). Sherif's idea was to compare the estimates of autokinetic movement made by individuals when they faced the situation alone with their estimates when two or three of them were together, each stating aloud his judgment to the experimenter. In one variation the subject first judged individually the amount of movement he saw during a two second interval, giving one hundred successive judgments. Such

judgments, Sherif found, concentrated around a median for each individual and on successive days the medians remained relatively constant. Furthermore, there were consistent differences between judgments by different subjects. Taking advantage of this fact, he chose two or three individuals whose respective norms were known and substantially different. These subjects he placed in the experimental situation and had them make judgments of autokinetic movement. Under these conditions the judgments of the individuals approached each other significantly. Each departed from his previously established norm and converged toward a common norm. In a further variation Sherif first placed the subjects in the autokinetic situation together. Here the agreement was even more pronounced. Further, he demonstrated that in subsequent individual trials, the subjects maintained the norm they had established in the preceding group sessions.

In a later study Sherif (38) demonstrated that a subject's estimates of autokinetic movement converge toward the estimates of a prestige person regardless of whether the prestige person introduced his judgments at a much greater or lesser magnitude than those reported by the subject.

Following a similar design, Zeaman (39) had a naive subject judge autokinetic movement together with two cooperating subjects; one for whom he had a great deal of affection and one for whom he tended to feel antagonism. Zeaman found that the cooperating subject for whom the naive subject felt affection was able to shift the norm in the direction of her judgments. On the other hand, the cooperating subject for whom the naive subject felt antagonism effected a shift in the opposite direction; i.e. away from the cooperating subject's judgments.

Miller and Wood, in a demonstration study, were concerned with the question of whether a person who had previously established his own perceptual norm was any more resistant to prestige suggestion than a person who had not established such a norm.[1] One of the conclusions of their study was that "personal norms may serve as one significant variable in the degree of resistance to prestige suggestion." Ex post facto analysis of a projective test--the Szondi--revealed differences between "resistive" and "conformative" subjects. Conformative subjects tended to be passive, conservative individuals who rejected their impulses to be aggressive in dealing with the external world. On the other hand, subjects classified as resistive tended to accept their aggressive drives and were, in general, more openly aggressive in manipulating the external environment. These results led to the conclusion that certain differences in personality organization might be highly significant variables in the response to prestige suggestion.

Bray (13) selected the autokinetic situation as a behavioral matrix wherein behavior toward minority group members could be tested. One hundred and fifty male subjects participated individually in making oral judgments of movement, each in company with a confederate of the experimenter. Fifty of these subjects judged with a confederate designated as "Jewish," another fifty judged with the same confederate who was designated as "Gentile," the remaining fifty judged with a Negro confederate. Each subject completed the Guilford-Martin Inventory of

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[1]The writer is indebted to Mr. Wilifred Miller and Mr. Ed Wood for making their study available. The study, "Effects of Prestige Suggestion on Perceptual Norm," was completed in 1952 at the University of Oklahoma.

Factors GAMIN following his participation in the laboratory session. Bray found that neither of the attitude scores nor any of the three personality factor scores, Ascendency, Self-Confidence, or Nervous Tenseness, showed a significant correlation with behavior for any of the three experimental groups as a whole. However, when the three experimental groups were divided at the mean attitude score, yielding six groups in all, the following significant correlations between personality scores and behavior appeared:

1. Lack of nervous tenseness was inversely correlated with conformity in the more prejudiced sub-group of all experimental groups.

2. The degree and direction of the relationship between Ascendence and Self-Confidence varied with the kind of confederate and the attitude group.

Bray hypothesized that knowledge of personality factors would allow for accurate prediction in terms of overt behavior.

Sperling (43), in "An Experimental Study of Some Psychological Factors in Judgment," confirmed Sherif's previous findings. In his study, Sperling employed two experimental variations, only one of which is to be reported here. This variation involved the artificial production of an extreme difference in the autokinetic situation. One member of each pair had been instructed in advance to give judgments within a certain range; the other member was naive. All subjects were female college students. The "planted" subject distributed her judgments in the range between twenty and twenty-five inches, which far exceeded the estimates normally obtained. Eight of the nine naive subjects shifted significantly in the direction of the instructed subject. But the amount of convergence was limited; each of the naive subjects moved toward her

partner but never entered her range. The single subject who did not reveal a significant convergence moved in the opposite direction, that is away from the instructed subject.

It is now a well established fact that the judgments of autokinetic movement made by individuals tend to concentrate around a norm and that these individually developed norms remain substantially constant even over relatively long periods of time. It has also been shown that the presence of a prestige person whose judgmental norm is different from that of a subject judging with him will effect a shift in the subject's norm in a direction toward that of the prestige person. On the other hand, studies have demonstrated that the subject may not always converge toward the prestige person's norm. In fact, there is evidence that some individuals may shift in a direction away from the prestige person. An objective measure of oppositionality can thus be obtained by having a subject make oral judgments of visual apparent movement alone and then make judgments in the presence of an established prestige person who gives arbitrarily different judgments. This provides an index of difference between the "alone" response and the "influenced" response.

CHAPTER II

STATEMENT OF THE PROBLEM

The present investigation subjects Rorschach's white space assumption to a more adequate experimental test. The selection of the personality characteristic and associated Rorschach factor was made on the basis of the following criteria: (a) that they yield a sufficient range of scores to ensure adequate differentiation; (b) that they be of such a nature that an independent behavioral criterion can be set up experimentally; (c) that the definition and interpretation of the Rorschach factor be well agreed upon by recognized authorities; and (d) that the objective scoring of both the personality characteristic and Rorschach factor is possible.

Statement of the Hypothesis Involved

Rorschach, in Psychodiagnostics (33), stated that white space responses appearing in an extratensive experience type reflect "oppositional tendencies." He went on to say that behavioral expression of such tendencies may appear as contrariness, stubbornness, or resistiveness. In this study oppositionality is defined operationally as the subject's failure to reveal significant convergence toward the prestige person's judgments of autokinetic movement.

The hypothesis demanding verification, stated in terms of the

selected behavioral criterion, is this: Subjects with a high percentage of white space responses on the Rorschach persistently resist the suggestions of autokinetic movement made by a "planted" prestige person more than do those subjects with a low percentage of white space responses. Stated a little differently, median judgments of visual apparent movement made in the "together" autokinetic situation by oppositional people either will be very similar to their "alone" judgments or will be different from and in a direction away from the judgments given by the prestige person. Conversely, median judgments of visual apparent movement made in the "together" situation by non-oppositional people will differ significantly from judgments made in the "alone" situation and will be in a direction toward the judgments given by the prestige person.

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CHAPTER III

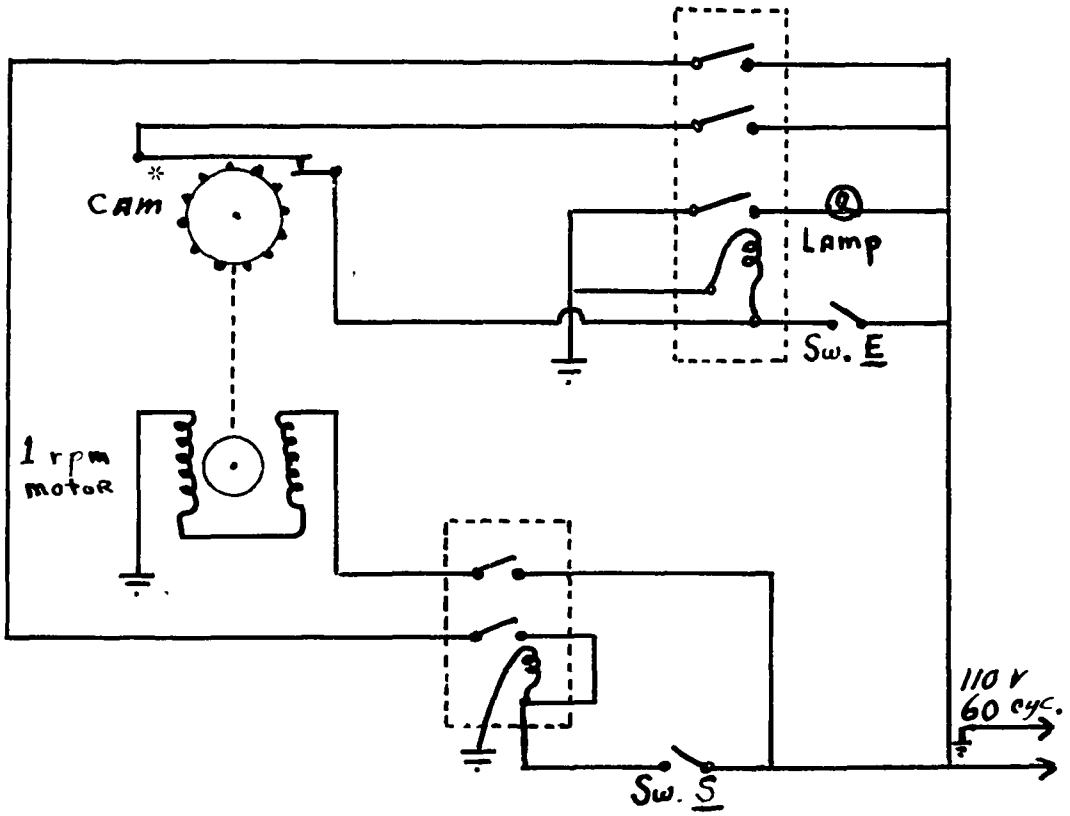
EXPERIMENTAL PROCEDURE

Apparatus

Autokinetic

The apparatus used for the autokinetic sessions was similar to that described by Sherif (39). It consisted of a two millimeter disc of light eighteen feet from the subject. This light was controlled by two switches. One switch was for the naive subject, the other for the experimenter. The experimenter's switch closed the circuit for each trial. When the subject perceived movement he pressed his switch. This switch closed the circuit on the timing device. The timer automatically opened the circuit five seconds after the subject pressed his switch. A thirty second time lapse between exposures was controlled by the experimenter who used a luminous dial clock with a sweep second hand. The clock was shielded to prevent the subject's obtaining any visual cues while making his judgments. Figure 1 depicts the wiring diagram of the autokinetic apparatus.

The autokinetic sessions were carried out in a completely darkened room in the Psychological Service Center. The room was furnished with two tables, three chairs, and an autokinetic drum.



* Cam risers spaced 30 degrees apart

Fig. 1. Wiring Diagram of Autokinetic Apparatus

Rorschach

The conventional Rorschach plates manufactured by Hans Huber were used to obtain both group and individual Rorschach protocols.

Questionnaire

The questionnaire consisted of fifteen occupational titles. To the left of each title there was a blank space. Each subject was asked to rank the occupational groups according to the skill a representative person might possess in judging the distance a point of light moved in a dark room. The purpose of the questionnaire was to establish definitely that the person later employed as a prestige suggestor did, for this task, enjoy high prestige value in the eyes of the subjects. In essence, the questionnaire provided a crude measure of ego involvement for the subject when he later judged with the prestige person. Each subject completed the questionnaire prior to the individually administered Rorschach. A sample questionnaire is included in Appendix A.

Procedure

Selection of Subjects

The group Rorschach was administered to two of the Junior classes of Air R.O.T.C. at the University of Oklahoma during the fall semester of 1953. All subjects had been accepted in the Air Cadet training program and had agreed to enter flight training when they completed college.

Prior to the administration of the group Rorschach, the classes were informed that the research project related to the general problem of night vision and dark adaptation and more specifically to the selection

of persons who had the potentiality of becoming good night fighter pilots. This information was in line with Air Force tests which the subjects had taken to qualify for air cadet training. The subjects knew also that their instructor, an Air Force Colonel, had made class time available for the research. Further, a sergeant's presence enhanced the credibility of the purported reason for the research.

After the reasons for this study had been explained, anyone not wishing to participate was permitted to leave. It is noteworthy that no one exercised this privilege. After the group agreed to participate, all members were cautioned to refrain from discussing the experiment because secrecy was required to prevent contamination.

Employing the Munroe technique, preliminary Rorschach testing was subsequently completed. Scoring of the group Rorschach tests revealed two clearly differentiated white space groups. Eleven of the twenty-three subjects thus differentiated had more than five white space responses. Twelve subjects gave none or only one white space response.

Approximately two months after the group Rorschach test, individually administered tests were obtained on a random basis. This test was given and scored according to the procedure outlined by Beck (8). Each Rorschach was administered and scored by the experimenter who had no knowledge of the subject's performance on the group test. Only white space responses and the factors involved in the experience balance--M, F, and C--were scored.

The raw data from each protocol were tabulated according to the subject's percentage of white space responses and his experience type. Using Beck's (9) standard for quantity of white space responses,

"any S percent of ten or more is significantly high," two groups of subjects were selected from the total sample. The high white space group consisted of eight subjects who reported the following characteristics: (a) a white space percentage of ten or more; (b) an extratensive experience balance; and, (c) a preference for the night fighter pilot as being most competent to judge the movement of a point of light. The second group, the low white space group, was distinguished from the first only in respect to the percentage of reported white space responses. This group consisted of seven subjects with five percent or less of responses determined by white space.

All subjects included in the final sample of this study met the following criteria: (a) they were naive about the real purpose of the investigation; (b) they were not familiar with the autokinetic phenomenon; (c) they reported a minimum of thirty scoreable responses to the individually administered Rorschach; (d) their Rorschach experience balance was extratensive; and (e) they ranked the night fighter pilot as being the most competent in judging the distance a point of light would move.

Autokinetic procedure

The subject was met in an office in the Psychological Service Center, and, after the purported reason for the research had been outlined, he was blindfolded and led to the room in which the autokinetic apparatus was located. When the subject was seated and the blindfold removed, he was given a switch connected to the apparatus. These instructions were then given:

> The experiment is very simple. Periodically you will be shown a point of light. Shortly after the light comes on, it will begin to move. When you see the light move, press your switch. Within a relatively short period of time the light will go out. After it goes out, I want you to tell me how far you think the light moved. Remember now, I am not interested in the particular direction in which the light moves, but only the distance. Each time, shortly before the light comes on, I will signal you by saying READY. The light will always come on in the same place. Please try to make your judgments as rapidly and as accurately as possible.

If any questions were asked the instructions were repeated. The experimenter, after making certain the subject had located the source of light, then walked to his seat as silently as possible to avoid giving the subject any cues as to the distance involved. At no time did the subject see the experimental room.

Approximately five minutes was allowed for dark adaptation. Following dark adaptation, fifty judgments of autokinetic movement were elicited from each subject.

The experimenter manually turned the light on for each trial. Five seconds after the subject pressed his button signaling perception of movement, the light automatically turned off. After a thirty second time lapse, the experimenter turned the light on again.

After the subject had given fifty judgments, he was blindfolded and led from the experimental room. He was then informed that there was only one more phase of the research and that he would be contacted as soon as the other participants had completed the experiment which he had just finished. He was told that in the last phase he was to participate with an Air Force officer, a fighter pilot. This was done to provide a setting for the group situation which followed.

When each subject was contacted for his final appointment, he

was told that Air Force personnel would be in Norman on the day of his scheduled appointment. This was designed to encourage his belief that this research was directly related to his night vision and dark adaptation and that the results would be important in his Air Force career.

Adequate testing of the oppositional hypothesis demanded a high level of ego involvement in the task of judging visual apparent movement with a prestige person. One of the most crucial factors in the execution of the study was the selection of an adequate prestige person. After careful consideration, it was decided that the prestige person must meet the following requirements: (a) he must be unknown to the participating subjects; (b) he must have the age and possess a physique compatible with that of a fighter pilot; (c) he must either be or be able to assume the role of a strict authoritarian person. Lastly the prestige person had to be capable of energizing either by overt or covert behavior (and in a relatively short period of time) any surface or deep-seated feelings of oppositionality in the subject.

When the subject reported for the group session he was met in the hall and escorted to the experimenter's office where he was introduced to the prestige person. The introduction varied, but it was generally conducted as follows:

> Mr. _____, this is Colonel Berryman who has been placed on detached duty to complete this research at the earliest possible date.

When they were seated, the experimenter continued.

> As you may recall, this project is part of a larger research problem concerning night vision and dark adaptation which ultimately relates to the selection of persons having the potentiality of becoming good night fighter pilots. Since you are both familiar with the task, little in the way of instruction is necessary. However, since both of you will be reporting judgments it will facilitate

recording if one of you will always give your estimate first. By pre-arrangement the "Colonel" volunteered to give his judgments first. This was done in order to maximize the impact of the prestige person's influence on the subject.

The experimenter left the room on the pretext of checking the apparatus. While he was gone, the prestige person left the chair he was occupying and took the chair vacated by the experimenter. This chair was behind a desk. Thus the desk served the purpose of increasing the social distance between subject and prestige person. The prestige person immediately took charge of the situation in a haughty, aggressively hostile, and intimidating manner. Through skillful manipulation (the prestige person was a practicing clinical psychologist) the subject was forced into a defensive position. For example, the prestige person referred to the subject as a freshman when all subjects were second semester juniors. He also belittled the subject's home state, and when the subject was from out-of-state he asked him why he did not attend his home school. He also inferred that the subject was evading military service by enrolling in Air R.O.T.C. Such procedure was deemed necessary in order to mobilize deep-seated feelings of oppositionality should they be a part of the subject's character structure.

Five minutes later, the experimenter returned to the room and blindfolded the prestige person and the subject. Prior to entering the experimental room, the subject was asked whether he used the silent or audible switch during the alone autokinetic session. When he replied that he used the audible switch (actually the only switch available) he was informed that he was to use the same switch in this situation. Thus

the subject was indirectly informed that he would be unable to hear the prestige person's signal when he perceived movement.

Both the prestige person and the subject were blindfolded, but the prestige person was led into the room and seated first. After the blinds were drawn over the door and the subject was seated, the blindfolds were removed. The instructions given in the alone session were then repeated. In order to emphasize the subject's inferior status the prestige person almost always, in accordance with previous plans, reported seeing the light before the subject could speak. In addition, if the subject experienced difficulty in finding the light, the prestige person condescendingly assisted him locate it.

The distance judgments reported by the prestige person were fictitious and depended upon the subject's own range of judgments in his alone session. The median value of the prestige person's judgments was the 90th percentile value given by the subject when alone. For fifty judgments this meant that the prestige person used the 45th score given by the subject when the judgments were listed in rank order from the least to the most amount of reported movement. While the majority of the prestige person's judgments fell on this score, he distributed his other judgments either one inch above or one inch below it. Although the prestige person's judgments were different from the subject's, they did not diverge too greatly from them. They remained in the subject's "alone" perceptual range of judgments.

The prestige person's median differed from subject to subject. However, the difference between the prestige person's and the subject's median was constant for all subjects since it was based on each subject's

variability of judgments in the "alone" situation. Judgments for fifty trials were then obtained with the prestige person always reporting his judgment first. As in the alone session, all verbalizations were recorded.

When fifty trials had been completed, the prestige person and the subject replaced their blindfolds and were escorted from the room. The prestige person was directed to one room, the subject to another. After the blindfold was removed from the subject he was asked how he felt about the experiment. The experimenter attempted to be warm, friendly, and reassuring, both to allay the anxiety induced by the experiment and to encourage the subject to verbalize his experience during the procedure. Specific questions were asked only if the experimenter's general suggestions failed to produce what seemed to be a full account of his experience. The subject's responses were recorded verbatim.

In summary then, the high white space group was composed of eight individuals who gave ten percent or more of white space responses on the Rorschach test. The low white space group consisted of seven persons who gave five percent or less of white space responses. The experience balance of both high and low white space groups was extratensive. For both groups the experimental procedure in the two autokinetic sessions was identical. In the first session the subject made oral judgments of visual apparent movement alone. In the second session the subject made oral judgments in the presence of a prestige person who used the 90th percentile score of the subject's "alone" range of judgments as a median value. Immediately preceding the second session the prestige person, through skillful manipulation, attempted to mobilize

surface or deep-seated feelings of oppositionality in the subject.

Treatment of the Data

The raw data of the experiment were the distance judgments in inches made by each individual in the two autokinetic sessions. The number of judgments made by each individual per session was fifty; the total number of judgments made by each individual was one hundred. For the high white space group there was a total of eight hundred judgments; for the low white space group a total of seven hundred judgments.

Two types of analyses were employed. The first was designed to ascertain the significance of the difference of median shifts from the "alone" to the "together" situation of the high and low white space groups. The second analysis was directed toward determining the significance of individual median shifts.

As noted previously, the prestige person utilized a median value in the "together" situation which was forty percent greater than the subject's median score in the "alone" autokinetic session. This allowed the experimenter to determine a proportional measure of change for each subject, a change which was based on the subject's variability in the "alone" session. The proportion used was $\frac{ST - SA}{PP - SA}$. ST is the subject's median score in the "together" situation; SA is the subject's median score when judging alone; and, PP is the prestige person's median score in the "together" situation.

The significance of difference of change between the high and low white space groups was estimated from the U statistic of Mann and Whitney (24). To apply the test, the proportional changes observed in

the two groups were arranged in increasing order of size (algebraic sign not being ignored) and ranks assigned. Since the groups were of unequal size, the sum of the ranks for the X's and the Y's theoretically should be roughly proportional to the sizes of m = 7 and n = 8. The U test consists in determining whether the observed discrepancy is too large to have occurred by chance.

The technique used for determining the significance of individual median shifts was The Median Test (27, pp. 125). For each individual, comparisons were made between the judgments made in the "alone" and "together" autokinetic sessions. To make this test it is necessary to combine into one distribution the judgments of the two situations being compared and to ascertain the median for the combined distribution. If the samples come from populations with the same median value, then about half of the values from each session should be above the common median and half below it. If the relative proportions are too divergent from this expectation, the hypothesis of equality is rejected. To perform this test a plus is recorded for any observation above the common median, a minus for any observation below it. The significance of the data is evaluated in the same manner as if this were a two by two test of independence.

CHAPTER IV

RESULTS

In Table 1 are found the means and ranges for the pertinent Rorschach factors. The mean values for the Rorschach factors R, M, and Sum C for both groups correspond well with available Rorschach normative data. It will be recalled that the groups were differentiated on the basis of percent of white space responses. The difference between the two groups on the Rorschach white space factor is easily observable. The high white space group has a mean white space score of 9.63 with a range from six to fifteen responses. The low white space group has a mean space score of 1.14 with a range from zero to two responses. The mean percent of space responses for the high and low white space groups are 15.37 and 2.50 respectively. While the mean percent of white space found in the low white space group is below that observed in a normal sample, the percentage observed in the high white space group is much higher than that normally obtained.

Quantitative Results

The proportion of change from the "alone" autokinetic session to the "together" autokinetic session was determined for each subject. Table 2 presents the high and low white space subjects ranked in terms of this measure of change. Inspection of Table 2 reveals clear-cut

TABLE 1

RORSCHACH SUMMARY DATA FOR HIGH AND LOW WHITE SPACE SUBJECTS

	n	Mean	Percent of total	Range
High White Space Group				
Total R	8	56.66		34-76
S	8	9.63	15.37	6-15
M	8	2.63		0-4
Sum C	8	5.88		3-8
Low White Space Group				
Total R	7	53.00		33-90
S	7	1.14	2.50	0-2
M	7	1.86		0-3
Sum C	7	4.14		2-6.5

differences in terms of the change observed in the two groups. It can be seen that the change from the "alone" to the "together" situation for the high white space group ranges from -1.2 to .6. The recorded change for the low white group ranges from .35 to 1.0. Six of the eight high white space subjects (75%) obtained a change score lower than that obtained by any subject in the low white space group.

The Mann-Whitney U Test, utilizing the proportional change scores, was calculated for n = 8 and m = 7 as suggested by Moses (27). A U value of 4.5 was obtained with a probability level of between .002 and .003. Thus there is very little chance that the difference between the two groups is a function of random variation.

The Median Test was employed to determine change from situation to situation within the groups. A comparison of median shifts from the "alone" to the "together" session, reported in Table 3, reveals that seven (100%) of the low white space subjects changed significantly. Four of the observed median shifts were significantly different at the .001 level of confidence while the remaining three were significantly different at more than the .02 level of confidence. Comparison of median shifts from the "alone" to the "together" situation for the high white space group reveals that only two of eight subjects shifted their judgments significantly. Only one of the subjects demonstrated convergence toward the prestige person's judgments. The other high white space subject reported significantly different judgments in the "together" situation but they were in a direction away from the judgments given by the prestige person.

Medians of five trials for both subject and prestige person

TABLE 2

PROPORTION OF CHANGE OF AUTOKINETIC JUDGMENTS

FOR HIGH AND LOW WHITE SPACE SUBJECTS

Ranked Subjects	1	2	3	4	5	6	7	8
High White Space Group								
Proportion of change from the "alone" to the "together" situation	-1.2	-.25	.16	.17	.20	.25	.50	.60
Low White Space Group								
Proportion of change from the "alone" to the "together" situation	.35	.50	.57	.66	.77	1.0	1.0	

TABLE 3

CONVERGENCE EFFECTS OF HIGH AND LOW WHITE SPACE SUBJECTS WITH A PRESTIGE PARTNER

Subjects	1	2	3	4	5	6	7	8
High White Space Group								
Median difference between "alone" and "together" session	-12***	-1	.4	1	.5	1	.5	3***
Low White Space Group								
Median difference between "alone" and "together" session	1.75*	2**	4**	8***	7***	9***	3***	

*-Significant at the .02 level
**-Significant at the .01 level
***-Significant at the .001 level

during the "together" autokinetic session were determined. Figures 2, 3, and 4 show the medians of each five successive judgments for three low white space subjects and for the prestige person's judgments. These figures clearly demonstrate the convergence effects observed and reported by Sherif and later corroborated by Sperling (43) and others (12, 13, 36, 40). It can be noted that during the last ten trials coincidence of judgments became more frequent.

Figures 5, 6, and 7 depict the medians of each five successive judgments for three high white space subjects and for the prestige person's judgments. These figures reveal an altogether different phenomenon. In contrast to the low white space subjects, high white subjects reveal little convergence of judgment. In fact, two of the high white space subjects, T. L. and D. G., not only failed to converge but moved in an opposite direction from the prestige person.

Medians of five successive judgments of the high white space subject, M., who revealed a significant median shift of judgment, are presented in Figure 8. Whereas M.'s median in the "together" situation is significantly different from his "alone" median, change occurs but not without apparent resistance. Resistance to the prestige person is shown more clearly in Figure 9 wherein M.'s individual judgments and those of the prestige person are presented. Although M. keeps his distance, he also tends at times to agree with the prestige person completely, especially during the last fifteen trials.

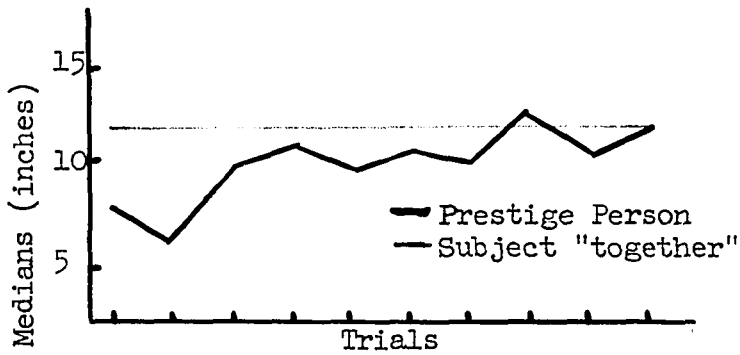


Fig. 2--Prestige person and a low white space S's (R. B.) median judgments of apparent movement for groups of five trials.

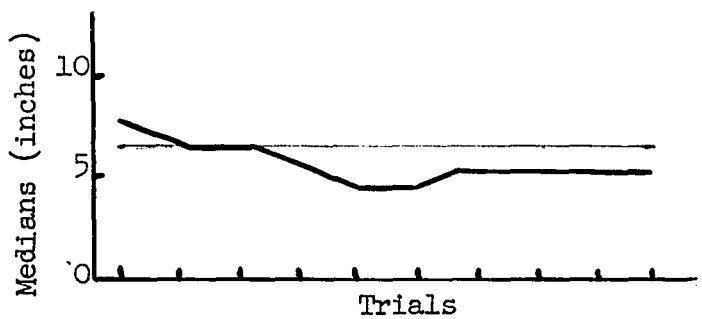


Fig. 3--Prestige person and a low white space S's (M. O.) median judgments of apparent movement for groups of five trials.

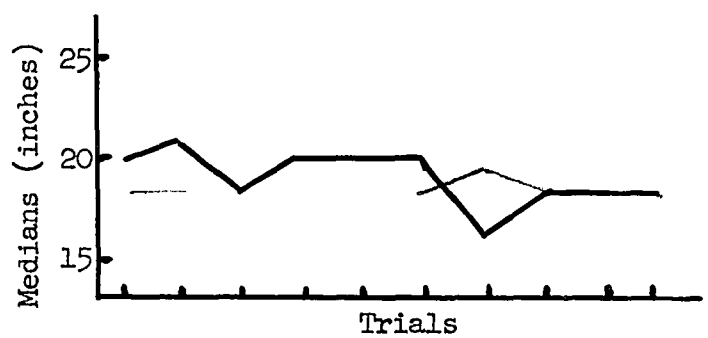


Fig. 4--Prestige person and a low white space S's (L. T.) median judgments of apparent movement for groups of five trials.

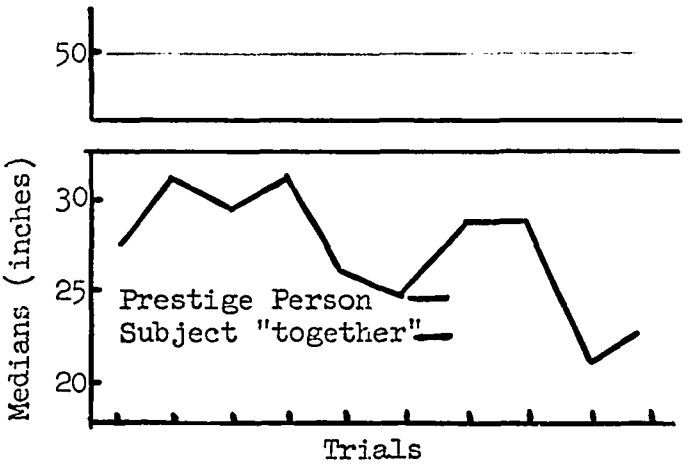


Fig. 5--Prestige person and a high white space S's (T. L.) median judgments of apparent movement for groups of five trials.

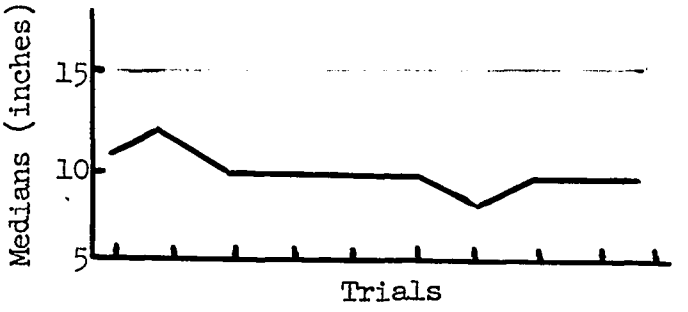


Fig. 6--Prestige person and a high white space S's (C. T.) median judgments of apparent movement for groups of five trials.

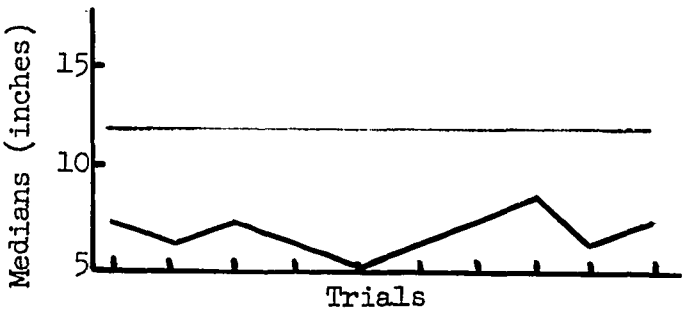


Fig. 7--Prestige person and a high white space S's (D. G.) median judgments of apparent movement for groups of five trials.

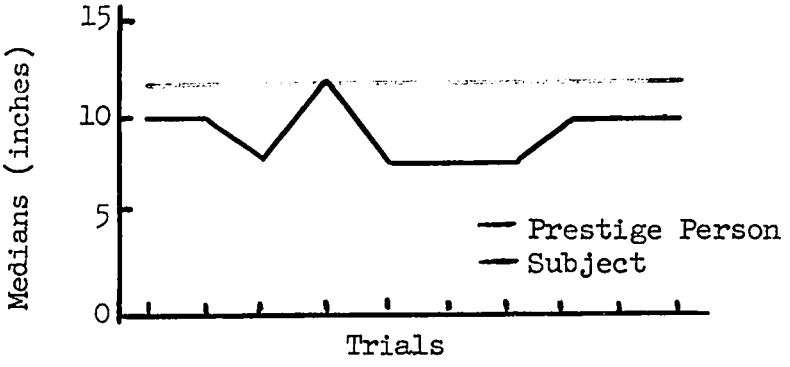


Fig. 8--Prestige person and a high white space subject's (M.) median judgments of apparent movement for groups of five trials.

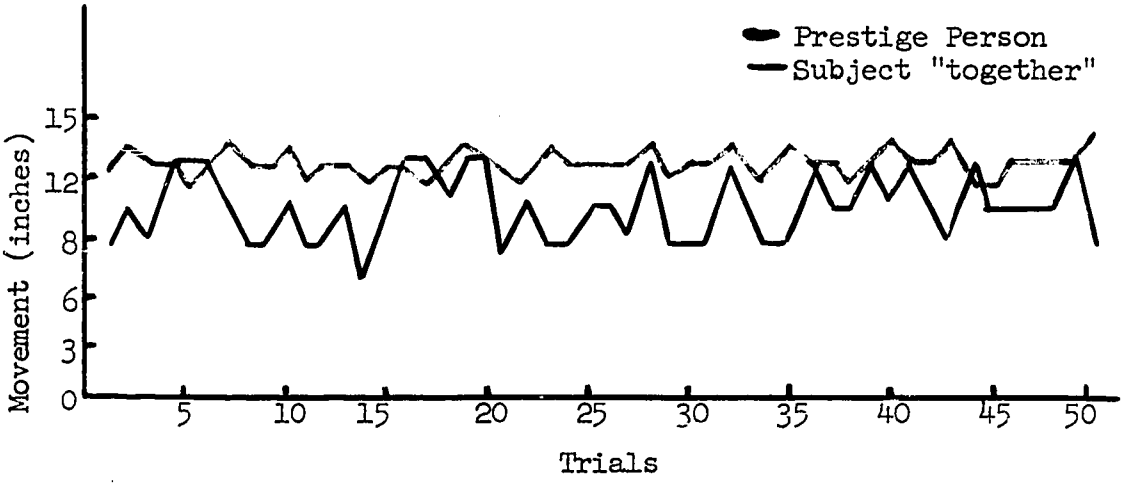


Fig. 9--Prestige person and a high white space subject's (M.) individual judgments (in inches) of apparent movement.

Another high white space subject, by shifting in an opposite direction, also resisted the prestige person's suggestions. The difference between D. G.'s median judgment of autokinetic movement in the "alone" and "together" situation was not significant. However, it was almost significant at the .05 level of confidence.

In summary, then seven of the eight high white space subjects either did not reveal a significant median shift or they shifted significantly in an opposite direction from the judgments given by the prestige person. All of the low white space subjects revealed significant median shifts from the "alone" to the "together" autokinetic session.

Table 4 presents the median inches of movement reported by high and low white space subjects in the two autokinetic situations. The median movement scores for the high white space group in the "alone" situation range from two to forty inches, while those of the low white group range from zero to twelve inches. Thus for the entire sample, the range is from zero to forty inches.

Since large individual differences in magnitude of autokinetic movement were observed in this sample, and since it has been reported that autokinetic movement is influenced by personality factors, the magnitude and variability of autokinetic judgments was investigated. After application of the Mann-Whitney U test, it was determined that the subject's position in the high or low white space group did not influence or affect the magnitude of his judgments or his variability of "alone" autokinetic judgments. Similarly, analysis revealed no significant relationship between magnitude of autokinetic movement and high and low Rorschach movement. The work of Voth (48), Sexton (36), Schumer (35),

TABLE 4

MEDIAN JUDGMENTS IN INCHES OF MOVEMENT MADE BY HIGH AND LOW WHITE SPACE SUBJECTS IN THE TWO AUTOKINETIC SITUATIONS

Subjects	1	2	3	4	5	6	7	8
High White Space Group								
Median of 50 judgments given in the "alone" session	40	8	2.5	9	2.5	9	2	7
Median of 50 judgments given in the "together" session	28	7	2.9	10	3	10	2.5	10
Low White Space Group								
Median of 50 judgments given in the "alone" session	0	8	8	12	3	9	4	
Median of 50 judgments given in the "together" session	1.75	10	12	20	10	18	7	

and Linton (23) indicated that subjects reporting a high number of Rorschach human movement responses had personality characteristics associated with resistance to suggestion. In order to determine whether the changes observed in the subjects of this study were related to Rorschach human movement, the fifteen subjects were regrouped according to the frequency of reported Rorschach human movement responses. Using the sample mean as the basis for differentiation, the subjects were divided into two groups. Subjects reporting two or less movement responses were designated as "low movement" subjects; those reporting three or more were accordingly classified as "high movement" subjects. Using the Mann-Whitney U test, it was determined that the differences in change between the high and low movement groups were not significant. ($p = .80$)

From this evidence it may be concluded that change of judgment in the autokinetic situation is not, in this sample at least, directly related to the number of Rorschach human movement responses reported.

In order to establish more exactly that white space was the variable responsible for lack of change of autokinetic judgment, it was deemed advisable to determine whether the high white space subjects might not also be high Rorschach movement subjects. Recourse to the U test revealed that the high white space group did not have significantly more Rorschach human movement responses than did the low white space group.

Qualitative Results

All statements made by the subjects were recorded verbatim in order to determine exactly what occurred during the course of the experiment. Although the subjects differed greatly among themselves, they

all discerned and responded to certain aspects of the situations.

In the "alone" autokinetic session each of the fifteen subjects exhibited behavior directed toward reducing the uncertainty of the situation. Further each subject attempted to establish some reference point or anchorage as a basis for his judgments. Representative examples are presented below:

1. Subjects A. F. and D. G., upon being given the instructions, asked to know the distance between themselves and the light. They also inquired about the size of the light.

2. Subjects R. B. and D. A., after completing approximately one-fourth of the trials, asked to know if it made any difference whether the point of light moved in a straight line. Subject D. H. after the fourteenth trial asked, "If I see it move to the right and to the left and then going away from me, am I to estimate the combined distance?"

3. Subject D. C. indirectly asked if his judgments were correct by asking if he were not "shooting them all a little long." Subject G. R. followed the same procedure, only he reversed it by asking if he were not "shooting them all a little short."

4. One subject, C. T., prior to the first trial, told of his experience on the Air Force tests. He had a system worked out. He refused to look directly at the point of light, looking instead slightly to the right or to the left. He stated that he was afraid he would lose sight of the light if he looked straight ahead.

5. Another subject, J. H., stated that he judged how far the light moved by holding his head absolutely rigid and calculating how far he had to move his head to keep the light in his visual field.

6. Subject L. O. attempted to use speed of movement as an anchorage. His judgments often were preceded by the statement, "that one moved faster" or "that one moved slower."

Each of the subjects also appeared to experience anxiety, threat, or insecurity during the situation. Rarely, did the subjects report a judgment without first making some qualification. Typical of the qualifying words or statements were: "about," "oh, about," "around,"

"I'd say," "looks like," "looks like maybe," "something like," "must have been," "that would run around," "must be," and "I'd guess." In some instances this sort of behavior was observed only during the early trials, whereas in other subjects, it persisted throughout all fifty trials. Further indication of anxiety was reflected in "nervous" laughter, "nervous" body movement, and excessive sighing.

According to the information obtained in the interview immediately following the final autokinetic session, the subject's experience during the experiment was usually as follows:

> He "volunteered" to participate in a research project knowing only that it related to night vision and darkadaptation. He had no knowledge of the kind or type of treatment he might be subjected to. He then was required to record his associations to a series of peculiar looking inkblots projected on a screen. Later, he was contacted by telephone and an appointment time and place were scheduled. Upon reporting, he found himself subjected to associating to similar inkblots, only this time there were more of them and his responses were recorded. Further, the experimenter had the audacity to ask him what about the inkblot reminded or suggested the percept. When this was completed, he found himself knowing no more about the project than when he entered the room. He could not see how looking at inkblots related to flying, night vision, or dark adaptation.
>
> When he reported for the second appointment, he was blindfolded and led into a completely darkened room and requested to perform an impossible task: to judge accurately the movement of an almost imperceptible point of light. Now he saw, for the first time, how the research related to flying and ultimately to the selection of pilot trainees. However, he was not informed of the accuracy of his performance, and he remained in uncertainty.
>
> Although he probably disliked returning to the experimental room and making more judgments, he was requested to do this in company with an Air Force officer who was an experienced pilot.

Discussion with the subjects revealed that the cognitive structure of the "together" autokinetic situation was as follows:

> They, the subject and colonel, started with the understanding that both were in the same psychological field and both observing a fact independent of either of them. The subject understood that they had the same goal: to render an accurate judgment of how far the light moved. Within this structuring, the judgments rendered by

the colonel possessed an objective status; they constituted an independent and valid source of evidence about a fact--an observation made by a person presumed to be skilled in making such judgments. Given this relation, coincidence of judgments had the meaning of agreement and divergence of judgments the meaning of disagreement. The behavior of some subjects indicated that agreement was a necessary consequence, while the behavior of other subjects revealed no such concern.

Analysis of the interview data failed to reveal any consistent difference between the high and low white space groups insofar as they experienced difficulty in making autokinetic judgments. On the contrary, with one exception, all subjects reported that judgments made by the prestige person exerted little or no influence on their judgments. That the prestige person did have different effects upon different subjects is illustrated by the following:

D. G. and T. L., both high white space subjects, were acutely aware of the discrepancy between their judgments and those reported by the prestige person, but they consciously attempted to disregard the prestige person's judgments when they made their own. Both subjects reported that they judged the first trial very carefully and then based all other judgments on it. Contrary to instructions, both subjects frequently reported their judgments before the prestige person reported his judgment. Each subject stated that he had his mind made up before the prestige person reported, and at times "just forgot" himself and gave his judgment first.

C. T., another high white space subject, "wondered who in the hell was right; whether he was right and I was wrong or if I was right and he was wrong." He also reported, "I knew what I was going to say before he reported, and I said it regardless of what he said."

D. H., a low white space subject, reported that he "tried not to be influenced, but I guess it is only human. I had confidence in his judgment and I guess that gave me more confidence in mine." This subject reported that it was easier to make his judgments during the second session.

R. C., also a low white space subject, reported that "sometimes I wanted to pick a number, but he picked it, and I would not use it. Like he said fifteen, and I thought ten, I would not give ten but instead gave twelve. Actually, it was the power of suggestion." When questioned how many times this occurred, he stated that "it happened only once or twice."

G. R., also a low white space subject, felt that he was right and the colonel was wrong. "It seemed that most of the time he judged larger. Sometimes we were together, but most of the time he thought it moved further than I did. I seldom judged it was larger."

These are representative examples of the kind of behavior which led to the observation that each subject attempted to cope with the discrepancy between his judgment and that reported by the prestige person. Although almost all of the subjects reported that the prestige person had no effect upon them, the evidence shows that he actually did.

In the course of scheduling appointments for the individually administered Rorschach test and the two autokinetic sessions, an unforeseen difficulty was encountered. Although relatively little difficulty was experienced in scheduling appointments for low white space subjects, subjects reporting ten percent or more of white space on the Rorschach characteristically reported conflicts in class schedules, prior and pressing appointments, forthcoming academic examinations, and social engagements which prevented them from making an appointment at that time.

Further, the only subjects who failed to keep their scheduled appointments were high white space subjects. One high white space subject failed to report for the Rorschach on two separate occasions. When another high white space subject failed to keep a scheduled autokinetic appointment, he was contacted by telephone and another appointment made for later in the day. He reported for this appointment thirty minutes late, explaining that his watch must be in need of repair, because, according to it, he was on time.

While this kind of behavior was not anticipated in advance, it is not at all unusual or atypical of behavior expected of people with

a high percentage of white space responses, for that is assumed to indicate negativism, stubbornness, and contrariness. Despite this behavior, subjects from both groups professed an interest in the experiment and a strong desire to participate in it.

CHAPTER V

DISCUSSION OF RESULTS

This experiment has attempted to evaluate Rorschach's assumption that white space in an extratensive experience balance reflects an "oppositional tendency." The method used to test this hypothesis was as follows: Subjects previously differentiated on the basis of the percentage of white space responses on the Rorschach test also made judgments of autokinetic movement under two experimental conditions. In the first autokinetic session each subject made fifty judgments of visual apparent movement alone in a completely darkened room. In the second autokinetic session each subject made judgments of autokinetic movement in the presence of an established prestige person who cooperated with the experimentor. The prestige person made his median judgment equal to the 90th percentile score in the subject's range of "alone" judgments. Immediately preceding the second session the prestige person, through skillful manipulation, attempted to mobilize feelings of opposition in the subject.

The autokinetic procedure proved to be relatively simple and easy to perform. The "together" autokinetic session was assumed to be an interpersonal situation wherein quantified indices of oppositional tendencies, if indeed such tendencies were a part of the subject's

character structure, could be obtained without the subject's awareness that he was revealing such information. Thus the autokinetic measures obtained by this method tended to be free from personal or experimenter bias.

Comparison of the proportionate-change-scores from the "alone" to the "together" autokinetic sessions for the two groups revealed that the high white space group had "change" scores significantly lower than the low white space group. Thus the high white group showed a significant tendency to resist shifting judgments when in the "together" situation. Conversely, the low white space group showed a significant tendency to shift judgments when in the "together" autokinetic situation. The results seem to support Rorschach's assumption regarding the meaning of white space in an extratensive balance.

An analysis of individual median shifts from the "alone" to the "together" autokinetic situation revealed that all seven of the low white space subjects changed significantly, whereas only one of the high white space subjects revealed a significant change in the direction of the prestige person's suggestion.

Since Rorschach human movement responses alone did not differentiate those subjects who changed significantly from those who did not change significantly and since there was no significant difference between white space and Rorschach human movement responses in the two groups, it can be concluded that the failure to change judgments in the "together" autokinetic situation is positively associated with the excessive presence of white space.

The question now arises as to whether the experimental design

constituted an adequate test of the hypothesis. Thus it is important to consider the question of whether or not the differences in the subject's behavior in the "alone" and "together" autokinetic situations actually reflected oppositional trends or the lack of them. In support of this contention the following arguments are presented:

1. First, a relatively wide range of divergent judgments was obtained. This indicates that the subjects differed in their reaction to the prestige person.

2. Secondly, in the "together" situation the subject was presented with strong suggestions from a type of person whom he had previously declared to be highly skilled in the task at hand. In other words, he was faced with strong suggestions from a prestige person and, under these ego involved conditions, he was "forced" to accept or reject the pressuring suggestion.

3. Under these conditions the empirical results actually obtained were predicted from Rorschach's original assumption of the meaning of white space responses in an extratensive experience balance.

Although this study was concerned with validating Rorschach's white space assumption, the findings also indicate that personality factors are influential in determining the response made to social influence or prestige suggestion. This does not deny the importance of other possible factors such as the structure of the perceptual field or the structure of the group in determining the extent to which the individual's perception will be modified in a group situation.

The role of the individual personality as mediator of the social norm has received relatively little attention in research reports.

Although it is probably true that ambiguity of the field facilitates incorporation of the norm, it is equally evident from the studies of Schonbar (34) and of Asch (2) that the process of interiorization of norms goes on even in highly structured fields. This leads to the conclusion that the structure of the field is not any more important for predictive purposes than is the personality structure of the individual and the idiomatic variations of his behavior.

Insofar as the present study is concerned, determining only one personality factor, oppositional tendencies, made possible an accurate prediction of the impact of the social norm in fourteen out of fifteen cases. Such a high degree of predictive success certainly indicates that the role played by personality factors should be fully considered in future studies into social influence.

Since this study was designed to test only the hypothesis concerning white space responses in an extratensive experience setting, future research directed toward determining the meaning of white space responses in introversive and ambiequal experience types is indicated. A design similar to that employed in this study might well be used in testing experimental hypotheses based on Rorschach's assumptions about white space in these two experience types.

The results of this investigation also suggest that the autokinetic phenomenon may be profitably employed in obtaining independent, objective, and quantifiable measures of transference dynamics in the therapeutic process. For example, it might be demonstrated that the client resists the therapist's suggestions of movement when the transference is negative and that he converges toward the therapist's

judgments when the transference is positive.

CHAPTER VI

SUMMARY AND CONCLUSIONS

Fifteen Air Force R.O.T.C. students were employed in an experiment to validate Rorschach's assumption that white space responses in an extratensive experience setting reflect oppositional tendencies. All subjects in this experiment had qualified for Air Cadet training by passing the required mental and physical examinations.

Prior to the actual experiment, the subjects were informed that the research related to the general problem of night vision and dark adaptation and, specifically, to the selection of persons who had the potentiality of becoming good night fighter pilots.

Two subject groups were differentiated according to the percentage of white space they reported on an individually administered Rorschach test. The high white space group consisted of eight subjects who reported ten percent or more of white space responses on the Rorschach, who had an extratensive experience balance, and who ranked the night fighter pilot as being the person most competent in judging the distance a point of light traveled. The low white space group differed from the high white space group only in respect to the percent of reported white space. This group consisted of seven subjects with five percent or less of responses determined by white space.

The experimental procedure in the two autokinetic situations was identical for both groups. In the first autokinetic session, each subject made oral judgments of visual apparent movement alone. The second autokinetic session differed from the first in that each subject made oral judgments of visual apparent movement in company with an established prestige person. The prestige person's judgments were arbitrarily predetermined and based on the subject's 90th percentile score in his range of "alone" judgments. Each subject gave fifty judgments under each of the two experimental conditions.

Immediately preceding the second autokinetic session the prestige person, who was introduced as an Air Force Colonel, attempted to mobilize the subject's surface or deep-seated feelings of oppositionality.

The proportion of change from the "alone" to the "together" autokinetic situations was calculated for each subject. These changes served as one of the independent criterion measures against which the white space hypothesis was tested. An analysis was also undertaken to ascertain the number of signficant shifts in norms from the "alone" to the "together" situation.

The results obtained were as follows:

1. The high white space group revealed significantly less change of autokinetic judgments than did the low white space group.

2. Seven of the eight high white space subjects did not reveal a significant median shift toward the prestige person's judgments.

3. All of the seven low white space subjects revealed significant median shifts toward the prestige person's judgments.

4. There was no significant difference between rankings on magnitude of autokinetic judgments and rankings of Rorschach white space responses.

5. There was no significant difference between rankings of variability of "alone" autokinetic judgments and rankings of Rorschach white space responses.

6. There was no significant difference between ranking of magnitude of autokinetic judgment and rankings on Rorchach human movement responses.

7. There was no significant difference between ranking on change of autokinetic judgment and rankings of Rorschach human movement responses.

On the basis of these findings it is concluded that people with an extratensive experience balance who report ten percent or more of white space responses on the Rorschach test tend to manifest oppositional tendencies; conversely, people with an extratensive experience balance who report five percent or less of white space responses on the Rorschach test tend to exhibit little if any oppositional behavior.

It is further concluded that these results substantiate Rorschach's assumption that white space responses in an extratensive experience setting reflect oppositional tendencies.

APPENDIX A

EGO INVOLVEMENT

QUESTIONNAIRE

Please rank the following individuals according to your estimate of their probable skill in the task of judging the distance a pin point of light moves. The individual which has the greatest skill should be indicated by placing a one (1) before the occupation. The next best as two (2) ... etc., with the least skilled individual rated as 15.

_____ Lawyer

_____ Machinist

_____ Photographer

_____ Bomber Pilot

_____ Sociology teacher

_____ Fireman

_____ Artist

_____ Author

_____ Physics teacher

_____ Night Fighter Pilot

_____ Physician

_____ Musician

_____ Farmer

_____ Forest Ranger

_____ Salesman

APPENDIX B

RECORD OF THE JUDGMENTS OF THE HIGH WHITE SPACE GROUP

JUDGEMENTS IN INCHES

Trials:	1-10	11-20	21-30	31-40	41-50	
						High S
Subject: M						
Alone	4	6	9	12	7	
	2	4	12	8	7	
	3	7	4	6	6	
	12	8	8	12	4	
	12	10	7	10	7	
	13	8	12	6	4	
	9	6	12	0	5	
	6	12	6	10	3	
	12	5	8	8	6	
	12	8	8	3	0	
						Mdn.= 7
Together	8	8	7	8	12	
	10	8	10	12	10	
	8	10	8	10	8	
	12	6	8	8	12	
	12	10	10	8	10	
	12	12	10	12	10	
	10	12	8	10	10	
	8	10	12	10	10	
	8	12	8	12	12	
	10	12	8	10	8	
						Mdn.=10
Prestige Person	12	11	11	12	12	
	13	12	11	13	12	
	12	12	13	11	13	
	12	11	12	12	11	
	11	12	12	13	11	
	12	12	12	12	12	
	13	11	12	12	12	
	12	12	13	11	12	
	12	13	11	12	12	
	13	12	12	13	13	
						Mdn.=12

Trials:	1-10	11-20	21-30	31-40	41-50	
						High S
Subject: T. L.						
Alone	3	40	34	38	30	
	0	52	40	48	36	
	6	60	26	24	40	
	13	48	45	36	48	
	48	48	30	36	30	
	42	54	36	30	24	
	50	42	50	48	36	
	60	42	48	42	20	
	72	48	48	38	24	
	42	36	40	48	24	
						Mdn.= 40
Together	10	30	26	32	21	
	26	26	20	26	20	
	30	30	28	28	22	
	20	30	22	33	20	
	40	28	31	25	23	
	28	31	38	24	19	
	30	24	24	31	19	
	42	31	30	33	23	
	32	32	21	28	24	
	40	34	21	26	28	
						Mdn.= 28
Prestige Person	50	51	50	50	49	
	49	50	49	51	49	
	50	50	51	50	50	
	51	49	49	50	50	
	50	49	50	51	51	
	50	51	50	50	49	
	51	49	49	49	50	
	50	50	50	50	51	
	49	51	51	51	49	
	50	49	49	50	50	
						Mdn.= 50

Trials:	1-10	11-20	21-30	31-40	41-50	
						High S
Subject: D. G.						
Alone	12	10	5	6	10	
	12	12	6	8	10	
	18	6	8	5	12	
	6	8	5	7	14	
	8	10	7	8	12	
	8	4	10	12	8	
	7	6	6	10	10	
	10	3	8	6	7	
	4	2	7	7	8	
	12	6	8	8	8	
						Mdn.= 8
Together	6	9	7	7	0	
	7	7	8	8	6	
	8	8	0	8	8	
	6	6	0	7	7	
	9	6	5	7	6	
	0	11	6	8	7	
	6	10	6	7	7	
	7	6	9	7	7	
	0	0	7	9	8	
	8	0	5	8	6	
						Mdn.= 7
Prestige Person	12	12	12	12	13	
	11	12	11	13	13	
	12	13	12	12	12	
	13	12	13	11	13	
	12	11	12	12	12	
	12	12	11	11	12	
	12	12	12	12	12	
	13	13	11	12	13	
	11	12	13	13	11	
	11	12	13	12	12	
						Mdn.= 12

Trials:	1-10	11-20	21-30	31-40	41-50	
						High S
Subject: C. T.						
Alone	7	12	12	8	7	
	6	12	18	6	8	
	6	16	10	6	9	
	5	15	15	8	6	
	9	15	10	5	6	
	9	16	8	4	8	
	12	13	8	9	6	
	10	15	12	8	8	
	11	18	10	10	5	
	14	17	12	8	9	
						Mdn.= 9
Together	10	8	11	8	9	
	15	12	8	10	8	
	12	10	8	8	9	
	11	10	12	8	10	
	10	11	10	10	7	
	15	12	10	9	9	
	8	9	8	9	10	
	8	9	11	9	8	
	12	12	9	11	7	
	15	10	12	8	9	
						Mdn.= 10
Prestige Person	15	14	15	15	14	
	15	15	14	14	15	
	16	15	16	16	16	
	14	16	15	15	15	
	15	14	15	16	15	
	16	14	16	14	16	
	14	15	15	15	15	
	15	14	15	16	14	
	15	16	14	15	15	
	16	16	15	15	16	
						Mdn.= 15

Trials:	1-10	11-20	21-30	31-40	41-50
					High S
Subject: D. A.					
Alone	4	2.5	2.5	3.25	3.25
	6	3	2	1	1
	5	1	4.5	4.5	3.5
	3	1.25	3	4.5	1
	3.5	2	4.5	3.5	.5
	4	2	2	2	1.5
	1.5	3	2.5	2.25	1.5
	1	4	3	1.5	1
	4	3	3	2.5	2.5
	2	3	2.5	2.5	1.5
					Mdn.=2.5
Together	2	4	1	3	4
	4	3	3	2	4
	3.5	3	3	3	1.5
	2	4	3.5	3.5	3
	4	4	2	1	3
	5	3	3	3	4
	4	1.5	3.5	2.5	4
	3.5	2	3.5	3	1
	5	1	2	3	2
	3	1.5	2	2	2.5
					Mdn.=2.89
Prestige Person	4	5	4	5	6
	5	6	6	5	4
	5	5	4	6	5
	5	6	4	4	5
	4	4	5	6	5
	6	5	4	5	4
	4	5	6	5	4
	4	4	5	5	5
	5	5	5	4	5
	5	5	4	5	5
					Mdn. = 5

Trials:	1-10	11-20	21-30	31-40	41-50	
						High S
Subject: J. H.						
Alone	0	12	9	12	13	
	4	10	10	8	10	
	6	12	13	3	6	
	10	10	10	5	5	
	4	8	14	9	5	
	4	8	7	14	9	
	10	5	12	10	12	
	6	12	8	12	8	
	4	13	8	12	9	
	13	10	9	12	6	
						Mdn.= 9
Together	7	12	12	10	10	
	10	10	8	12	10	
	12	7	10	10	10	
	8	9	10	10	9	
	12	10	10	10	10	
	10	6	10	12	6	
	8	6	9	10	7	
	9	12	10	9	10	
	7	9	9	9	9	
	8	10	12	9	9	
						Mdn.= 10
Prestige Person	13	13	13	14	13	
	13	13	13	14	13	
	13	14	12	13	12	
	14	13	12	12	12	
	14	13	13	13	12	
	13	14	14	13	13	
	12	13	13	14	12	
	13	13	12	13	13	
	13	13	13	12	12	
	12	14	13	14	13	
						Mdn.= 13

Trials:	1-10	11-20	21-30	31-40	41-50
					High S
Subject: R. M.					
Alone	.5	1	1.5	1.75	1.5
	2	1.75	3.5	2.5	2.5
	.25	3	2	1.5	1.5
	.75	2	1.75	.75	2.25
	2	2.25	2	1	3
	4	3	1	2	2.5
	4.5	2	.75	2.5	2.25
	3	1	2	2	2
	1.5	3.5	2.5	1.75	1.75
	2	2.5	3	2	2
					Mdn.= 2
Together	2.5	2.5	4	3.5	2.5
	3.75	3.5	3.5	2.5	2
	4	2.5	2.5	3.5	2.5
	2.5	3	2.5	2	3
	3	2.5	3	2	3.5
	2.5	2.5	3	2.5	2.5
	3	4	3	2.5	2.5
	2	3.5	3.5	4	2.5
	3	2.5	3	3	3
	2.5	2.5	2.5	2	3.5
					Mdn.= 2.5
Prestige Person	3	2	3	4	3
	4	3	3	3	3
	3	3	2	3	3
	3	3	3	2	3
	2	4	4	3	4
	3	3	3	4	2
	4	4	2	3	3
	2	3	3	3	3
	3	2	3	2	3
	[illegible]	3	2	2	3
					Mdn.= 3

Trials:	1-10	11-20	21-30	31-40	41-50
Subject: B. M.					High S
Alone	2	3.5	3	2.5	2.5
	4	3	2	3	1.5
	4	3	2	3	2
	4	3	2	2	1
	3.5	4	1.5	2	1
	4.5	2.5	2	1	3
	5	2.5	2	1.5	2
	2.5	4	2	2	2.5
	4.5	3.5	3	2	2
	5	4	3	2	2
					Mdn.= 2.5
Together	4	2	4	3	4
	3	5	3	4	3
	3	3	4	2	3
	4	1	4	4	2
	3	2	3	3	3
	2	4	2	2	2
	3	4	2	2	2
	2	2.5	3	5	3
	3	5	3.5	3	4
	4	3	1	3	4
					Mdn.= 3
Prestige Person	6	6	6	6	7
	7	7	7	6	5
	6	6	5	7	6
	5	5	6	5	5
	6	6	6	6	7
	7	7	5	6	6
	6	6	6	5	6
	6	6	6	6	7
	5	5	7	5	5
	6	6	6	7	6
					Mdn.= 5

APPENDIX C

RECORD OF THE JUDGMENTS OF THE LOW WHITE SPACE GROUP

Trials:	1-10	11-20	21-30	31-40	41-50	
						Low S
Subject: M. O.						
Alone	4	10	5	3	0	
	6	8	7	2	0	
	6	8	6	3	2	
	7	6	5	2	3	
	3	7	4	2	3	
	5	6	3	3	5	
	0	7	2	3	4	
	6	7	3	3	5	
	8	5	3	1	4	
	10	6	4	3	2	
						Mdn.= 4
Together	6	6	6	7	7	
	7	7	6	8	7	
	9	7	7	7	8	
	8	5	6	5	7	
	8	7	7	6	7	
	8	6	6	6	7	
	7	8	6	7	8	
	7	6	7	7	7	
	7	6	8	6	6	
	8	7	5	7	6	
						Mdn.= 7
Prestige Person	7	7	7	8	6	
	7	8	8	8	7	
	8	7	7	7	7	
	6	6	7	6	7	
	7	6	7	5	6	
	7	8	8	8	8	
	6	7	7	7	7	
	7	7	7	7	6	
	8	8	7	8	6	
	7	7	6	7	7	
						Mdn.= 7

Trials:	1-10	11-20	21-30	31-40	41-50	
						Low S
Subject: L. O.						
Alone	1.5	20	6	11	9	
	1	14	12	9	8	
	8	24	10	8	10	
	10	20	5	10	8	
	15	14	4	5	7	
	12	12	8	6	11	
	15	9	13	6	12	
	18	8	7	7	8	
	18	13	6	4	7	
	24	12	8	7	6	
						Mdn.= 9
Together	8	19	21	16	18	
	18	22	20	20	18	
	20	18	20	15	17	
	22	21	19	16	19	
	22	18	18	16	16	
	13	18	18	18	18	
	23	20	21	18	18	
	22	21	20	17	18	
	17	21	21	18	19	
	21	20	16	19	18	
						Mdn.= 18
Prestige Person	18	16	17	19	18	
	17	18	18	19	17	
	18	19	19	18	18	
	19	18	18	19	19	
	18	17	17	17	17	
	17	18	17	18	18	
	18	17	19	18	17	
	17	18	18	19	17	
	19	18	18	19	19	
	18	18	17	17	17	
						Mdn.= 18

Trials:	1-10	11-20	21-30	31-40	41-50	
						Low S
Subject: G. R.						
Alone	6	36	18	6	24	
	0	18	24	6	30	
	12	12	6	12	24	
	6	30	6	12	12	
	6	12	12	18	12	
	24	18	12	12	6	
	36	12	12	9	24	
	24	6	6	12	18	
	12	10	18	24	12	
	24	6	6	30	24	
						Mdn.= 12
Together	12	24	18	25	24	
	24	28	20	20	20	
	12	24	25	20	20	
	24	24	12	20	18	
	18	24	24	24	20	
	24	28	24	18	20	
	18	25	24	20	25	
	12	24	25	20	24	
	18	20	20	25	20	
	12	20	18	20	20	
						Mdn.= 20
Prestige Person	23	25	24	25	25	
	25	25	24	24	24	
	23	23	23	23	25	
	24	24	23	24	23	
	25	23	24	24	24	
	23	25	25	23	24	
	25	24	23	25	24	
	24	23	23	24	23	
	23	24	24	23	24	
	25	25	24	24	25	
						Mdn.= 24

Trials:	1-10	11-20	21-30	31-40	41-50	
						Low S
Subject: D. H.						
Alone	2	6	1	3	3	
	3	13	2	3	1	
	2	16	5	5	3	
	2	15	6	5	2	
	1	15	10	8	2	
	3	12	8	1	10	
	3	10	10	2	10	
	2.5	8	12	2	9	
	2.5	5	6	1	5	
	2	3	7	3	3	
						Mdn.= 3
Together	11	14	10	10	9	
	12	16	5	9	8	
	10	15	8	8	6	
	15	17	13	6	6	
	16	12	11	11	7	
	18	13	15	11	5	
	20	10	10	13	5	
	24	10	8	12	5	
	23	10	10	10	10	
	15	9	12	8	11	
						Mdn.= 10
Prestige Person	12	11	12	12	12	
	13	12	13	13	12	
	12	13	12	11	11	
	11	13	11	13	13	
	12	12	12	12	12	
	12	11	11	12	11	
	13	12	12	13	12	
	13	13	12	13	13	
	11	12	13	11	12	
	12	11	11	12	12	
						Mdn.= 12

Trials:	1-10	11-20	21-30	31-40	41-50	
						Low S
Subject: A. F.						
Alone	1	.25	.5	0	0	
	.5	1.5	2	0	0	
	2	1.5	0	0	0	
	.5	2	3	2	0	
	.5	.5	0	0	0	
	0	1	2.5	0	0	
	3	1	0	0	0	
	.25	0	1	0	0	
	0	0	.5	0	0	
	.5	3	0	1	0	
						Mdn. = 0
Together	2	2	0	0	6	
	1.5	0	5	0	3	
	2	5	3	0	0	
	0	0	4	5	0	
	0	2	3	0	0	
	2	4	0	2	6	
	3	5	0	0	0	
	0	0	4	4	3	
	0	0	0	0	2	
	0	4	3	0	2	
						Mdn.= 1.75
Prestige Person	4	4	6	5	5	
	5	5	5	6	5	
	4	5	5	5	4	
	4	6	6	6	5	
	4	5	6	4	6	
	4	6	4	4	5	
	6	4	5	5	4	
	4	4	6	6	5	
	5	6	6	4	5	
	5	6	4	6	6	
						Mdn.= 5

Trials:	1-10	11-20	21-30	31-40	41-50	
						Low S
Subject: R. B.						
Alone	6	8	7	8	6	
	9	6	6	6	6	
	4	8	9	12	3	
	9	10	8	3	10	
	10	2	8	14	15	
	10	6	2	8	10	
	12	8	4	12	6	
	4	8	9	14	5	
	3	6	12	10	7	
	8	7	10	10	12	
						Mdn.= 8
Together	6	7	13	13	12	
	8	11	10	10	10	
	6	13	8	10	10	
	10	10	11	6	13	
	14	8	6	8	11	
	6	8	13	10	13	
	4	11	14	9	13	
	6	8	9	14	12	
	10	11	11	16	9	
	14	13	11	13	8	
						Mdn.= 10
Prestige Person	12	12	11	12	13	
	12	11	12	12	11	
	13	12	12	13	12	
	12	11	12	12	13	
	13	12	13	11	12	
	11	13	12	12	12	
	12	12	11	13	11	
	13	12	12	13	12	
	12	13	13	11	13	
	11	12	12	12	12	
						Mdn.= 12

Trials:	1-10	11-20	21-30	31-40	41-50	
						Low S
Subject: R. C.						
Alone	4	15	8	10	8	
	6	16	13	5	6	
	12	20	8	7	0	
	16	15	5	12	5	
	12	8	10	10	6	
	18	10	6	2	4	
	15	4	4	1	10	
	12	6	8	5	8	
	14	6	8	7	5	
	12	8	12	6	1	
						Mdn.= 8
Together	12	14	12	14	14	
	16	16	10	12	10	
	18	15	10	14	10	
	15	16	12	12	12	
	15	16	12	10	14	
	12	16	14	12	10	
	12	12	14	12	10	
	16	10	10	10	10	
	14	8	10	12	12	
	12	13	10	12	16	
						Mdn.= 12
Prestige Person	15	16	15	14	15	
	14	15	15	15	16	
	15	15	16	16	15	
	16	16	16	16	16	
	15	14	15	14	15	
	14	15	14	15	14	
	15	14	14	15	15	
	16	15	16	15	15	
	15	15	15	16	16	
	15	16	15	15	15	
						Mdn.= 15

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