

A Review of Published Research  
on the  
Relationship of Some Personality  
Variables to ESP Scoring Level

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## INTRODUCTION

Now that the evidence for the existence of psi is very strong, it is logical to ask what psychological conditions are most favourable to its operation. Over a period of years, numerous experiments have been carried out to explore some of these conditions; such experiments in general have dealt with a variety of psychological variables, such as the experimenter-subject relationship, novelty aspects of the target, spontaneity and rate of calling, but most extensively, with the personality characteristics and state of subjects.

The study of the personality characteristics of ESP subjects can be made either upon exceptional individual performers or upon groups of unselected subjects. With regard to the individual approach, comparatively little is known about the personalities of the few high scoring subjects in the past. Incidental and incomplete information is available on some of them; for a variety of reasons, however, more exact quantifiable personality measurements are lacking. It is difficult, therefore, to judge whether the generalised characteristics ascribable to groups of subjects whose scores average slightly above chance can be attributed to the individual high scoring subject. The dynamics involved may be quite different.

The study of personality characteristics of ESP subjects by means of group testing is largely a development of the last fifteen years. The value of obtaining extensive data through the use of relatively quick group testing methods, compared with those obtained through the tedious painstaking process of seeking out the individual high scoring subject, is obvious. Such group studies, however, have shown that scoring levels with unselected subjects run only slightly ahead of, or very close to chance. These results can be interpreted in two ways—that few, if any, subjects displayed any ESP at all, or that some subjects scored positively, some negatively, and that, in the mass evaluation, the deviations cancelled out. Basically, therefore, the problem has been the determination of adequate personality criteria, on the basis of which efficient separation of subjects into high and low scoring groups can be achieved.

Such criteria should have a three-fold value:

1. In demonstrating the occurrence of ESP, if such be the case, where in a gross evaluation, none may be shown to exist.
2. In discovering whether any relationship exists between certain personality characteristics and results in ESP tests, and, if any exists, the extent of this relationship.
3. In eventually predicting, through knowledge of the personality ratings, a subject's ESP scoring level.

The literature covering the ESP-personality research, with all the varieties of technique used, is very extensive. At this point, a review

and tentative appraisal of the findings should be of some value. The organization and classification of the material will, of necessity, be arbitrary to some extent. It is hoped, however, that the divisions of this paper will preclude all but a minimum of overlap in the presentation of the findings.

The paper is divided into two sections. The first covers investigation into the relationship between ESP scoring level and intelligence, interest, introversion-extraversion, expansion-compression and adjustment; with the exception of intelligence, all these are rated qualities. In the second section, which deals largely with the work of Dr. G. Schmeidler, studies of the relationship of ESP to attitudes of belief (sheep-goat classification), adjustment as measured by the Rorschach projective technique, and to a combination of both these dimensions, to reactions to frustration as measured on the Rosenzweig P-F Scale, and to the theoretical orientation of subjects, as measured on the Allport-Vernon Scale of Values, are reviewed.

## INTELLIGENCE AND ESP SCORING LEVEL

In 1937 Esther Bond (3) investigated the relationship between scores in GESP tests and intelligence assessments with a group of 16 retarded children. The intelligence measurements involved were, in some cases, ratings on the Metropolitan Achievement Test, Intermediate Form A; in others, only teachers' judgments. The ESP scores for the entire group were highly significant, but a non-significant coefficient of  $+ .14$  was obtained when ESP scores and intelligence assessments were correlated. The degree of selection in the group, however, which was homogeneous with regard to intelligence, may have masked the amount of correlation to some extent.

A more extensive study was carried out by B. M. Humphrey (10) in 1945. The four groups of data analysed are reviewed in the following four sections.

### A. *The Earlham College Series, including Series I and II*

In Series I, percentile ranks on the A.C.E. (American Council of Education) Psychological Examination for College Freshmen, 1937 Edition, were obtained from the college files for 13 of the 22 subjects tested for ESP. This test is designed to appraise scholastic aptitude or 'general intelligence'. The GESP technique was used in the ESP tests. The ESP results were significant, but a non-significant correlation of  $+ .27$  was obtained between intelligence and ESP scores.

In Series II, Humphrey administered the 1939 Edition of the A.C.E. to 33 of the 36 subjects. The screened BT technique was used to obtain ESP scores, which were at a suggestive level. The ESP scores correlated  $+ .43^{**1}$  with 'linguistic ability',  $+ .09$  with 'quantitative ability' (ability to think in mathematical terms), and  $+ .34^*$  with total A.C.E. score. The latter is a composite of the linguistic and quantitative factors.

### B. *Chutes Series*

In this experiment, 21 subjects completed 490 clairvoyance runs; the overall deviation was significantly below chance expectation. A matching technique with enclosed cards was used to obtain the ESP scores. Subjects were given the Henmon-Nelson Test of Mental Ability, Form B, which is designed to test the mental ability of college students. The correlation of percentile ranks on this test with average ESP scores gave an insignificant correlation of  $- .09$ .

### C. *Price-Pratt Series*

The overall deviation obtained in this series, using the screened matching technique, was significantly above chance expectation. For 26 of the children tested, Humphrey obtained I.Q.s based on the Stanford-Binet Scale; these correlated  $+ .48^{**}$  with average run score.



#### D. *Pratt-Woodruff Experiment, Series B*

In this series, in which the screened touch matching technique was used, a highly significant positive deviation was obtained. Scores on the A.C.E. Psychological Examination were obtained from Duke University files for 16 of the 32 subjects; these showed a non-significant correlation of  $-.15$  with ESP scores. However, there was a very skewed distribution of intelligence ratings, with 6 of the subjects in the top ten per cent, and no subject scoring below the 50th percentile of the norm population. As was noted earlier with the Bond study, any correlation obtained through such a selected sample is difficult to interpret.

A summary of the four series discussed above is presented in Table 1. These series provided all the data which Humphrey utilised in her investigation of the relationship between intelligence and ESP.

Table 1  
Correlation of ESP Scores and Intelligence (Humphrey)

Series	Intelligence Test	N	r	P
Earlham I	A.C.E. (1937)	13	$+.27$	insig.
Earlham II	A.C.E. (1939)			
	linguistic ability	33	$+.43$	.01
	quantitative ability	33	$+.09$	insig.
	gross score	33	$+.34$	.05
Chutes	Henmon-Nelson	21	$-.09$	insig.
Price-Pratt	Stanford-Binet	26	$+.48$	.01
Pratt-Woodruff B	A.C.E.	16	$-.15$	insig.

#### E. *Earlham College Series, re-evaluation*

In a follow-up research, Humphrey (14) in 1948 attempted to throw further light on the relationship between ESP scoring level and intelligence test ratings by using only the best estimate of ESP scores for each subject. The data were limited to Earlham College Series I and II and the Price-Pratt Series.

In Earlham Series I the average scores of the highest scoring 10 run block, out of each subject's total of 100 GESP runs were correlated with A.C.E. ratings. The correlation, which had been originally non-significant ( $+.27$ ), was reduced to  $+.19$  with the new procedure. In Series II, however, when average scores of the highest 10 run block out of each subject's total of 50 clairvoyance runs were correlated with A.C.E. ratings, the co-efficients increased from  $+.43^{**}$  to  $+.64^{**}$  with 'linguistic ability', and from  $+.09$  to  $+.49^{**}$  with 'quantitative ability'. Gross A.C.E. score correlated  $+.65^{**}$  with this 'best' ESP estimate, as against  $+.34^*$  when all runs were included.

In Series II, the scores of two German refugee students had been included in the total evaluation. These subjects, who had obvious language difficulties, were omitted from the sample in a further analysis of the data. The resulting coefficients were increased to  $+.72^{**}$  (linguistic score),  $+.51^{**}$  (quantitative score) and  $+.70^{**}$  (gross score).

F. *Price-Pratt Series, re-evaluated*

Rather than the highest 10 run block, in this analysis the average run score for each subject's best session was taken as the ESP score. Correlations, however, were run only on those subjects who had participated in more than one session. Eighteen subjects from the original group of 26 met this requirement. Correlation of these ESP scores with Stanford-Binet assessments gave a coefficient of  $+.47^*$ , compared with the previous figure of  $+.48^{**}$ . Although the coefficients are almost identical, the former is suggestive only because of fewer subjects involved.

The series in which the 'best' estimate of ESP was correlated with intelligence assessments are shown in Table 2.

Table 2  
Correlation of Intelligence Ratings and "Best" Estimate of ESP  
Humphrey (1948)

Series	Intelligence Test	N	r	P
Earlham I	A.C.E. (1937)	13	$+.19$	insig.
Earlham II	A.C.E. (1939)			
	L-Score	33	$+.64$	.01
	Q-Score	33	$+.49$	.01
	Gross Score	33	$+.65$	.01
Price-Pratt	Stanford-Binet	18	$+.47$	.05

*Attempts at repetition*

In 1950, an attempt was made by Olivia Rivers (30) to repeat Humphrey's findings. She correlated I.Q. ratings with ESP scores obtained from four GESP and four clairvoyance tests given to 36 high school, and slightly more than half this number of college students. The intelligence assessments of the high school students were obtained from the California Test of Mental Maturity (CTMM), a 'pencil-and-paper' test which provides language and non-language quotients. For the college group Rivers obtained A.C.E. (1946) scores from the college files.

While the ESP results were significant, the I. Q. test data did not show any relationship to scoring level for either school group. This was true not only for the gross scores on CTMM and A.C.E., but also for the separate factors involved in each test.

In a large scale study of the relationship of a number of personality factors to ESP scoring, Nicol and Humphrey (27) used two different ESP testing procedures. One was the conventional clairvoyance technique (unknown); the other involved allowing the subject to see the identity of each ESP card after each trial was completed (known). Eight runs under each condition were completed by 36 subjects. With Factor B of the Cattell 16 Personality Factor Questionnaire (intelligence), unknown ESP scores correlated  $+.29$ , known scores  $-.06$ , and total ESP scores  $+.16$ . None of these correlations is significant. The authors themselves point out that the range of intelligence tested was very small, and that this might serve to cover up a greater degree of relationship between intelligence and ESP scores.

Nash and Richards (26) in 1947 first investigated the relationship between a measure of intelligence and scores obtained in a series of PK tests. The I.Q. scores of their 48 college subjects, obtained from the Higher Examination of the Otis Self-Administering Tests of Mental Ability, showed a very small correlation ( $-.12$ ) with PK scores.

*Summary on Intelligence and ESP*

The nature of the relationship between intelligence and ESP scoring level is still undefined. Valid objections, which preclude any clear-cut conclusions being drawn, can be levelled at most of the studies that have been made.

In the first place, they have often involved too few subjects, a fact which makes generalization difficult, despite some high correlations. Again, the same intelligence test was never used by two investigators, and since different tests may be sampling different aspects of intellectual ability, the results are not strictly comparable. In addition, not all the intelligence scales or estimates used are of equal validity, and in two cases, the investigation of the relationship between intelligence and ESP scoring level was a side-issue to the main experiment.

One tentative conclusion, however, may be drawn. There seems to be one factor conducive to a correlation between ESP scoring level and intelligence, namely, when the "best" estimate of scores is used as the ESP criterion.

By the use of the "best" estimate of scores rather than averages for the ESP criterion, Humphrey found that the correlation between intelligence ratings and ESP scoring increased. An estimate based on the best results achieved should eliminate those fluctuations due to factors other than intelligence, such as boredom and fatigue, which are known to affect scoring level, and give a purer estimate of ESP to be correlated with intelligence. Obviously the overall average run scores need not be an accurate reflection of the subject's real ESP ability.

Humphrey's findings particularly suggest either that the more intelligent subjects have better ESP, or that the obtained correlations between intelligence and ESP scoring are merely indicative of the subjects' adaptability to the test situation. No more definite judgment can be made at this stage.

## INTEREST RATING AND ESP SCORING LEVEL

C. E. Stuart was one of the first to investigate the relationship between personality factors and rate of scoring in ESP. In 1938 he reported an experiment involving a comparison of tempo rates of card matching and their effect on ESP scores (49). In 1941 (47) he presented a report on the role of "affectability" in ESP; that is, the extent to which a subject's estimate of his success in a given ESP run is affected by his knowledge of the score he has just previously made.

In 1946 Stuart (52) published an interest inventory consisting of a list of 60 items. Subjects were asked to check each item on a 5 point scale which varied from "like it very much" to "dislike it very much." The list, which included events, subjects, and objects commonly of interest to college students, was administered to subjects before they participated in the experiment. The 24 subjects each made four free drawings of four concealed stimulus pictures. Among the interest inventory items were four which were closely related to the stimulus pictures, in order to investigate whether the subject's specific attitude towards the topical stimulus pictures influenced the degree of drawing success.

These clairvoyance drawings were then scored by the preferential matching method, developed by Stuart; this will be described in a later section. The total ESP scores of the drawings in all series was significant, but only one non-significant series is reported in this 1946 paper. The scores made on the individual stimulus pictures were grouped according to the five attitudes reported on the corresponding interest items. There was no evidence, however, that the subject's attitude towards the topic of the stimulus picture had any influence on his degree of drawing success.

Stuart then separated the total interest test scores into two groups, those which fell near (mid-range) and those which deviated considerably (extreme) from the mean. In his 1941 research Stuart (47) had judged his subjects to be "affectable" or "unaffectable" on the basis of their "level of aspiration" scores, with "affectable" subjects scoring virtually at chance, and "unaffectable" subjects scoring positively. In this 1946 paper, Stuart equated "affectability" with range of interest; that is, he considered the extreme group as the "affectable", and the mid-range group as the "unaffectable" subjects.

In the drawing tests the "unaffectable" group scored above, the "affectable" group below mean chance expectation. Neither deviation was statistically significant, nor was the difference between them. In backward displacement, however, the "unaffectable" group had a slight negative deviation and the "affectable" group a significant positive deviation ( $P = .0002$ ). On the basis of these results, Stuart concluded

that the degree of affectability, as assessed on this interest inventory rating, was related to ESP scoring level.

#### *Attempts at Repetition*

In order to see whether Stuart's results could be repeated when applied to other ESP data, Humphrey made an analysis of 16 series of clairvoyance card tests (15); subjects for 8 of these series had been classified as "mid-range" or "extreme" by Stuart before his death, and the subjects in the other 8 series had been classified by Humphrey.

In the 8 Stuart series, the mid-range group showed an insignificant positive deviation and the extreme group a significant negative deviation ( $P = .002$ ). The CR of the difference between the two groups was also significant ( $P = .001$ ). In the 8 Humphrey series, the mid-range group again had an insignificant positive deviation but the extreme group had only an insignificant negative deviation; the CR of the difference was also insignificant. When the 2 series were pooled, the positive deviation of the mid-range group was suggestive ( $P = .04$ ), and the negative deviation of the extreme group was significant ( $P = .01$ ). The CR of the difference between the two groups was significant ( $P = .001$ ). There was no evidence of significant backward displacement associated with either group in these card series, as there had been in the original Stuart drawings series, although the scoring trends were similar.

When a difference between average ESP run scores is related to a difference between personality classifications, it is possible that the scoring difference may be largely attributable to the influence of a few atypical subjects. The proper method of evaluation for testing ESP differences between personality groups, therefore, as has been pointed out by R. H. Thouless (54), is a contingency table showing the number of subjects scoring above and below chance for each group. The consistency of the group scoring can then be evaluated by the chi-square method. Whenever possible, in this review the results have been presented in the form of such contingency tables.

When the above method of analysis was applied to the Stuart series, it was found that the  $X^2$  value was significant ( $P = .01$ ). The Humphrey series, however, gave an insignificant value of  $X^2$ . The results of the pooled series are shown in Table 3.

Table 3

ESP Scoring Levels of Midrange and Extreme Interest Groups	Subjects Scoring	Subjects Scoring	Totals
	above Chance	at or below Chance	
Midrange	127	131	258
Extreme	100	159	259
Totals	227	290	517

$$X^2 = 5.91 \text{ (1 d.f.)}$$

$$P = .02$$

As can be seen in Table 3, the results cannot be attributed to the scores of a few atypical subjects. Consistent scoring trends were character-

istic of groups of subjects, although in this case, most of the effect was contributed by the extreme subjects.

In a later article (19) Humphrey reported that she continued to apply the interest inventory in other series, although generally in combination with other personality measurements. Analysis of approximately 3,400 card runs, obtained from nearly 900 subjects tested in 32 experimental series, indicated that the difference between the average ESP scores of the midrange and extreme groups was significant ( $P = .0004$ ). At the time of this article (1951), the analysis of group consistency for the 32 series had not been completed.

G. W. Caspar (5) administered the Stuart Interest Inventory to 146 subjects of Heidelberg College in Ohio. Each subject individually completed 2 GESP and 2 BT runs. Caspar found no relationship between ESP scores and scores on the Interest Inventory, although it was not reported whether the trends were similar to those in earlier work.

In 1950 Humphrey reported a new form of the Stuart Interest Inventory (17). She item-analyzed the original 60 items of the inventory by comparing the way groups of high and low scoring ESP subjects answered the items. From the original list of 60, the 14 judged to be most predictive of high and low ESP scores were selected.

These fourteen items were thus empirically derived from three of the sixteen clairvoyance card series previously mentioned (15). From the distribution of scores on the 14-item scale it was predicted that subjects whose total interest score on the abbreviated scale was eight or higher (high) would have a positive deviation, and subjects with total scores of seven or below (low) would show a negative ESP deviation.

The fourteen-item scale was then applied to the remaining 13 card series. There was a deviation of +90 for the 185 predicted high scoring subjects and a deviation of -101 for the 241 predicted low scoring subjects. The CR of the difference was significant ( $P = .004$ ). The highly significant chi square derived from the contingency table shown in Table 4 indicates that the scoring trends were consistent.

Table 4  
ESP Scoring Levels with "High" and "Low" Interest Groups

	Subjects Scoring above Chance	Subjects Scoring at or below Chance	
"High" Subjects	99	86	185
"Low" Subjects	83	158	241
Totals	182	244	426

$$X^2 = 15.56 \text{ (l.d.f.)}$$

$$P = .00008$$

However, in a later review article (19) Humphrey mentions that the 14-item scale was applied to 16 additional series "with rather disappointing results." A detailed analysis of these series is not available. The trend shown in previous series did not hold up, and the difference between the two groups for all 29 pooled series was only marginally significant ( $P = .03$ ).

### *Summary of ESP and Interest Ratings*

The successful discrimination between high and low scoring ESP subjects on the basis of ratings on both the full Interest Inventory and on the restricted 14-item scale, which was reported by Stuart and Humphrey in earlier investigations, did not hold up as well in the later series. The results of these later series, however, are not published in their entirety, but are merely briefly mentioned by Humphrey in a review (19). Whether this decreased efficiency reported was in fact due to the lack of a real relationship between interest ratings and ESP scoring level, or whether it was due mainly to widely differing psychological conditions, such as number of runs per subject, or type of ESP test, which obtained during the later series, cannot be determined from the information available.

Inspection of the items of the full scale indicate that they cover fairly well the full range of student activity and interest. Stuart equated "affectability" with range of interest; this fact, added to the pervasiveness of the scale, seems to indicate that mid-range subjects may be those who are moderate in their interests and who maintain a reasonably temperate attitude towards their environment.

Inspection of the 14 items of the restricted scale, however, suggests that they measure what could be loosely described as "social adjustment"; perhaps it would be more correct to say that the scale is heavily weighted in favor of the more social or extravertive activities. The two scales appear to be measuring somewhat different factors, and it would seem essential to analyse the scales against established criteria in order to get at what each scale basically is measuring. Without information so secured, we can merely conclude that although both scales, to a different degree, separate high and low ESP scorers, the personality traits concerned in this differentiation remain in doubt.

## INTROVERSION-EXTRAVERSION AND ESP SCORING

Humphrey first reported an ESP investigation utilizing the Bernreuter Personality Inventory in 1945 (13). The ESP data were obtained from the Earlham College Series I (GESP), the Chutes Series (clairvoyance), and the Humphrey-Pratt Precognition Series. In all there were 55 subjects; Bernreuter ratings on 6 personality traits—neurotic tendency, self-sufficiency, introversion, dominance, self-consciousness, and non-gregariousness—were correlated with ESP average run scores. For the precognition series, the CR of the difference between the second and third quarters of the record page was taken as the measure of ESP. None of the correlations between Bernreuter ratings and ESP scoring was significant; subjects who were stable, extraverted, dominant, and self-confident, however, tended to score positively, while subjects who displayed the opposite characteristics tended to score negatively.

Humphrey (16) later utilized these findings with the Bernreuter to determine a cut-off point on the scale which would be predictive of high and low scoring ESP subjects. From the Earlham Series, 14 subjects were judged to be extraverted or introverted on the basis of whether they scored above or below the 50th percentile. The 10 extraverts had a highly significant positive deviation ( $P = .00003$ ) while the four introverts scored at chance. The CR of the difference between the mean ESP scores for the two groups was marginally significant ( $P = .03$ ).

Table 5  
ESP Scoring Levels of Extravert and Introvert Groups

	Subjects Scoring above Chance	Subjects Scoring at or below Chance	Totals
Extraverts	14	5	19
Introverts	5	16	21
Totals	19	21	40

$$X^2 \text{ 8.05 (1 d.f.)}$$

$$P = .005$$

On the basis of these results it was predicted that subjects scoring above the 50th percentile on the Bernreuter scale would score significantly higher on ESP card tests than those who scored below the 50th percentile.



The two series on which the prediction was tested were the Pratt-Humphrey Precognition and the unpublished Lawrence Clairvoyance Series. In the Pratt-Humphrey series, the ten extraverts had a deviation of +56, and the nine introverts a deviation of -34. The CR of the difference was significant ( $P = .02$ ). In the Lawrence series, the 9 extraverts made a deviation of +48, the 12 introverts a deviation of -18. The CR of the difference was non-significant ( $P = .08$ ). The total of 19 extraverts from the two series made a deviation of +104, and the 21 introverts a deviation of -52. The CR of this difference was significant ( $P = .005$ ).

As shown in Table 5, the consistency of this separation was significant ( $P = .005$ ) with 74 per cent of the extraverts scoring above chance and 76 per cent of the introverts scoring at chance or below.

#### *Attempts at Repetition*

Caspar (5) administered the Bernreuter Inventory to 20 subjects and obtained 2 GESP and 2 BT runs from each. He classified his subjects as extraverts or introverts on the basis of whether they scored above or below the 50th percentile on the scale. The extraverts had a deviation of +26, and the introverts a deviation of -18. The CR of the difference was suggestive ( $P = .03$ ). Eight of the fourteen extraverts scored above chance, but none of the six introverts did. When evaluated by the exact method, the results are significant ( $P = .02$ ).

Although only two studies have been reported with the Bernreuter, it appears to be a very promising research tool. In both studies, high and low scoring ESP subjects were separated with a high degree of consistency.

In the Nicol and Humphrey study (27) correlations were obtained between ESP scores (Known and Unknown runs) and two measures of introversion-extraversion. Factor T of Guilford's STDCR Inventory is called Thinking Introversion-Extraversion. The thinking introvert is given to reflective thinking and analyzing himself and others, while the opposite holds true for the thinking extravert. The correlations between Factor T and the known ESP scores was +.10, with the Unknown scores +.37,\* and with total ESP scores +.33.

Factor S of this same test is called Social Extraversion; it correlated +.29 with Known ESP scores, +.21 with Unknown scores, and +.34 with total ESP scores. None of these correlations was significant, but a significant correlation (+.54\*\*) was found between Social Extraversion and Self-Confidence (Factor I) and a suggestive correlation (+.37\*) was found between Thinking Extraversion and Self-Confidence. The latter correlations have value in this study. Self-confidence was found to be the factor most highly correlated with total ESP score ( $r = .55^{**}$ ). A person with a high score on Factor S is characterized as being social, as one who tends to seek social contacts and enjoys the company of others, while low scores indicate shyness and seclusiveness.

#### *Summary of Introversion-Extraversion and ESP Scoring Levels*

In all the studies reviewed in this section, it was found that extraversion was associated with higher ESP scores than introversion. This factor, or more precisely, the scales on which this factor is measured, separated out high and low scorers with a high degree of consistency. Unfortunately, however, it is not clear which aspects of behavior are included under the term extraversion, and for evaluative purposes it would seem essential to have more specific information on the factors underlying this broad

comprehensive category. Part of the difficulty lies in the fact that single dimension scales, such as Bernreuter, may not give a pure measure of the factor, and it is uncertain to what extent it can be identified with such factors as, for example, social and thinking extraversion on the Guilford questionnaire.

An alternative has been to use a multiple trait scale, such as the Guilford-Martin or Cattell, where all the overlapping material of a number of highly correlated traits, which together should give a progressively better estimate of extraversion, is utilized, and by the use of regression analysis, to correct for the degree of overlap between the various traits. This method has been used with some success by Nicol and Humphrey, and the direction is a promising one. Some clarification of the components of extraversion is necessary, however, before further work along these lines would have much value.

## EXPANSION-COMPRESSSION RATINGS AND ESP SCORING

In 1942, while at Stanford University, Stuart (51) developed a technique for judging similarities between four concealed target pictures and the drawings made by a subject attempting to reproduce the pictures. This technique, called the preferential matching technique (PMT), was used by Stuart to analyse the large collection of drawings he obtained at Stanford; the latter provided the data to which the expansion-compression ratings were applied.

Paula Elkisch (8) has devised a projective test which utilizes the form qualities of children's drawings. Certain features of the drawings are considered to indicate neurotic trends, and these features are measured in terms of four criteria: rhythm-rule, complexity-simplexity, integration-disintegration, and expansion-compression (E-C). The E-C criterion was the only one which subsequently proved successful in discriminating high and low scoring ESP subjects.

Elkisch defines expansion and compression as follows: "Expansion stimulates the imagination dynamically. It conveys an atmosphere of freedom, courage, adventure, and may be a symptom of vitality and of healthily developed extraversion. Expansion stands for a direction toward the surrounding world; for the potential ability of making contact. . . Compression conveys a feeling of discomfort, of being shut in, of pressure and compulsion. Compression may be, if connected with other traits, a symptom of a neurotically developed introversion, even of a compulsion-neurosis. Compression stands for isolation."

Certain aspects of expansion-compression can be fairly objectively described. For example, in making drawings, the compressives use only a small amount of the available space, their drawings are cramped and badly proportioned, lines are light and feathery, they use too many conventional forms—houses, boats, etc. By means of these characteristics it is possible to make an overall assessment of expansion-compression.

### *Drawing Tests*

In the first reported E-C research, Humphrey (20) in 1946 used the data from four series of clairvoyance drawings obtained by Stuart. Of the 96 subjects involved, 41 were rated expansive and 55 compressive. The drawings from each group were scored by the preferential matching technique. With mean chance expectation at 40.0, the mean ESP score for the expansive group turned out to be 41.88, for the compressive group only 37.45. The difference in average scoring level between the two groups has a significant value ( $P = .003$ ).

Although there was no significant overall deviation in his data, Stuart had found significant backward displacement ( $P = .003$ ) which had been the main ESP effect. Displacement data were not available for one series, but a comparison was made between backward displacement scores of the expansives and compressives on the remaining series.

With mean chance expectation 30.0, the 39 expansives had a mean score of 29.54 and the 33 compressives a mean score of 35.39. The difference between the scores of the two groups was highly significant ( $P = .0001$ ).

Following this successful discrimination using clairvoyance drawings, Humphrey applied the same technique to GESP drawings (21). She used the data of the Stuart Stanford Series and the Duke Group and Individual Tests. A total of 176 subjects completed 239 sets of 4 drawings each. With mean chance expectation at 40.0, the score for the expansive group was 38.23, for the compressive group 40.96. The difference in scoring level between the two groups was significant ( $P = .003$ ). Thus the E-C rating made a successful discrimination of high and low scores with GESP drawings. There was, however, a reversal in scoring direction, with the expansives now scoring low and the compressives high.

From these two reports it appears that this form quality, expansion-compression, discriminates high and low scoring ESP subjects in clairvoyance and GESP drawings tests. Whether the expansives or the compressives are the positive scorers, however, seems to be determined by the nature of the ESP test, whether clairvoyance or GESP.

A logical follow-up was the application of the E-C rating to ESP card test results. The first study of this kind was undertaken by Smith and Humphrey (45). The 186 subjects in their experimental group were asked to make drawings in response to an enclosed picture and were then given 2 BT card runs. The total deviation for the 372 card runs was non-significant. The drawings were used only to determine whether a subject was expansive or compressive. A total of 89 subjects were rated expansive, 97 compressive.

The average run score of the expansives was 5.18 and of the compressives 4.79, but the difference between them was not significant. However, since there were 3 classes involved, and each subject completed two sessions, a total of six sessions were involved in the experiment. The expansives had a higher average score in all six sessions, and taking this consistency into account, the difference in average score between the expansives and compressives was significant ( $P = .006$ ).

In a large scale experiment reported in 1947, Stuart, Humphrey, Smith, and McMahan (53) attempted to separate high and low scoring ESP subjects on the basis of E-C ratings in an individual and group series of clairvoyance tests. The 33 subjects of the individual series completed 4 clairvoyance card runs and 4 clairvoyance drawings. Finally, each subject did 4 spontaneous drawings at home. These were obtained only for the purpose of comparing the E-C ratings on drawings made under different conditions.

In the group series, 63 subjects completed 2 clairvoyance drawings, followed by 2 clairvoyance card runs, then a further 2 clairvoyance drawings, all in one session.

The overall results of the drawings tests for the combined individual and group series were non-significant. In the individual series the 13 expansive subjects scored above chance and the 19 compressive subjects below chance, but the difference in average scoring level was not significant. In the group series the 23 expansives again scored above chance and the 40 compressives below chance; the difference in average scoring level was significant ( $P = .01$ ). When the data were pooled, the difference in average scoring level was highly significant ( $P = .0002$ ).

In the card tests the total deviation for the 258 runs was insignificant. There was no significant separation in terms of E-C ratings, although

some trends were indicated. In the individual series the expansives scored above chance, while the compressives scored below chance; this, however, was reversed in the group series.

In her 1946 Pure Telepathy Experiment, E. McMahan (23) used 24 subjects selected by Humphrey, half of whom were judged, on the basis of drawings, to be expansive and half to be compressive. The expansives scored below chance (-15 in 36 runs) and the compressives significantly above chance (+ 40 in 60 runs). The difference between the average score of the two groups was significant ( $P = .005$ ).

A summary of the E-C ratings up to 1948 was made by Humphrey in a Symposium Report (18). The difference in average ESP drawings scores between the expansives and compressives from the six series using clairvoyance drawings was highly significant ( $P = .000003$ ). In six other series in which GESP drawings were used, the difference in average ESP drawing score, though significant ( $P = .003$ ), was not as pronounced as in the clairvoyance series.

The results of three experiments (45, 53, 23) in which the E-C ratings also successfully separated high and low scoring ESP subjects in card tests are reviewed in this article, but Humphrey states that other experiments involving card tests were not as successful as these first series. However, some interesting position effects appeared when the card tests were analysed. In clairvoyance tests the compressive subjects tended to begin below chance on the first run and incline in their scoring level, whereas the expansives have a U-shaped curve of scoring. In GESP tests, the curves were reversed for the two groups. Before going on to a review of the E-C work by other investigators, it should be helpful to summarize the preceding results. This has been done in Table 6; the results are grouped according to type of ESP test.

Table 6  
Results with the E-C Ratings Grouped According to ESP Test

ESP Test	Expansives		Compressives		P of Diff.
	No. Sub.	Ave. Score	No. Sub.	Ave. Score	
Clair. Drawing	41	41.88	55	37.45	.003
Clair. Drawing	36	43.28	59	38.27	.0002
GESP Drawing	78	38.23	98	40.96	.003
Clair. Cards	89	5.18	97	4.79	.006
Clair. Cards	36	5.13	59	4.96	.25
P. Telep. Cards	9	4.58	15	5.66	.005

As can be seen from Table 6, the expansive group scored above chance in all the clairvoyance tests and below chance in both situations where telepathy was possible. The compressive group scored below chance in all the clairvoyance tests, and above chance in telepathy tests. The differences in scoring level between the two groups were more marked when the ESP targets were drawings rather than cards.

Bevan (1) reported a series of ESP tests administered under light and dark conditions. Two GESP and two clairvoyance drawings were

obtained from each of the 12 subjects; significant ESP results were obtained on the GESP drawings, non-significant results on the clairvoyance drawings. 11 of the 12 subjects were compressive in both the GESP situations and the clairvoyance. The 12th was compressive in the GESP and expansive only in the clairvoyance part of the experiment.

When the E-C ratings were compared with the clairvoyance drawing scores, it was found that the expansive subjects scored above chance and the compressive subjects below chance, although the difference was not significant. The positive scoring of the compressives in the GESP situation was significant ( $P = .005$ ) and the difference between the average drawing scores of the compressives in the two ESP situations was also significant ( $P = .01$ ).

When the E-C ratings were compared against the ESP card scores, exactly the same directions of scoring were found, but the results were not significant.

In a later research, Bevan (2) reported results using E-C ratings with 27 subjects. However, from the report it appears that the results from the 12 subjects of the previous experiment are included here. E-C ratings were made by Humphrey on the two GESP and two clairvoyance drawings obtained from each subject. The overall drawings score was non-significant, but with the GESP drawings the mean score of the compressives was higher than that of the expansives, while in the clairvoyance results the reverse relationship was found. Although both these trends were insignificant, they were in line with those found in previous work with E-C ratings.

Caspar (6) reported that the E-C ratings based upon two drawings failed to show any significant relationship to the ESP card scores of 71 subjects.

West (56) also failed to find any significant relationship between ESP card scores and E-C ratings. His 50 subjects each completed four GESP drawings which were rated E-C by Humphrey. When the E-C ratings were compared against the drawings, it was found that both groups had mean scores below chance, with the expansive scores being slightly higher (39.18) than the compressive (39.07). The relationship between E-C ratings and card scores was evaluated by the CR of the difference, chi-square test of consistency, correlation of ESP score with E-C rating, and an analysis of variance technique. No significant difference was found, although the interaction figures in the analysis of variance gave some indication that one personality type scores better on GESP, the other on clairvoyance ( $P = .08$ ).

Kahn (22) had 73 subjects make a clairvoyance drawing which was rated E-C by two judges working together. When the E-C ratings were compared against ESP results (clairvoyance calls of IBM target sheets), it was found that both groups scored above chance, with the expansives having the higher positive deviation. The difference between the two groups was not significant. It should be remembered, however, that the judges were inexperienced, and that the E-C ratings were based on one drawing only.

Nash and Richards (26) obtained E-C ratings for 48 subjects in their PK experiment. The four clairvoyance drawings made by each subject were sent to the Parapsychology Laboratory for judging; 4 subjects were rated expansive and the remaining 44 subjects compressive. The compressives scored slightly above chance on the drawings, the expansives below chance, but the difference was not significant. When the E-C

ratings were compared against PK scores, it was found that both groups scored slightly above chance.

#### *Summary of E-C ratings and ESP scoring*

This review indicates that the E-C ratings were not always successful in separating high and low scoring ESP subjects. The best evaluation of the overall efficiency of E-C ratings is Humphrey's 1951 review article (19). In this she states that in 10 of the 12 clairvoyance drawings series evaluated up to that time, the expansive subjects, as a group, obtained a higher average ESP score than did the compressive subjects. If the probabilities associated with the difference in each series are combined by Fisher's method, the E-C difference, considered in its entirety, was significant ( $P = .005$ ), although the overall ESP results of the series were insignificant.

Humphrey reported that 54% of the 140 expansive subjects scored above chance, while only 42% of the 345 compressive subjects scored above chance. If these percentage figures are evaluated for consistency of group scoring, a significant chi square of 6.03 (1 d. f.) is found ( $P = .01$ ).

In analyzing the GESP drawings, it was discovered that the compressive subjects had a higher average ESP score than did the expansives in eight of the nine series evaluated. Humphrey states that the difference between the two types of subjects for all series pooled is statistically significant, but the method of evaluation is not specified.

There were 29 experiments completed in which clairvoyance card tests and drawings were given each subject. In 17 of these, the expansives made a positive deviation on card tests while the compressives had a negative deviation; in nine experiments this direction was reversed, and in three no difference between the two groups was found. There was a deviation of +62 for the 955 runs of the expansive subjects and a deviation of -51 for the 1949 runs of the compressive subjects; the difference between them was insignificant.

The difference in average run score for the 26 Duke series was of borderline significance ( $P = \text{approx. } .02$ ), while the three non-Duke series showed a non-significant reversal of effect. Another interesting point reported by Humphrey was that the four series in which subjects were tested individually gave a much larger difference than that found in the group-test series.

In these series where the E-C rating was applied to clairvoyance run scores, the psychological conditions varied widely from series to series. The E-C rating was based on one drawing in some series, on two drawings in others; sometimes four drawings were used. The ratings were administered before the card runs in some of the series, in others after the runs.

On the basis of her experience, Humphrey suggests that the E-C rating is not dividing subjects according to whether they will score positively or negatively, but rather according to the type of hit distribution they will give. Although compressive subjects as a group gave negative ESP scores, closer analysis of the results revealed that this score was due to the bad beginning and that compressives are quite capable of making high positive ESP scores after they are "warmed up".

It was also observed that an individual's drawings may change from expansive to compressive within a single session, or between sessions, with the ESP scores tending to reflect these changes. The E-C ratings therefore appear to be indicative of the subject's temporary mood.

## ADJUSTMENT RATINGS OBTAINED FROM QUESTIONNAIRES AND ESP SCORING

Although projective techniques such as the Rorschach test are generally used to assess an individual's level of adjustment, there are several personality inventories and questionnaires which can be given to obtain an overall adjustment index or to measure factors which are closely related to adjustment. An example of the latter is the Maslow Security-Insecurity Questionnaire.

A short form of the Maslow Security-Insecurity Questionnaire was used by Smith and Humphrey (45) in an experiment discussed earlier. The secure subjects averaged 5.11 in 190 runs, the insecure subjects 4.71 in 166 runs; the difference between the mean scores, however, was not significant.

A later article by Stuart, *et al* (53), reports the results of the Maslow Test when applied to drawings and card scores. In the Individual Series of this experiment, the secure subjects had a slightly more positive deviation on the drawings than the insecure subjects, while in the Group Series the insecure subjects scored above chance and the secure subjects below chance. None of these differences in average drawings score was significant. The differences on the card tests for the two series were also insignificant, with the secure subjects obtaining an average run score of 5.07 and the insecure subjects an average of 4.90.

The Heston Personal Adjustment Inventory was used by Kahn (22) to obtain an overall index of adjustment based upon an average of the decile scores for each of the six trait scales making up the test. He reported that the majority of subjects who were above average in adjustment obtained positive deviations and the majority of subjects below average obtained negative deviations. The scoring trend for the 47 subjects involved was consistent at a suggestive level ( $P = .04$ ).

Rivers (30) administered the Mental Health Analysis to 36 high school students and a college group of the same size. She found that in the high school group the subjects who showed relatively marked "behavioral immaturity", "feelings of inadequacy", and "emotional instability", gave higher scores on the clairvoyance tests, but that these factors had only a very slight relationship to the GESP results of the high school group. None of the mental health ratings showed any relation to the ESP scoring level of the college subjects.

Although in the Nicol and Humphrey study (27) no specific adjustment rating was derived from their battery of personality questionnaires, several correlations having a  $P$  value of .03 or smaller were found with personality factors which could be considered as related to mental health or adjustment. Among those factors which were positively correlated with ESP scoring were freedom from depression, rathymia (happy-go-



lucky disposition), freedom from nervous tension, emotional stability, calm trustfulness, and low irritability level.

*Summary on Adjustment Ratings from Questionnaires and ESP Scoring Levels*

With the exception of Rivers' study, the results of the research included in this section all point toward the conclusion that higher ESP scores are obtained by subjects possessing the personality characteristics generally included under the label of "good personal adjustment." Whether well-adjusted subjects score higher because of greater cooperation, quicker adaptation to the experimental situation, better ability to establish rapport with the experimenter, freedom from personal inhibitions, some combination of these factors, or other unsuspected factors is a matter for further research.

## COMBINATIONS OF PERSONALITY CORRELATES AND ESP SCORING LEVEL

Some of the researches reviewed up to this point were concerned with the relationship between ESP scoring level and a combination of two or three personality measurements. These combined results were not discussed previously, however, as it seemed more appropriate to deal with the various measurements singly, before proceeding to a consideration of any combination of them.

This section will be devoted primarily to the summarized results of the relationship of these combined personality measurements to ESP scoring level.

In a review article Humphrey (19) points out that a greater difference in average score was obtained for combined mid-range-high versus extreme-low ratings on the Interest Inventory than was obtained when either rating was considered separately. The difference in average scoring level between these combined groups was highly significant ( $P = .0005$ ) and represents the pooled results from 29 clairvoyance card series.

Expansion-compression ratings were also available for 16 of these 29 series and the difference in average scores between the expansive-mid-

Table 7  
ESP Scoring Levels of Triple Personality Groups

	Subjects Scoring above Chance	Subjects Scoring at or below Chance	Totals
Expansive Midrange High	26	18	44
Compressive Extreme Low	36	78	114
Totals	62	96	158

$$\begin{aligned} X^2 &= 10.09 \\ P &= .003 \end{aligned}$$

range-high group and the compressive-extreme-low group was even more pronounced, but because of the fewer number of subjects involved, the difference was not as significant ( $P = .002$ ). The results for this triple combination of personality measures was also evaluated for group

consistency by the usual chi square method and found to be significant ( $P = .003$ ). The contingency table is shown in Table 7.

There was one study in which a combination of personality measures was used when drawings were the ESP targets (53). The highest average score was obtained by the expansive-secure subjects (43.93) and the lowest average score by the compressive-secure subjects (36.81). The difference between these scores was significant ( $P = .0007$ ). The difference in average score between the expansive-insecure and the compressive-insecure subjects was suggestive ( $P = .05$ ).

In three studies (23, 45, 53) this same personality combination was also applied to ESP card scores. The pooled results of the two studies in which a clairvoyance technique was employed shows an average score of 5.26 for the 136 runs of the expansive-secure subjects, and 4.61 for the 168 runs of the compressive-secure subjects. The CR of the difference between these two scores was significant ( $P = .005$ ). In the earlier (45) of these two reports, the authors point out that in all six classes, which together made up the experiment, the expansive-secure subjects had a higher average score than the compressive-secure subjects. If the results are corrected for the fact that six cases out of six gave results according to hypothesis, results are significant ( $P = .003$ ).

An interesting reversal was found in the series (23) where a "pure telepathy" technique was employed. In this series, there was an average score of 4.50 for the 28 runs of the expansive-secure subjects and 5.85 for the 40 runs of the compressive-secure subjects. The CR of the difference was significant ( $P = .003$ ). This is, of course, in line with the E-C results, where the direction of scoring is reversed from the clairvoyance to the GESP situation.

In the Nicol and Humphrey study (27) it will be recalled that a battery of four personality questionnaires was administered to 36 subjects who completed 8 clairvoyance runs under unknown conditions (knowledge of results after each run) and eight clairvoyances runs under known conditions (knowledge of results after each trial).

It was found that self-confidence correlated  $+.55^{**}$  and emotional stability  $+.47^{**}$  with total ESP score. There was some inter-correlation between these two measures ( $r = +.30$ ); in combining them, therefore, a multiple correlation technique was used which eliminates the correlation between the two variables. This multiple correlation between self-confidence plus emotional stability and ESP score ( $R = +.65$ ) was highly significant ( $P = .0006$ ).

The authors also computed regression coefficients for each factor. By using these regression coefficients it was possible to derive an equation for predicting an individual's ESP score when his self-confidence and emotional stability scores were known. The use of the two measures together gave a much better prediction of scoring level than either measure considered separately and indicated that in general the predicted group scores agreed with the observed. When considered individually, however, it is apparent that in some cases, the predicted scores deviated sharply from the observed scores.

An interesting effect pointed out in this study was that the magnitude of the self-confidence correlation was related to the number of runs involved in the testing session. Thus, when self-confidence scores were correlated with the total ESP score of the first four runs in the session, the correlation was  $-.10$ ; after eight runs it was  $+.22$ , after 12 runs  $+.42$ , and after 16 runs  $+.55$ . This same effect was also found in Hum-

phrey's study on introversion-extraversion (16), and raises the question of the optimal number of runs to be used in studies utilizing personality measurements.

In a later study, based upon data gathered in the 1952 study and a later 1953 series, Nicol and Humphrey (28) attempted to discover whether subjects could correctly identify successful ESP calls. Subjects were requested to place a check mark beside each call which they felt was a hit. This, of course, was done before the subject was informed of his success. The method used to evaluate whether an awareness of ESP had been demonstrated was to compare the proportion of checked hits against checked misses.

The authors reported that the 34 subjects represented in the pooled Unknown runs were successful in identifying correct calls to a very significant degree ( $P = .0003$ ). This effect did not hold up for the 22 subjects represented in the Known runs. Since only the Unknown runs gave significant results, these alone were considered when the attempt was made to discover if "conviction of success" was related to personality factors.

Only those subjects who gave an average of five to ten checks per run were included in any of the statistical evaluations. The checking success of the confident and unconfident subjects were compared, and it was found that the 17 unconfident subjects had a significant ( $P = .0006$ ) excess of checked hits over misses; the checking success of the 12 emotionally unstable subjects was also highly significant ( $P = .002$ ).

On the surface, these findings appear to have considerable theoretical importance. If, on the basis of personality tests, certain groups of subjects could be selected who "sometimes know when they're right," the progress of ESP research would be considerably advanced. However, there are certain criticisms which can fairly be leveled at the experimental procedure. For instance, it seems questionable to include only subjects having an average of 5-10 checks per run in the overall evaluation. Because of the well-known bias resulting from atypical scores in computing an average, it would appear that a more appropriate measure of central tendency, such as the mode, might have been employed to select subjects. An interesting comparison would have been to present the overall evaluation in terms of all runs having 5-10 checks, rather than making the subject the basic unit.

Another point deserving attention is that there appears to be some grounds for assuming that checking behavior *per se* is a function of self-confidence. Since the authors mention that quite persistent urging and coaxing was resorted to in an effort to obtain the desired 5-10 checks, it seems reasonable to assume that subjects who were unresponsive to such prodding could be considered as lacking in confidence. Yet it was these same "unconfident" subjects who were excluded from consideration when the role of confidence upon checking success was investigated.

#### *Summary on Combined Personality Measures and ESP*

In all the reports reviewed in this section, a higher degree of separation was obtained between subjects when combined rather than single personality measures were used. This suggests that the expression of ESP may be dependent upon a number of personality factors working in combination and that the most profitable method of selection for obtaining high and low scoring ESP subjects would be to use a battery of personality tests rather than single measures.

Some of these reports also give indications that through the use of combined personality measures and more refined methods of statistical analysis, it may be possible to show a relationship between personality characteristics and *amount* of ESP, rather than merely *sign of deviation*, as has been found in studies employing a single personality measure and a simple statistical evaluation.

## ATTITUDES OF BELIEF AND ESP SCORING LEVELS

The most active worker investigating the relationship of belief in ESP to ESP scoring level has been Dr. Gertrude Schmeidler. In her first report (37) on an investigation in this area, Schmeidler stated that on the basis of an individual interview, she classified her subjects as believing in the possibility of ESP (sheep) or as rejecting the possibility of ESP (goats). The sheep classification was also used to include those subjects who were undecided about the possibility that ESP exists.

After the subjects had been classified according to attitude, different testing environments were then provided for the two types of subjects. The goats were placed in a darkened room, and were required to finish as many as 50 runs per testing session with no rests between runs or periodic knowledge of results. On the other hand, the sheep had pleasant working conditions, were given refreshments, and a break between each of the ten runs in the testing session.

Three series of clairvoyance card tests were carried out in which the sheep and goats were tested under these different experimental conditions. The next article (38) reports that the average score from the 389 runs of the sheep for the 3 pooled series was 5.31 while the average score from the 574 runs of the goats was 4.94. The positive deviation of the sheep was significant ( $P = .001$ ) but the negative deviation of the goats was not significant.

Since the sheep and the goats were deliberately exposed to very different experimental conditions, no conclusions about the extent of the relationship between the attitude to ESP and scoring level can be drawn, since the possible effects of unspaced versus spaced runs, knowledge of results, attitude of the experimenter, etc., could also have accounted for the differences in scoring level between the sheep and goats. The results of these three series, therefore, are not included in any subsequent statistical evaluations made in this paper regarding the sheep-goat classification. It seems more appropriate to view these as providing the background data from which the hypothesis was formulated that the average run score of the sheep would be to a statistically significant degree higher than the average run score of the goats. All later work can then be considered as providing an independent check upon the validity of this hypothesis.

### *Later Series*

In all experiments included under this heading, the sheep and goats were tested under identical conditions. Almost all of the subjects were college students, and all were tested by a clairvoyance technique. The number of runs per subject varied from eight to eighteen. The interested reader can find a full description of each experimental series by

looking up the appropriate reference. However, for the general reader, a very brief description of each series will be given here. In series 4, 5 and 6, subjects were tested individually but in all the remaining series subjects were tested in a group setting. The fall 1945 series was the first in which personality tests were also administered to subjects. There were 11 series in which Rorschach data were obtained and results were reported for subjects both with and without Rorschach material. A series was also completed to check upon the comparison between Rorschach scorings by different workers. The Duke series was carried out by Schmeidler at Duke University. A review article presented summary data from 27 group Rorschach experiments; and if the 1945, 11 group Rorschach series, the Rorschach comparison series, and the Duke series are subtracted from this total of 27 experiments, 13 group Rorschach series remain. In one series the Allport-Vernon Study of Values (AVSV) was administered, and in another the Rosenzweig Picture-Frustration (PF) test was used.

These series are summarized in Table 8, which represents all of Schmeidler's published reports containing data on the sheep-goat classification. Some of the figures found in this table had to be extrapolated from other reports as they were not available in the original

Table 8  
Sheep-Goat Data Arranged by Series

Series Description	Reference Number	Sheep			Goats			
		No. S's	No. Runs	Dev.	No. S's	No. Runs	Dev.	
4	44	9	162	+34	3	54	-41	
5		23	207	+45	3	27	-23	
6		19	171	+27	16	144	-26	
Spring '45	39	35	319	+52	38	344	-63	
Fall '45		10*	89	+32	8*	65	+2	
11 Gr. (No Rsch.)	41	29	255	+9	24	217	-21	
11 Gr. (Rsch.)	41	117	1049	+111	133	1197	-127	
Rsch. Comp.	31	73	657	-17	11	99	-35	
Duke Gr.	33	27	243	-44*	7	63	+4*	
13 Gr. (Rsch.)	32	107	962	+205	86	781	+37	
AVSV	35	64	504	+151	58	455	-32	
P-F	36	162	1250	+200	104	831	-61	
<b>Totals</b>			675	5868	+805	491	4277	-386
<b>Difference</b>			<b>Sheep</b>			<b>Goats</b>		
Mean Diff. =	.227	Mean Score =	5.137	Mean Score =	4.910			
CR Diff. =	5.67	CR =	5.25	CR =	2.95			
IP =	.00000001	IP =	0000001	IP =	.002			

\*extrapolated figures

article. Due to this limitation, there may be some slight discrepancies between these figures and those which could be found from an analysis of the original data. It must also be pointed out that the various totals in Table 8 are based upon the work Schmeidler has thus far reported. Since she has continued her investigations and gathered additional data

since the time of her last published article, any future summarization of her work will probably have total figures differing from those of Table 8.

### *Statistical Evaluations*

The positive deviation obtained by the sheep was very highly significant ( $P = .0000001$ ). The negative deviation obtained by the goats was significant ( $P = .002$ ), but not to such a marked degree. The difference in average scoring level between the the two groups has a CR of 5.67 which is also very highly significant ( $P = .00000001$ ). All these probability values are one-tailed, since the direction of scoring was predicted from the first three series which are not included in Table 8.

Inspection of Table 8 also reveals that in 11 of the 12 series, the sheep scored higher than the goats. If this pattern of success is evaluated by the use of the binomial expansion  $(\frac{1}{2} + \frac{1}{2})^{12}$  the odds are over 300 to 1 that chance is not the explanation for this consistently higher scoring by the sheep from series to series.

When the consistency of the group scoring levels is evaluated in a two by two contingency table, a significant chi-square value is obtained ( $P = .0004$ ). Only a one-tailed probability is reported, the rationale for this being the same as for the evaluations mentioned above. The figures which were combined to construct the contingency table shown in Table 9 were gathered from several articles containing information regarding the scoring levels of the sheep and goats, but no chi-square evaluation of Schmeidler's data had been published previously. The total number of subjects included in Table 9 is slightly fewer (53 subjects) than the total from Table 8, since no breakdown of scoring level was available for subjects who had not completed the Rorschach Test in the 11 group Rorschach series.

Table 9  
ESP Scoring Levels of Sheep and Goat Groups

Group	Subjects Scoring above Chance	Subjects Scoring at or below Chance	Totals
Sheep	346	300	646
Goats	203	264	467
	549	564	1113

$$X^2 = 11.043$$

$$1P = .0004$$

### *Sheep-Goat Data of Other Workers*

There have been several attempts to repeat Schmeidler's findings utilising the sheep-goat classification, but almost all of these investigators have attempted to refine these categories and obtain a wider range of attitudes. Schmeidler herself in one series (31) divided her sheep into sheep+, sheep?, and sheep — groups. The mean score of the 144 runs of the sheep + was 5.10, of the 270 runs by the sheep ? 4.97, and from the 261 runs of the sheep — 4.96.



Bevan (2) divided his college subjects into three classifications called sheep, indecisives, and goats. There were 10 subjects in each of these groups, and each subject completed 6 clairvoyance and 6 GESP runs in an individual setting. The attitudinal rating was made on the basis of answers to oral questions and to a written questionnaire.

The average run score on the combined clairvoyance and GESP runs for the sheep was 5.39, for the indecisives, 5.57, for the sheep and indecisives combined 5.47, and for the goats 5.02. The only independently significant deviation on total score was obtained by the indecisives ( $P = .002$ ), and the difference in average score between the sheep and goats was not significant. However, if only the clairvoyance runs are considered, the average run score for the sheep was 5.69, for the indecisives 5.24, and for the goats 4.82. In the clairvoyance situation, the only independently significant deviation was obtained by the sheep ( $P = .01$ ), though the difference in average score between the sheep and goats was also significant ( $P = .02$ ). An interesting secondary effect found in Bevan's data was that the sheep maintained a constant incline in scoring throughout the three sessions of the experiment ( $-3, +21, +26$ ), while the indecisives had a consistent decline ( $+32, +24, +10$ ), and the goats had a very slight decline ( $+4, +1, -3$ ).

Caspar (6) also grouped college subjects into sheep, indecisive and goat categories on the basis of an interview. 146 subjects each made 2 clairvoyance and 2 GESP runs in an individual setting. The average run score for the 81 sheep was 5.16, for the 52 indecisives 4.70, for the sheep and indecisives combined 4.98, and for the 13 goats 4.85. The only independent deviation which approached statistical significance was that obtained by the indecisives ( $P = .03$ ). The difference in average score between the sheep and goats was not significant.

Eilbert (7) had acquaintances and strangers complete 5 clairvoyance runs in an individual setting. On the basis of an interview, subjects were rated according to their degree of acceptance of ESP and placed in one of five attitudinal categories.

The three subjects rated as "believes in ESP and thinks he will do well in this experiment" had an average run score of 5.53, and the 11 subjects rated as "believes in ESP but doubts that he will do well in this experiment" had an average score of 5.60. Subjects in both these categories were considered sheep. The other categories had average scores very slightly below chance. One of these categories was for subjects who gave either irrelevant or contradictory responses. The difference in average score between the sheep and goats (reject ESP completely) was significant ( $P = .02$ ). The deviation of the sheep was independently significant ( $P = .007$ ).

Kahn (22) carried out ESP experiments in which the subject attempted to clairvoyantly perceive the spatial location of targets on IBM sheets. 22 college students and 52 volunteers each made 300 calls in a group setting (Series 3 and 4). The question used to determine the subject's attitude was, "Do you think that extrasensory perception is theoretically possible: (1) in this particular experiment (yes, no), (2) under other circumstances (yes, no)? The 62 sheep who thought ESP was "possible here and elsewhere" had a deviation of  $+42$ , the 4 goats who thought ESP was "impossible anywhere" had a deviation of  $-9$ , and the 8 subjects who thought ESP was "impossible here only" had a deviation of  $+22$ . None of the individual deviations was significant, nor was the difference in average score between the sheep and goats significant.

Van de Castle and White (55) reported an experiment carried out by Petrof under their supervision. High school subjects were grouped into sheep, goat, and conflict categories on the basis of their answers to a series of incomplete questions about ESP. The latter group was called the "conflict" group because these subjects expressed positive attitudes towards some aspects of ESP and negative attitudes toward others, so that their overall reaction on the possibility of ESP seemed to be one of ambivalence. Subjects completed 8 clairvoyance runs in a group setting. The average run score for the 18 sheep was 5.09, for the 10 goats 4.77, and for the 11 conflict subjects 4.86. None of the individual deviations was statistically significant nor was the difference between the average scores of the sheep and goats significant. However, when an analysis was made of the consistency of the sheep and goats scoring levels, a significant chi-square value was obtained by the exact method ( $P = .01$ ).

A study which has some bearing on the sheep-goat classification was reported by Woodruff and Dale (57). 50 paid female subjects, mostly college students, completed 40 clairvoyance runs in an individual setting and took an attitude questionnaire. Most of the questionnaire items were not discriminating because the subject's responses tended to cluster so closely together that practically no variation was present. A possible reason for such a test reaction might have been that the subjects volunteering for this study were not very much interested in the experiment itself, but were more interested in the financial remuneration, and therefore tended to respond to the question in a fashion they hoped would create a favourable impression on the experimenters.

Table 10  
Sheep-Goat Data of Other Workers

Experimenter	Type of ESP	Sheep			Indecisive			Goats		
		No. Subj.	No. Runs	Dev.	No. Subj.	No. Runs	Dev.	No. Subj.	No. Runs	Dev.
Bevan	GESP Cl	10	116	+44	10	116	+66	10	120	+2
Caspar	GESP Cl	81	324	+51	52	208	-63	13	52	-8
Eilbert	Cl	14	70	+41	23	115	-2	4	20	-2
Kahn	Cl	62	733	+42	8	95	+22	4	48	-9
Petrof	Cl	18	144	+13	11	88	-12	10	80	-18
Woodruff	Cl		460	+20				1500	+35	
and	Cl		1040	-3				920	+58	
Dale	Cl		1500	-9				460	+64	

Probably the only conclusion which can be drawn from this study is the one advanced by the authors themselves. "Our data do not readily lend themselves to a sheep-goat analysis of the type reported by Schmeidler and Bevan, since we had very few subjects who gave either a very positive

or a very negative response to the questions. 'Do you believe in the existence of ESP?' and 'Do you believe you possess ESP abilities?' If we split our group into high-low categories, neither category including many subjects with very positive attitudes, one way or the other, we find that our results do not substantiate those obtained by Schmeidler and Bevan."

The results of these others workers' published data bearing on the sheep-goat classification are collated in Table 10.

Inspection of Table 10 reveals that in 5 out of 6 cases, the sheep had higher ESP scores than the goats; that the sheep, with one exception, had positive deviations, while all the goats, with 2 exceptions, had negative deviations. The non-sheep non-goat subjects who, for convenience and for comparative purposes have been lumped together as indecisives, had deviations which showed considerable variation.

The consistency of the group scoring levels, which was reported in one study only (55), is shown in Table 11.

Table 11  
ESP Scoring Levels of Sheep and Goat Groups (Petrof)

Group	Subjects Scoring above Chance	Subjects Scoring below Chance	Totals
Sheep	11	7	18
Goats	1	9	10
	12	16	28
P = 18! 10! 12! 16! + 18! 10! 12! 16!			
= .011			

Table 11 shows that the majority of sheep scored above chance and the majority of goats below chance. Since this pattern of scoring was predicted from Schmeidler's results, only a one-tailed probability is reported; this has a statistically significant value ( $1P = .01$ ).

Having reviewed all the researches which can be considered as attempts to repeat Schmeidler's findings, the question which needs to be answered is "Can these studies be interpreted as confirmation of Schmeidler's findings?"

The crucial problem is obviously that of the criterion on which the sheep-goat differentiation is to be made. Schmeidler herself changed the criterion as her experiments progressed. In the series reported in 1943 (38), subjects were merely questioned as to their attitude to psychic phenomena in general, telepathy and clairvoyance in particular; the sheep were those who wondered if such phenomena would occur, or who believed in their reality, the goats those who rejected the possibility. In the tables presented in the report, however, the two categories are labelled "open-minded" and "expect to score at chance". There seems to be something of a contradiction here. The goats, who rejected the possibility of ESP, would certainly expect to score at chance; on the other hand, it is possible to imagine a sheep who accepts the reality of ESP phenomena and who nevertheless expects to score at chance in

the test situation. This could be a matter of confidence rather than belief.

In her later series, Schmeidler defined sheep as those who thought that paranormal success in the experiment was at least a possibility, goats as those who denied that there was any possibility of paranormal success under the conditions of the experiment. In her 1954 P-F study, Schmeidler used essentially the same criterion, although some of the items in the sentence completion questionnaire, used to rate the subject's attitude to the test situation as such, furnished additional information on his attitude of belief.

Bevan's criterion was somewhat different. He first of all asked his subjects whether they accepted ESP as an established fact. If they did not they were goats; if they did, after laboratory methods of testing ESP were demonstrated, they were asked, "Do you think that ESP can be measured by the techniques just explained to you?" If the answer was "no" or "don't know", the subject was disqualified. All subjects placed themselves on a continuum from belief to disbelief; Bevan thus obtained a category of indecisives. For the purpose of comparing Bevan's and Schmeidler's work, the indecisives should be combined with the sheep.

In series A of his experiment, Caspar asked his subjects whether they believed in ESP (sheep), whether they were undecided (indecisives), or whether they disbelieved (goats). In the second series, however, his subjects were asked three questions; "Do you know what the term ESP means?", "Do you believe that ESP is a theoretical possibility?", "Do you believe that you yourself have ESP ability?" As Caspar himself points out, question three of the questionnaire, concerning the subject's belief in his own ESP ability, resembles most Schmeidler's criterion. He reports that, in the limited part (Series B) of his experiment that can be compared with her results, the sheep (sheep and indecisives) averaged 4.89 hits per run, and the goats 4.97; a more detailed analysis is not presented.

Kahn's criterion was whether subjects thought that ESP is theoretically possible (1) in this particular experiment, (2) under other circumstances. He found that one group of subjects considered ESP "impossible here only", that is, in the test situation. These have been entered in Table 10 as indecisives, but, in accordance with Schmeidler's final criterion, they should be included in the goat category, together with the "impossible anywhere" group. Kahn further questioned his subjects on whether they expected to score above chance, at chance, or below chance. This overlaps with Schmeidler's initial criterion; Kahn, however, treats this as a separate analysis, bearing on the confidence of the subject in the experimental situation.

Eilbert considered both those subjects who were rated as "believes in ESP and thinks he will do well in the experiment" and "believes in ESP but doubts that he will do well in the experiment" as sheep; those who were doubtful about the whole thing, who rejected ESP completely or who gave contradictory responses, were goats. His criterion is similar to Schmeidler's; his results may be fairly compared with hers.

Woodruff and Dale asked their subjects three questions; "Do you believe in the existence of ESP?", "Do you believe you possess ESP abilities?", "I think my results in the above experiment are 'above chance', 'at chance', 'below chance'." Unfortunately, however, they made no overall sheep-goat assessment on all three items of their questionnaire. The subjects' scoring averages can merely be presented in terms of classification on each item singly.

In considering these various analyses, it appears that no strict answer can be given to the question of whether Schmeidler's results have been repeated. In the first place, her criterion was initially a shifting one, and the criteria others workers used differed from hers, in some cases considerably. In addition, there were differences existing in subjects (high school, volunteers and college), differences in targets (ESP symbols, IBM sheets), differences in number of runs per subject (4,5,6,8,12), differences in ESP situation (clairvoyance and GESP), and differences in the experimenters (seven different experimenters).

The question is an extremely important one, however, and some sort of comparison, however crude, seems necessary. This is attempted in Table 12 by fitting the various criteria to Schmeidler's as closely as possible. Thus, since Schmeidler combined indecisive and sheep, in Table 12 Bevan's, Petrof's and Eilbert's indecisives are combined with their sheep. In Kahn's experiment, the indecisives were those who considered that ESP was "impossible here only," i.e. in the test situation. These are included in the goat category in accordance with Schmeidler's final criterion. Only that section of Caspar's results which he himself claimed to be comparable with Schmeidler's results is included in Table 12. In the Woodruff and Dale experiment, no break-down is given for the whole series. Differentiation in terms of three items, each of which partly includes the sheep-goat criterion, is presented here.

Table 12  
Sheep-Goat Data of Other Workers

Experimenter	Type ESP	Sheep				Goats			
		Sub.	Runs	Dev.	Av. Score	Sub.	Runs	Dev.	Av. Score
Bevan	GESP Cl	20	232	+110	5.47	10	120	+2	5.02
Caspar	GESP Cl				4.89				4.97
Eilbert	Cl	37	185	+39	5.21	4	20	-2	4.90
Kahn	Cl	62	733	+42	5.06	12	143	+13	5.09
Petrof	Cl	29	232	+1	5.00	10	80	-18	4.78
Dale and Woodruff									
(a)	Cl		460	+20	5.04		1500	+35	5.02
(b)	Cl		1040	-3	4.997		920	+58	5.06
(c)	Cl		1500	-9	4.99		460	+64	5.14

Inspection of the Table shows that in three cases the sheep (sheep and indecisives) scored higher than the goats, in three cases the goats higher than the sheep. Although the various experimenters in most cases obtained successful discrimination of high and low ESP scorers in terms of the sheep-goat criterion as each one defined it, these need not be regarded as repetitions of Schmeidler's results.

## COMBINATIONS OF RORSCHACH ADJUSTMENT RATINGS WITH ATTITUDES OF BELIEF AND ESP SCORING LEVEL

The Rorschach is a widely used projective test consisting of 10 standard cards, administered in a set order; to these cards, the subject responds by reporting what he sees or what the blots represent to him. The underlying principle is that in order to structure anything from such ambiguous material, the subject must project something of himself into the material. This structuring is interpreted as reflecting the patterning of the subject's unconscious needs and drives, thereby giving some indications about many facts of his personality, such as whether he is rigid or flexible in his approach to situations, whether he is impulsive, creative, anxious, intellectually ambitious, socially withdrawn.

A quantitative index of the subject's overall adjustment can be made through use of a check list devised by Dr. Ruth Munroe (24). One or more check marks are given for each Rorschach category responded to in an atypical manner, and these check marks are added to obtain a single score representing the subject's degree of adjustment.

In the ESP series, an introduction was given by Schmeidler and the subjects then classified themselves as sheep or goats. The subjects next completed 3 clairvoyance runs (a unit of 75 trials), and then checked their results as the target order was read aloud to them. The testing proceeded until a total of 9 runs had been completed in this fashion. The group Rorschach test was administered by projecting slides of the ink blots on a large screen. This was given either before or after the ESP tests.

The Rorschach records were scored by Munro's check list method, and subjects having 10 checks or fewer were rated as well adjusted, while subjects with 11 or more checks were rated poorly adjusted. In order to eliminate any possibility of bias when scoring the Rorschach records, Schmeidler was kept ignorant of the subject's ESP score, which had been checked by an assistant and then later double checked.

In preliminary work with 85 subjects from two earlier series (39), Schmeidler noticed that when an adjustment rating was combined with the sheep-goat rating, it was possible to obtain greater separation of ESP scoring levels.

The poorly adjusted subjects scored at approximately the chance level, but the difference between the sheep and goats became more marked for the well adjusted subjects. She advanced the hypothesis that this pattern of well adjusted sheep scoring higher than poorly adjusted sheep and well adjusted goats scoring lower than poorly adjusted goats would be found in future series, and large scale testing of this hypothesis began in the Fall of 1945.

When Rorschach data from 250 subjects tested in 11 classroom experiments (41) were analyzed, the difference in average run score found

between well adjusted sheep and goats was significant ( $P = .0002$ ) but both the poorly adjusted groups scored at chance, thus confirming the hypothesis. The same pattern was also shown in later experiments reported in a review article (33). Another review article (32) presented a table summarising the results of 27 group experiments utilizing the Rorschach which were carried out between October 1945 and December 1948. The figures from this table are presented in Table 13.

Table 13  
Sheep-Goat Data Arranged According to Adjustment Ratings

Classification		No. Subjects	No. Runs	Av. Score
Sheep	All	334	3000	5.10
	Well Adjusted	209	1879	5.17
	Poorly Adjusted	125	1121	4.97
Goats	All	245	2205	4.95
	Poorly Adjusted	95	856	5.10
	Well Adjusted	150	1349	4.85

As is shown in Table 13 the difference between the average scores of the well adjusted sheep and goats was highly significant ( $P = .000003$ ). On the other hand, the difference between the means of the poorly adjusted sheep and goats was insignificant ( $CR = 1.4$ ).

Table 14  
ESP Scoring Levels of Well Adjusted Sheep and Goat Groups

Well Adjusted Subjects	Subjects Scoring above Chance	Subjects Scoring at or below Chance	Totals
Sheep	124	85	209
Goats	59	91	150
Totals	183	176	359

$$X^2 = 13.97 (1 \text{ d.f.})$$

$$1P = .0001$$

Table 14 shows the figures for the well adjusted subjects arranged in terms of a 2 by 2 contingency table. This breakdown indicates that when considered as a group, the well adjusted sheep were positive scorers, while the well adjusted goats were negative or chance scorers. The chi-square value was significant ( $1P = .0001$ ). Only a one-tailed test of significance is reported since the scoring directions were predicted from the earlier work.

## COMBINATIONS OF RORSCHACH SEVEN SIGNS WITH ATTITUDES OF BELIEF AND ESP SCORING

In an attempt to explore further the relationships between Rorschach variables and ESP scoring, Schmeidler decided to analyze the 250 Rorschach protocols from her first work (41) for particular categories that seemed to appear more frequently in the records of high and low scoring subjects. She isolated 7 factors or signs whose presence in a subject's record seemed to act as deterrents to ESP scoring.

If these seven signs are analyzed in terms of their interpretative significance, three patterns of "response tendencies" seem to emerge. A cold, withdrawn, restricted attitude can be inferred from the presence of F+%, Mr., and no shock; extreme impulsiveness or lack of emotional control from the presence of CF+ and C+; and excessive, near-compulsive mental activity or "quantity ambition" from the presence of R+ and total movement++. Thus, subjects who have even one of these seven signs present in their record could be considered to have a *specific* maladjustment which might prevent them from demonstrating ESP.

After having empirically determined these seven signs from this collection of 250 records, Schmeidler went on to gather new data from other subjects to see if the seven signs would continue to show the same relationship to ESP scoring. The two review articles (33, 34), which report further testing with the Rorschach, indicate that absence of seven signs continued to be associated with higher scoring, i.e., her data show that sheep in whose records these signs do not appear score higher than sheep in general, and goats from whose records the signs are ab-

Table 15

ESP Data of 250 Subjects from whom 7 Signs were Empirically Derived

Classification	7 Signs	No. Subjects	No. Runs	Average Score
Sheep	Present	66	590	4.84
	Absent	51	459	5.44
Goats	Present	62	559	5.09
	Absent	71	638	4.73

sent score lower than goats in general. Table 15 shows the scoring levels of the original 250 subjects from whose records the data were derived; Table 16 shows the scoring level of 329 additional subjects whose records were subjected to a similar analysis.



The difference in mean score between the sheep and the goats showing one or more of the seven signs in Table 16 was not significant, but for the sheep and goats whose records were free of the seven signs the difference in average run score was significant ( $P = .0003$ ).

Table 16

ESP Data for 329 New Subjects to whom 7 Signs were Applied

Classification	7 Signs	No. Subjects	No. Runs	Av. Score
Sheep	Present	150	1348	5.02
	Absent	67	603	5.24
Goats	Present	72	648	5.13
	Absent	40	360	4.78

In Table 17 the data of the "no sign" subjects from Table 16 are arranged in a 2 x 2 contingency table. Inspection of the table indicates that over twice as many sheep without the seven signs scored above chance, while over twice as many goats without the seven signs scored at or below chance. The consistency of group scoring was significant ( $P = .0001$ ).

Table 17

ESP Scoring Levels of Sheep and Goat Groups Without 7 Signs

Subjects without seven signs	Subjects scoring above chance	Subjects scoring at or below chance	Totals
Sheep	45	22	67
Goats	12	28	40
Totals	57	50	107

$X^2$  13.90 (1 d.f.)  
1P = .0001

*Comparison of the Scoring of Rorschach by Different Workers*

In an attempt to determine whether there would be agreement in check list ratings made by workers, Schmeidler and Mrs. Adeline Roberts independently scored the Rorschach records of eighty-four ESP subjects. Table 18 contains the figures from the article (31) which has bearing on this question.

The figures in Table 18 show that Schmeidler and Roberts agreed almost perfectly on the overall ratings of adjustment, but that this consistency disappeared when they judged whether the seven signs were

present or absent. A possible explanation for such a difference is that some minor variations occur in scoring the whole check list which

Table 18  
ESP Data (Mean Run Scores) Arranged by Rorschach Ratings of  
Two Workers

Worker	Sheep		Goats		Sheep		Goats	
	Well Adj.	Mal Adj.	Well Adj.	Mal Adj.	7 Signs Pres.	7 Signs Abs.	7 Signs Pres.	7 Signs Abs.
Schmeidler	5.18	4.77	4.33	4.91	4.83	5.21	5.00	4.44
Roberts	5.13	4.76	4.33	4.91	4.94	5.03	4.65	4.64

would not alter the overall judgment of whether a particular subject is well adjusted or not, but agreement has to be almost perfect when considering such a selected aspect of the check list as the seven signs. Slight differences in the use of scoring symbols could account for this discrepancy on the seven signs and closer agreement might occur if these differences in coding symbols were resolved.

*Other Rorschach Studies*

There is another study reported by Schmeidler in which the Rorschach was used (40), but it differs from the others in that hospital patients rather than college students were the subjects. The ESP tests involved combinations of color and symbol cards. Of the 29 hospitalized patients tested, 18 had been diagnosed as having cranio-cerebral trauma (CCT), while the remaining 11 controls had fractures from accidents or were recovered concussion patients discharged on the day of the ESP test. Only 2 of the 18 CCT patients scored below chance while the controls had a very slight negative deviation. Ten of the CCT patients and 5 of the "controls" took the Rorschach test.

These records were too sparse for application of the check list method and were evaluated in the more usual clinical fashion. The three outstanding characteristics of the CCT records were their extreme shortness, the unusually poor form level, and the rather free use of color. Such a pattern would indicate a minimum effort to respond, uncriticalness in responding to reality, and a free reaction to impressions from the outer world. It seems as if the subject's feeble readiness to respond created a favorably receptive attitude towards receiving ESP impressions. This is well described by Carington as "an attitude of almost nonchalant receptivity," and contrasts with the more usual adult one of characteristically analyzing and carefully sifting all incoming perceptions.

Rasch (29) has also used the Rorschach to try and discover whether any particular personality pattern seemed to be associated with "sensitive" subjects, such as professional clairvoyants. He reported that the sensitive subject showed a predominant favoring of color to movement responses. However, since the criterion for selecting "sensitives" was not very clearly defined, and because of having so few subjects (6), judgment will have to be suspended on the generality of his findings.

## REACTIONS TO FRUSTRATION AND ESP SCORING

The Rosenzweig Picture-Frustration Study (P-F) is a projective technique used to obtain a measure of a person's reaction to frustration. It consists of a booklet of 24 cartoons, each depicting an unpleasant or frustrating circumstance, such as missing a train, in which one person makes a remark of frustrating significance, depriving or blaming the other. The subject responds on behalf of the frustrated person. The drawings are deliberately crude, having only indistinct facial features and a minimum of background provided.

The test can be scored for several different categories but so far only three have been used for research in parapsychology. These three are defined as follows:

Extrapunitiveness—refers to aggression overtly directed toward the environment in the form of blaming some outside force for the frustration or of placing someone else under an obligation to solve the difficulty.

Intropunitiveness—aggression is expressed overtly by the subject against himself in a martyrlike fashion with an acknowledgment of guilt or shame, or by assuming the responsibility to clear up the situation.

Impunitiveness—aggression is evaded or avoided in any overt form, and the situation is interpreted as being insignificant or no one's fault or as likely to solve itself if the subject simply waits or conforms.

The first indication that the P-F might be a useful test in parapsychology grew from a thesis study by L. Eilbert at CCNY. An article by Eilbert and Schmeidler (7) reported that when the P-F scores of Eilbert's subjects were divided into four quartiles, the differences between ESP scores obtained by subjects in the first and fourth quartiles were suggestive ( $P$  around .05). The correlation of  $-.32$  between extrapunitiveness and ESP score was significant ( $P = .01$ ) but the correlation of  $+.28$  for intropunitiveness and  $+.22$  for impunitiveness were only suggestive ( $P = .04$  and  $.07$  respectively).

Schmeidler (43) then attempted to see if similar results could be obtained from analysis of P-F scores which she had obtained during several years of testing. She had P-F scores for 446 subjects and obtained a correlation of  $-.09$  between ESP scores and extrapunitiveness ( $P = .03$ ) and a correlation of  $+.10$  with impunitiveness ( $P = .02$ ). When her results were combined with Eilbert's, the correlation of  $-.12$  between ESP scores and extrapunitiveness was significant ( $P = .005$ ), and the correlation of  $+.12$  with impunitiveness was also significant ( $P = .003$ ).

These combined data were also analyzed by comparing the difference in mean ESP score between the subjects scoring in the lowest 10% and highest 10% of the Rosenzweig categories. The mean score of the least extrapunitive (lowest decile) subjects was 5.20, while the mean score of the most extrapunitive (highest decile) subjects was 4.86. This difference

in mean score was significant ( $P = .01$ ). The mean of the lowest decile impunitive subjects was 4.94, of the highest decile impunitive subjects 5.27; this difference in mean scores was also significant ( $P = .01$ ). These scoring directions were in all cases much more marked for the sheep than for the goats. In fact, most of the analyses which have been mentioned were independently significant for the sheep and insignificant for the goats.

Despite the fact that significant correlations had been obtained between the P-F and ESP scores, the correlations were all rather low, and the relationships measured would seem to be relatively weak ones. This might be expected since the P-F scores give only an indication of how the subjects would respond to a mildly frustrating situation of everyday life. This does not necessarily mean that such tendencies would be expressed in an ESP situation. It would be necessary to have some ideas as to how the subject interpreted the ESP task; if it were an enjoyable experience, the aggressive tendencies he would display in an annoying situation would have little bearing on his reactions in an ESP situation.

To test this assumption, Schmeidler tested an additional 266 subjects in a group setting with the P-F and also obtained a rating as to how annoying the subjects found the ESP situation (36). This rating of annoyance was based upon a combined score obtained from an oral questionnaire, a variation of the incomplete sentence technique, and an analysis of a paragraph written on the subject's reaction to ESP. The incomplete sentence method contributed most heavily to the final rating.

Ratings were made along a 7 point continuum so that the higher the rating, the greater was the degree of annoyance expressed by the subjects. Since the P-F scores were derived from the subject's empathic projection into a moderately frustrating situation, it was decided before hand that only the P-F scores of subjects who found the ESP situation moderately frustrating would be considered. Therefore, subjects with annoyance ratings of 5 or 6 were selected as representing the moderately annoyed group.

Although the correlations between the P-F and ESP scores for the 266 subjects were in the expected direction, they were all low and insignificant. However, when the ESP and P-F scores of the 118 moderately frustrated subjects were analyzed, the correlations were statistically significant for extrapunitive ( $r = -.23$ ,  $P = .005$ ) and impunitiveness ( $r = +.21$ ,  $P = .01$ ). Again the results were independently significant for the sheep, but insignificant for the goats.

Schmeidler's interpretation of these findings was that subjects whose habitual response to mild frustration was extrapunitive would be aggressive and hostile while making ESP responses if they found the ESP situation mildly frustrating, and would therefore make low ESP scores. However, subjects who characteristically reacted to mild frustration in an impunitive fashion would emphasize the interesting aspects of this moderately frustrating experiment and co-operate favorably. They would, therefore, make higher ESP scores. The interpretation of the fairly high positive correlation for the intropunitive goats was that although the subject, by virtue of being a goat, was probably somewhat hostile and unsympathetic toward the experiment, he nevertheless blamed himself as being at fault in a frustrating situation, and because of his guilt or embarrassment, would take upon himself the responsibility of clearing up the situation. He would, therefore, tend to minimize his own discomfort and make a special

effort to co-operate with the experimenter, and through securing positive scores, "make it up" to the experimenter in such a situation. Such findings point up that, in order to understand a subject's scoring level in an ESP situation, one of the things we should know is how the ESP situation is interpreted by the subject.

## VALUE-RATINGS AND ESP

There is one article by Schmeidler reporting on the use of the Allport-Vernon Study of Values (AVSV) in an ESP experiment (35). This test indicates in which of six different value areas (theoretical, religious, social, economic, political, or aesthetic) a subject seems to identify himself most. Scores are obtained in terms of percentile ranks and subjects scoring high in one or two areas must necessarily score low in the remaining ones.

Although it had been found that sheep made higher ESP scores than goats, it is apparent that the subjects' answers to the theoretical question of whether ESP exists or not did not separate them into clearly distinct groups with favorable or unfavorable attitudes toward the experiment. Some of the sheep might find the experiment boring or irritating and some of the goats might like competitive tasks and enjoy playing "guessing games". Schmeidler had earlier suggested (44) that the sheep-goat dichotomy would be most meaningful for subjects to whom theoretical problems are important (that is, subjects with high theoretical scores on the AVSV).

Table 19  
ESP Data Arranged According to Percentile Rank on Theoretical  
Scale of AVSV

Percentile	Sheep		Goats		Diff. in Ave. Score	P
	No. Runs	Ave. Score	No. Runs	Ave. Score		
All Subjects	504	5.30	455	4.93	.37	.002
Below 90	384	5.18	367	4.95	.23	.06
90 or Above	120	5.68	88	4.85	.83	.002
95 or Above	40	5.95	24	4.38	1.57	.001
100	24	6.54	8	4.50	2.04	.006

The hypothesis stated before these data were gathered therefore was that the difference in scoring level between the sheep and goats would be greater for those subjects who had a strong theoretical orientation. The problem of whether ESP could be demonstrated in the test situation should then be one that takes on personal significance for these subjects, since it is closely related to their systems of values or expectancies. Such

subjects would presumably identify more closely with the purpose of the experiment, that is, to show the presence or absence of ESP.

A total of 63 subjects from four different psychology classes were tested in a classroom setting. Each subject was supposed to classify himself as a sheep or goat, make 8 ESP runs, and complete the AVSV. The theoretical scale of the AVSV was then scored and subjects receiving a percentile rank of 90 or above were considered to be theoretical subjects. Table 19 shows the results of the various breakdowns which were made to compare theoretical and non-theoretical subjects.

In Table 19 it is shown that the difference between the mean scores of the non-theoretical sheep and goats was not significant ( $P = .06$ ), but when the theoretical sheep and goats are considered, the difference between their average scores is over three times as great as the difference of the non-theoretical subjects ( $P = .002$ ). From the table, it appears that the differences in scoring level continue to become larger as the degree of theoretical orientation becomes more marked; the  $P$  values associated with these differences are significant or highly suggestive. The interpretation advanced is that subjects who place increasing emphasis on theoretical values are able to exhibit a corresponding increase or decrease in their ESP score.

Generally, the number of cases in each category is too small for such generalization. In addition, however, when the three categories (90 or above, 95 or above, and 100) in Table 19 are considered as discrete rather than continuous categories (ie., 90-94, 95-99, 100), as they should be in any valid comparison of scoring levels, the differences in scoring

Table 20  
ESP Data Arranged According to Percentile Rank on Theoretical  
Scale of AVSV (Amended Figures)

Percentile	Sheep		Goats		Diff. in Ave. Score	P
	No. Runs	Ave. Score	No. Runs	Ave. Score		
All Subjects	504	5.30	455	4.93	.37	.002
Below 90	384	5.18	367	4.95	.23	.06
90 or Above	120	5.68	88	4.85	.83	.002
90 to 94	80	5.55	64	5.03	.52	.06
95 to 99	16	5.07	16	4.32	.76	.14
100	24	6.54	8	4.50	2.04	.006

level between the sheep and goats at each level of theoretical orientation cease to be significant except in the case of the 3 subjects on the 100th percentile. These amended figures are shown in Table 20. It is apparent that although there are significant differences in scoring level between theoretical and non-theoretical sheep and goats as groups, the impressive progression of theoretical level with ESP scores does not stand up under strict evaluation.

## CONCLUDING REMARKS

From this review of the pertinent data of most of the ESP-Personality studies, it seems that some progress has been made towards determining the personality characteristics of groups of high- and low-scoring ESP subjects. As a generalization, we might judge that subjects who are somewhat extraverted, secure, temperate, well-adjusted, who are favourably disposed towards ESP, and who have a high theoretical value system tend to score high, while subjects who possess opposite characteristics tend to score low.

It was stated at the beginning of this monograph that it seemed appropriate to review the ESP-Personality research in two sections. The two basic approaches of Humphrey and Schmeidler differ in two respects; on the one hand, in type of measuring instrument used, on the other in the consistency of the results achieved.

In general, Humphrey made her personality assessments by means of questionnaires, or from a more or less objective estimate of certain qualities exhibited in drawings. Her results were usually not repeatable either by herself or by other experimenters working along similar lines, although she did have some repeated success with the E-C rating derived from the ESP material itself, and partial success with the Bernreuter and the Stuart Interest Inventory.

It is generally recognized that the questionnaire method has severe limitations. Regardless of the stability of the factor itself, and it must be remembered that Humphrey was largely concerned with transitory, "surface" traits like expansion-compression, security-insecurity, the measuring instrument itself is subject to irrelevant influences which tend to give rise to spurious measurements. In self-rating scales, there is the well-known "halo" effect, and the amount of "halo" in such scales as Bernreuter and Guilford-Martin is considerable. The strong general factor of the attitude of the subject to the experimental situation may condition his responses to a considerable degree.

A second factor is the temporary mood of the subject. This has been shown to affect responses on the Bernreuter scale, and it probably exerts a similar influence on security-insecurity assessments. It would seem to apply particularly to the expansion-compression ratings, judging from the fact that some subjects rated by one judge were found to change from expansive to compressive in the one experimental session, and would, presumably, change from day to day. An additional source of unreliability lies in the fact that ratings by two judges on the same set of drawings displayed not a great deal of consistency. The second factor is probably the explanation of the non-repeatability of the E-C studies; with such scales as the Maslow and Bernreuter, however, the first, more general explanation appears more pertinent.



Schmeidler generally used attitude classifications and projective techniques. She obtained consistent results, and her experiments were generally repeatable. Insofar as the sheep-goat classification is concerned, however, the question remains of precisely what factors are involved in this differentiation. In the first place, is it possible for a subject to give an unequivocal answer to the question of his attitude towards parapsychology, which is a multi-dimensional subject? He may accept one aspect of psi (telepathy, for example), and reject another (clairvoyance, for example); in such a case, differentiation must obviously be made along these lines. Further, it is possible that in addition to the theoretical acceptance of ESP other factors such as confidence, interest in the experiment, and willingness to co-operate might be concerned in the sheep-goat differentiation. If these additional factors are involved, the subject's answer might merely reflect much deeper multiphasic motivational factors.

Concerning the personality measurements obtained from projective tests, it is generally agreed that the factors measured on Rorschach and the P-F Scale are basic fundamental aspects of personality structure. Because of the endurance of this structure, one would expect to get repeatability of differentiation in terms of Rorschach and P-F criteria providing the tests themselves are reliable. When we describe separation in terms of Rorschach or P-F variables, we are describing a somewhat gross estimate in each case, and it seems reasonable enough to assume that the Rorschach estimate of adjustment and the P-F estimates of extrapunitiveness and intropunitiveness, in their gross evaluation, are reliable enough measures. Since there has been repeated success in discriminating high and low scorers on the basis of these criteria, we imply that there is a relationship between these deeper factors and ESP.

It must be remembered that in all ESP experiments, the role of the experimenter is a vital one. A factor which might contribute to consistency or lack of it in any series of ESP experiments is the delicate experimenter-subject relationship. The effect of such a factor is very difficult to estimate, as it involves the personalities of the experimenter and the subject, and their interaction. In considering this problem of consistency of results, however, cognizance should be taken of the possible effects of such a factor.

It must be emphasized that at this stage of ESP-personality research, more successful predictions of ESP scoring levels have been made on a group than on an individual basis. Certainly the greatest amount of research effort has been directed towards differentiation of scoring levels on the basis of single personality measurements. This is a separation in terms of direction rather than amount of deviation, and, as such, is generally not discriminating enough for the purposes of individual prediction. For example, though Schmeidler's poorly adjusted group, as a group, scored around chance, the variation in range of individual scores, from very high to very low, was statistically significant.

Better prediction of direction of group deviation has resulted from the use of combinations of personality measurements, rather than single dimensions. Evidence for the efficiency of such combinations is offered by Humphrey with combinations of E-C and Interest ratings, and E-C and Security-Insecurity ratings, by Schmeidler with combinations of sheep-goat and adjustment criteria, sheep-goat and "absence of seven signs" criteria and sheep-goat and value ratings and by Nicol and Humphrey with a combination of confidence and emotional stability factors.

These combinations permitted greater differentiation than any of the measures used in isolation.

Schmeidler's AVSV study is a further step in this direction. Once the sheep-goat attitudinal classification was known, there appeared a linear relationship between ESP scoring level and degree of theoretical orientation. Although no strictly individual predictions were made, predictions were made for groups which in some cases were very small (numbering 1-5). One must point out that the progression of ESP scores with theoretical orientation is not as impressive as it appears; these criticisms notwithstanding, this study is an important contribution in this area.

Of major importance is the study by Humphrey and Nicol reporting some success in predicting individual ESP scores from a knowledge of personality ratings, using multiple regression analysis. Although the level of success reported is not high, the method is a valuable one, and the approach most promising.

In the final evaluation, it appears clear that if something is known of unique factors in a subject's personality make-up, if, for example, he possesses marked tendencies towards social participation, or is easily stimulated to competition, it is possible to utilize this information in predicting the direction, and, to a much lesser degree, the amount of ESP deviation. The question still remains of whether the personality characteristics possessed by the rare individual high-scoring subject are similar in kind to those possessed by groups of subjects who score slightly above chance, and whether the relative difference in scoring level, therefore, might reasonably be attributed to differences in amount of the characteristics possessed or to motivational factors. This appears to be one of the major problems in this area of ESP personality research. The answer may well come from two sources—on the one hand, from intensive study of the personality makeup of the few high-scoring subjects, and direct comparison with what is known of the characteristics displayed by groups of subjects who score positively, as a group, and, on the other, from development of better experimental and statistical techniques for selecting individuals and predicting their probable scoring levels, solely on the basis of measurements on a number of personality tests and assessments.

## RESULTATS (PUBLIES JUSQU'ICI) DES RECHERCHES SUR LES RAPPORTS ENTRE VARIABLES DE PERSONNALITE ET EXPERIENCES SUR LA PERCEPTION EXTRA-SENSORIELLE

### Résumé

Cette étude donne un aperçu des recherches faites jusqu'en 1955 sur les rapports entre la perception extra-sensorielle et la personnalité. Quoique les recherches sur le rapport entre la P. E. S. et la personnalité forment un chapitre assez récent de la parapsychologie, nous disposons déjà d'un matériel considérable s'y rapportant, un matériel qui, à l'état actuel, demande une description détaillée et une appréciation ordonnée.

Dans ce domaine les recherches fondamentales furent effectuées en grande partie par deux expérimentatrices américaines, Mmes Gertrude R. Schmeidler et Betty M. Humphrey. Avec un certain nombre de collaborateurs elles ont décrit plusieurs fonctions psychologiques: l'intelligence principalement, et aussi l'intérêt, l'introversion, l'extraversion, l'expansion, la compression, l'adaptation, la croyance en la P. E. S. et l'orientation théorique des sujets. Se basant sur ces études, elles ont, en partie, réussi à répartir des sujets non-sélectionnés pour la PES en des *groupes* tendant à marquer, dans les tests de PES, un nombre de réussites nettement supérieur—ou inférieur—au nombre prévisible par le calcul des probabilités.

D'une analyse détaillée de ces expériences les conclusions suivantes se dégagent:

1. Quoique certaines des recherches concernant la relation existant entre les résultats de PES et l'intelligence ne soient pas sans faire ressortir des objections bien fondées, des corrélations constamment positives entre les deux variables en question portent à croire, ou bien que les sujets plus intelligents sont supérieurs quant à la PES, ou bien que ces sujets s'adaptent mieux et plus vite aux conditions des tests de PES et obtiennent ainsi un meilleur résultat. Il n'y a pas de conclusion plus définitive à en tirer.

2. On a pu établir avec succès une distinction des groupes donnant aux tests de PES un nombre de réussites respectivement élevé ou bas, en se basant sur l'échelle des valeurs d'intérêt de Stuart et sur une version réduite de cette même échelle. Un nombre élevé de réussites obtenu en faisant usage de ces échelles indique probablement, dans une certaine mesure, une augmentation de l'adaptation à l'entourage. Des efforts ultérieurement tentés pour reproduire les résultats du début ont échoué; toutefois, il reste difficile de déterminer si le fait que l'échelle se montre alors moins efficace est causé par le changement des conditions psychologiques lors des séries d'expériences ultérieures, ou bien s'il est dû à l'inexistence d'une relation réelle entre les valeurs d'intérêt et les résultats de PES.

3. Tous les travaux ayant comme variable psychologique l'introversion-extraversion ont démontré que l'extraversion est liée à un nombre de réussites en PES plus élevé que l'introversion. C'est avec une remarquable constance que ce facteur a séparé les groupes hautement cotés des groupes faiblement cotés.

4. D'une recherche très approfondie faite à l'aide du critère d'Elkisch sur l'expansion-compression (E-C), il ressort clairement que dans les

tests de clairvoyance les sujets expansifs marquent en groupe plus de réussites que les sujets compressifs, mais que dans les tests de Perception Extra-Sensorielle Générale (PSEG), où la télépathie n'est pas exclue, les compressifs ont en tant que groupe une cote plus élevée que les expansifs. L'expansion-compression (une qualité déduite du dessin) paraît être une variante de l'introversion-extraversion, ou bien, selon la suggestion de Humphrey, une indication sur l'humeur momentanée du sujet.

5. La relation découverte entre l'ordre de grandeur des cotes de PES et les valeurs d'adaptation générale fut établie au moyen d'échelles, telles que la liste "sécurité-non-sécurité" de Maslow, et du test de Rorschach; toutes ces expériences mènent à la conclusion que les meilleures cotes de PES sont obtenues par les sujets qui possèdent les caractéristiques d'une personnalité classée dans la catégorie de "bonne adaptation personnelle". Il est en outre indigué que la mauvaise adaptation spécifique peut jouer le rôle d'un frein dans la cotation de PES.

6. Schmeidler parvint à séparer nettement les groupes de hautes—et de basses—cotes de PES en se basant sur l'attitude du sujet vis-à-vis le critère PES, c'est à dire en distinguant ceux qui acceptent la possibilité de l'existence de la PES (les "moutons") et ceux qui la rejettent (les "chèvres"). Le Dr. Schmeidler dispose d'un matériel considérable, et le degré de probabilité permet des conclusions décisives. Cette division devint encore plus marquée lorsque la classification moutons-chèvres fut combinée avec une évaluation se rapportant à l'adaptation. Le résultat montra que les "moutons" bien adaptés sont seuls responsables du résultat positif, tandis que ce n'est que parmi les "chèvres" bien adaptées que le nombre de réussites obtenues descend nettement au-dessous de ce que la probabilité faisait prévoir.

Les "moutons" médiocrement adaptés ainsi que les "chèvres" médiocrement adaptées ont tendance à se tenir au niveau déterminé par la probabilité.

7. Une certaine relation a encore été trouvée entre les cotes de PES et la réaction des sujets aux frustrations. "Extrapunitivité" (agression dirigée à l'extérieur contre l'entourage) montre une corrélation négative avec les cotes de PES; "intropunitivité" (agression dirigée contre soi-même) montre une corrélation positive avec les cotes de PES.

8. Il est assez probable que la différence de cotes existant entre les "moutons" et les "chèvres" est encore accentuée par leur orientation théorique respective mesurée sur l'échelle des valeurs de Allport-Vernon. Les sujets aux cotes théoriques élevées (d'après la dite échelle) s'identifieront plus étroitement avec le but de l'expérience, c'est à dire s'efforceront de démontrer l'existence ou l'inexistence de la PES, selon ce qui est intimement lié à leur propre système de valeurs ou d'attentes. Les moutons et les chèvres ayant des penchants "théoriques" contribuent ainsi le plus fortement aux déviations positives ou négatives qui caractérisent les groupes.

Jusqu'ici le problème des recherches sur les relations entre la PES et la personnalité n'a été autre que l'examen des critères relatifs à la personnalité selon lesquels la répartition des sujets en groupes de haute—et de basse cote de PES peut être faite à bon escient. Pareils critères devront être d'une valeur triple:

1. Ils doivent—si c'est le cas—démontrer l'existence de la PES, là où, par une appréciation globale, une telle existence ne saurait être prouvée:

2. Ils doivent découvrir si une relation quelconque existe entre certaines caractéristiques de la personnalité et les résultats de PES et—s'il en existe une—ils doivent faire connaître l'étendue de cette relation.

3. Ils doivent permettre de prévoir éventuellement à partir de la connaissance des caractéristiques de la personnalité du sujet l'ordre de grandeur de sa cote de PES.

Les deux premiers buts ont été atteints en partie. Toutefois, jusqu' à maintenant on n'a fait que bien peu d'efforts pour prévoir le nombre des réussites qui seront obtenues; on s'est plutôt borné à la simple constatation des différences existant entre les groupes en ce qui concerne l'ordre des résultats et à l'établissement de prévisions individuelles basées sur les résultats du groupe. Ce n'est qu'en quelques rares travaux que ceci a été essayé, avec un très modeste succès.

Toutefois, il a été nettement démontré que, en général, les tests se basant sur les combinaisons de valeurs de personnalité permettent de faire une distinction bien plus nette entre les groupes que ceux qui se bornent aux simples mesures de la personnalité. Ceci porte à croire que les résultats de PES peuvent dépendre d'un certain nombre de facteurs de la personnalité dont les effets se combinent et que la meilleure méthode de sélection, permettant de distinguer les sujets *individuels* de haute et de basse cote de PES, consisterait donc en l'emploi d'une série de tests de la personnalité. Ceci demande non seulement la continuation du travail maintenant en cours (qui est basé sur le test d'une seule valeur personnelle ou de celui d'une combinaison de deux ou de trois de ces valeurs) mais nécessite aussi l'usage de techniques de statistique plus perfectionnées, comme l'analyse à régression multiple—afin de découvrir ceux des tests de la personnalité qui, dans la série de sélection, ont le plus d'importance—ainsi que des études parallèles sur la formation de la personnalité des sujets à haute cote pour comparer à ce que l'on sait des caractéristiques de la personnalité des groupes de sujets qui, en groupes, obtiennent des résultats de PES positifs. Ces travaux pourront conduire au développement des techniques expérimentales et statistiques pour la sélection des individus et pour la prévision des niveaux probables de leurs résultats, en grande partie sur la base d'un grand nombre de tests sur la personnalité et de leur appréciation.

## SUI RISULTATI (PUBBLICATI SINORA) DELLE RICERCHE RELATIVE AI RAPPORTI FRA VARIABILI DI PERSONALITÀ E PROVE ESP

### *Sommario*

Questa monografia presenta un riassunto degli studi fatti fino al 1955 sulle correlazioni della personalità con la ESP. Benchè le ricerche su tali correlazioni rappresentino uno sviluppo relativamente recente della parapsicologia, disponiamo già di un materiale considerevole in proposito, un materiale che nella situazione attuale richiede una descrizione e una valutazione ordinate.

In questo campo le ricerche fondamentali furono effettuate in gran parte da due sperimentatrici americane, Gertrude R. Schmeidler e Betty M. Humphrey. Insieme con numerosi altri collaboratori, esse hanno descritto diverse funzioni psicologiche, particolarmente intelligenza, interesse, introversione-estroversione, espansione-compressione, adattamento, credenza nella ESP e orientamento teorico dei soggetti, e sulla base di questi studi esse sono in parte riuscite a ripartire soggetti non altrimenti selezionati in gruppi, tendenti a segnare, negli esperimenti di ESP, un numero di coincidenze nettamente superiore—oppure inferiore—al numero medio.

Da una analisi particolareggiata di queste ricerche si deducono le seguenti conclusioni.

1. Benchè alcune ricerche riguardanti la relazione esistente tra i risultati ESP e l'intelligenza possano far nascere obiezioni fondate, le relazioni costantemente positive tra le due variabili in questione portano a credere che i soggetti più intelligenti siano superiori nella ESP o che tali soggetti si adattino meglio e più rapidamente alle condizioni speciali che sono proprie degli esperimenti ESP per ottenere così un risultato migliore. Non si possono trarre altre conclusioni definitive.

2. Sulla base dei valori della personalità misurati con l'aiuto della scala d'interesse secondo Stuart e con l'aiuto di una versione ridotta dello stesso strumento di lavoro si è potuta stabilire una distinzione netta tra i gruppi che negli esperimenti ESP danno rispettivamente coincidenze in numero superiore o in numero inferiore alla media. Un numero elevato di coincidenze ottenuto facendo uso delle dette scale indica probabilmente, benchè a un grado piuttosto limitato, l'adattamento di fronte all'ambiente. Sforzi fatti ulteriormente per riprodurre i risultati del principio non sono riusciti; tuttavia è difficile sapere se la diminuzione della efficacia della scala sia stata causata dal cambiamento di condizioni psicologiche nelle ultime serie di esperienze, oppure se essa sia dovuta alla mancanza di una reale relazione tra i valori dell'interesse e i risultati ESP.

3. Tutti i lavori aventi come variante psicologica l'introversione-estroversione hanno dimostrato che l'estroversione è collegata a risultati ESP più elevati di quelli ottenuti in caso di introversione. Questo fattore separa in gruppi i risultati ESP rispettivamente alti e bassi con un notevole grado di costanza.

4. Da una ricerca molto approfondita fatta con il criterio di Elkish sull'espansione-compressione (E-C) risulta chiaramente che in materia di esperimenti di chiaroveggenza, i soggetti espansivi, in quanto gruppo, segnano risultati più elevati che non i soggetti compressivi, mentre per

gli esperimenti GESP dove è possibile la telepatia, i compressivi sono superiori, in quanto gruppo, agli espansivi. L'espansione-compressione (una qualità derivata dal disegno) sembra essere una variante della introversione-estroversione, oppure secondo il suggerimento di Humphrey, una indicazione dell'umore momentaneo del soggetto.

5. La relazione fra i livelli dei risultati ESP e i valori generali di adattamento fu stabilita per mezzo di scale quali quella della lista sicurezza-insicurezza di Maslow e del test proiettivo di Rorschach; tutti questi esperimenti conducono alla conclusione che i migliori risultati ESP sono ottenuti dai soggetti che possiedono le qualità caratteristiche di una personalità posta nella categoria "buon adattamento personale". Esiste anche la probabilità secondaria che il cattivo adattamento specifico possa agire come impedimento rispetto ai risultati ESP.

6. Schmeidler ottenne la separazione netta tra i gruppi ad alti risultati e quelli a bassi risultati ESP, basandosi sull'atteggiamento del soggetto di fronte alla ESP, cioè distinguendo da una parte i soggetti che accettano la possibilità della ESP ("le pecore") e dall'altro quelli che rigettano una tale possibilità ("le capre"). I suoi dati sono molto estesi e il loro grado di probabilità permette conclusioni decisive. Questa divisione divenne ancora più marcata quando la classificazione pecore—capre fu combinata con una distinzione riferentesi all'adattamento. Il risultato dimostrò che solo le "pecore" bene adattate sono responsabili per i risultati positivi e solo tra le "capre" bene adattate il numero dei punti ottenuti discende nettamente al di sotto della probabilità. Le "pecore" male adattate come pure le "capre" male adattate hanno la tendenza a radunarsi attorno al livello determinato dalla probabilità.

7. Una certa relazione è stata anche trovata tra i risultati ESP e la reazione dei soggetti alla frustrazione. Una "punitività" eccessiva estroversa (aggressività verso l'ambiente) mostra una correlazione negativa con i risultati ESP; una eccessiva tendenza all'autopunizione (aggressività diretta contro se stessi) mostra una correlazione positiva con i risultati ESP.

8. E assai probabile che la differenza di livello fra i risultati esistenti tra le pecore e le capre sia ancora accentuata dal loro rispettivo orientamento teorico secondo la scala di valori Allport-Vernon. Soggetti dai risultati teorici elevati (secondo la detta scala) si identificheranno più strettamente con lo scopo dell'esperimento, cioè si sforzeranno di dimostrare la presenza o l'assenza di ESP nel senso che è intimamente legato al loro proprio sistema di valori e di speculazioni. Le pecore e le capre istruite teoricamente contribuiscono così più fortemente alle deviazioni positive o negative che sono caratteristiche per i gruppi.

Fino a qui il problema della ricerche ESP sulla personalità non è stato altro che l'esame dei criteri personali secondo i quali sia possibile la divisione efficace dei soggetti in gruppi dagli alti e dai bassi risultati ESP. Tali criteri dovranno avere un valore triplo:

1. Essi debbono—se è il caso—dimostrare l'esistenza della ESP là dove in una valutazione globale non potrebbe essere provata una tale esistenza.

2. Essi debbono scoprire se esiste una relazione qualunque tra certe caratteristiche personali e i risultati ESP e—se questa relazione esiste—ne debbono far conoscere l'entità.

3. Essi devono permettere di predire eventualmente, fondandosi sulla conoscenza dei valori personali del soggetto, il livello dei suoi risultati ESP.

I primi due scopi sono stati in parte raggiunti. Tuttavia fino ad ora si sono fatti pochi sforzi per predire il livello dei risultati che saranno ottenuti; ci si è piuttosto limitati alla semplice constatazione delle differenze esistenti tra i gruppi e quel che riguarda i livelli dei risultati, e alla sistemazione di predizioni individuali sulla base dei risultati del gruppo.

Soltanto in qualche raro lavoro questo è stato raggiunto con un ben modesto successo. È stato chiaramente dimostrato che in generale sono gli esperimenti i quali si basano sulle combinazioni di valori personali che danno luogo a una distinzione assai più netta fra i gruppi, rispetto a quelli che si limitano alle semplici misure della personalità. Questo porta a credere che i risultati ESP possano dipendere da un numero di fattori che insieme determinano la personalità, fattori che agiscono in combinazione; il metodo preferibile di selezione—allo scopo di poter distinguere i soggetti individuali di alto e di basso livello ESP—consisterebbe dunque nel praticare una serie di differenti esperimenti sulla personalità. Ciò non soltanto richiede la continuazione del lavoro che è ora in corso sulla base dell'esperimento di un solo valore personale o di quello di una combinazione di 2 o 3 di questi valori, ma richiede anche l'uso di tecniche statistiche più perfezionate, come l'analisi a regressione multipla, allo scopo di scoprire quegli esperimenti sulla personalità che nella serie di selezione contano di più—come pure studi paralleli sulla formazione della personalità dei soggetti ad alti risultati per paragonarli a quello che si sa sulle caratteristiche della personalità dei gruppi di soggetti che, in quanto gruppi, arrivano ad ottenere dei risultati ESP positivi. Questo potrà condurre allo sviluppo di tecniche sperimentali e statistiche per la selezione degli individui e per la predizione dei probabili livelli dei loro risultati. Tutto questo è da costruire largamente sulla base di misure relative a molti esperimenti sulla personalità, e dei relativi giudizi.



## ZUSAMMENFASSUNG DES VERÖFFENTLICHTEN FORSCHUNGS-MATERIALS UEBER BEZIEHUNGEN ZWISCHEN PERSOENLICHKEITS-VARIABLEN UND ESP-RESULTATEN

Diese Monographie gibt eine Uebersicht über die Studien, die bis zum Jahre 1955 über die Beziehungen der ESP zur menschlichen Persönlichkeit angestellt wurden. Obwohl die Untersuchung der ESP im Zusammenhang mit der Persönlichkeit eine vergleichsweise junge Entwicklung der Parapsychologie ist, stellt sie bereits einen sehr ausgedehnten Forschungszweig dar, welcher in diesem Stadium eine ordentliche Beschreibung und Wertung rechtfertigt.

Ein grosser Teil der grundlegenden Forschung auf diesem Gebiet ist von zwei amerikanischen Forschern durchgeführt worden, von Gertrude R. Schmeidler und Betty M. Humphrey. Sie haben zusammen mit einer Anzahl anderer Forscher verschiedene psychologische Funktionen beschrieben, insbesondere Intelligenz, Interesse, Introversion-Extraversion, Expansion-Kompression, Einpassung, die Erwartungseinstellung gegenüber ESP und die theoretische Orientierung der Versuchspersonen, auf deren Grundlage sie teilweise mit Erfolg nicht ausgewählte Versuchspersonen in Gruppen einteilten, welche danach trachten, bei ESP-Experimenten über und unter den Zufallstreffern liegende Versuchsergebnisse zu erhalten.

Aus einer speziell ausgearbeiteten Analyse dieser Forschung seien die folgenden Endergebnisse vorweggenommen.

1. Obwohl gewisse triftige Einwände einzelnen Studien gegenüber erhoben werden können, die sich mit den Beziehungen zwischen ESP und Intelligenz befassen, so legen doch zweifellos positive Beziehungen zwischen den zwei verschiedenen Gebieten nahe, dass entweder intelligendere Versuchspersonen bessere ESP-Resultate erzielen oder dass sie sich besser und schneller der ESP-Test-Situation anpassen und dadurch höhere Resultate erzielen. Eine weitere definitive Schlussfolgerung kann nicht gezogen werden.

2. Ein erfolgreicher Unterschied ist festgestellt worden zwischen ESP-Gruppen mit höheren und niederen Treffern, und zwar auf der Grundlage der Erfindung, die von Stuart gemacht wurde, und auf einer beschränkten Version derselben Art. Gute Ergebnisse auf dieser Skala zeigen wahrscheinlich, bis zu einem bestimmten Grade, eine gewisse Anpassung an die Umgebung an. Versuche, um die ursprünglichen Ergebnisse wieder zu erhalten, waren nicht von Erfolg gekrönt. Es ist indessen schwierig zu beurteilen, ob die abnehmende Wirksamkeit der Skala verschiedenen psychologischen Bedingungen in den späteren Versuchen oder dem Mangel an einer wirklichen Beziehung zwischen den Experimenten und dem ESP-Erfolg zuzuschreiben war.

3. In allen Versuchen, in denen Introversion-Extraversion die psychologische Variable darstellte, fand man, dass die Extraversion mit höheren ESP-Resultaten gekoppelt war als die Introversion. Dieser Faktor trennte hohe und niedere Treffergruppen mit einem bezeichnenden Grad von Regelmässigkeit.

4. Aus sehr umfangreichen Untersuchungen mit Elkinschs Expansion-Kompression-Kriterium (E-C) geht hervor, dass in Hellsehversuchen expansive Versuchspersonen als Gruppe höhere Trefferergebnisse erzielen als kompressive Versuchspersonen, dass jedoch in GESP-Tests, in denen Telepathie möglich ist, kompressive, als Gruppe, höhere Trefferergeb-

nisse erzielen als expansive. Expansion-Kompression, eine Bezeichnung aus dem Gebiete der Geometrie, scheint eine modifizierte Art von Introversion-Extraversion zu sein, oder, wie von Humphrey nahegelegt worden ist, ein Anzeichen der wechselnden Stimmung der Versuchsperson.

5. Die Beziehungen, die gefunden wurden zwischen dem Stand der ESP-Treffer und allgemeiner Anpassung beim Erraten, wie man sie etwa bei den Skalen des Maslow'schen Sicherheits-Unsicherheits-Verzeichnis und beim projektiven Rorschach-Test gefunden hat, weisen alle auf die Schlussfolgerung, dass höhere ESP-Resultate von Versuchspersonen erzielt werden, die die persönlichen Qualitäten besitzen, die man unter die Bezeichnung "gute persönliche Anpassung" einreihen könnte. Es ist darum evident, dass spezifisches Nichtanpassungsvermögen sich den ESP-Ergebnissen gegenüber als hinderlich erweisen kann.

6. Schmeidler erhielt hervorragende Trennung von höher und nieder liegenden ESP-Gruppen durch Verwendung von einer Art ESP-Kriterium, und zwar dadurch, dass die Versuchsperson die Möglichkeit von ESP annimmt (= "Schaf") oder sie zurückweist (= "Ziege"). Ihre Ergebnisse sind sehr umfassend und die Wahrscheinlichkeit darf als entscheidend betrachtet werden. Diese Trennung wurde noch deutlicher, als die Schaf-Ziege-Klassifikation mit einer Anpassung beim Erraten kombiniert wurde. Die Resultate zeigen, dass einzig die typischen Schafe für die positiven Resultate verantwortlich sind und dass es einzig unter den typischen Ziegen vorkommt, dass die Resultate klar unter dem Zufallsmittel liegen. Die Resultate der weniger typischen Schafe und weniger typischen Ziegen tendieren dahin, sich um das Zufallsmittel zu häufen.

7. Einige Verwandtschaft besteht zwischen ESP-Resultaten und der Art und Weise, in der die Versuchspersonen auf Misserfolg reagieren. Nach aussen gerichtetes Strafbedürfnis (Aggression, die sich nach aussen, gegenüber der Umgebung, zeigt) äussert sich in einer negativen Beziehung zu ESP-Resultaten, nach innen gerichtetes Strafbedürfnis (Aggression, die gegen das eigene Selbst gerichtet ist) zeigt eine positive Beziehung zu ESP-Resultaten.

8. Es spricht einiges dafür, dass der Unterschied in den Trefferergebnissen zwischen Schafen und Ziegen zusammenhängt mit deren theoretischer Orientierung, wie sie gemessen wird durch die Allport-Vernon Wertskala. Versuchspersonen mit hohen theoretischen Werten auf dieser Skala identifizieren sich intensiver mit dem Zweck des Experiments, d.h. um das Vorliegen der Abwesenheit von ESP zu zeigen, da dies engstens zusammenhängt mit ihren Systemen von Werten und Erwartungen. Durch die Theorie erfasste Schafe und Böcke tragen entscheidend zu den positiven oder negativen Abweichungen bei, welche die Gruppen charakterisieren.

Bis zu diesem Punkt in der Erforschung der ESP-Persönlichkeit hatte das Problem einzig darin bestanden, Kriterien der Persönlichkeit zu bestimmen, auf deren Basis eine wirksame Trennung der Versuchspersonen in höher und niedriger erratende ESP-Gruppen bestimmt werden kann. Solche Kriterien hätten einen dreifachen Wert:

1. Indem sie das Vorkommen von ESP demonstrieren, dort wo es auftritt, während bei einer grösseren Bewertung ein solches Vorkommen nicht nachgewiesen werden kann:

2. Durch Darlegung, ob irgendwelche Verwandtschaft besteht zwischen gewissen Charakteristiken der Persönlichkeit und ESP-Erfolgen, und, wenn irgendwelche existiert, welchen Umfang diese Verwandtschaft hat:

3. Bei eventuellem Vorhersagen, durch Einschätzung der Persönlichkeit, die ESP-Resultate einer einzelnen Versuchsperson.

Die ersten zwei Ziele sind teilweise erreicht worden. Jedoch sind bisher weniger Versuche gemacht worden, um die Höhe der Treffer, als um die Richtung voraussagen, in der die Gruppendifferenzen liegen oder um individuelle Voraussagungen zu machen auf der Grundlage von Gruppenresultaten. Nur in wenigen Forschungen ist dies erreicht worden, mit einem gewissen Erfolg.

Es ist jedoch entscheidend nachgewiesen worden, dass Kombinationen von Persönlichkeitseinschätzungen einen höheren Grad von Trennung erfordern als gewöhnliche persönliche Maßstäbe. Dies legt es nahe, dass der Ausdruck der ESP von einer Anzahl miteinander zusammenhängender Faktoren abhängt und dass die am meisten Gewinn versprechende Methode der Auswahl zur Erhaltung höher- und tiefer-errater *individueller* Versuchspersonen bei ESP-Tests darin besteht, eine ganze Batterie von Persönlichkeitstests zu benützen. Das verlangt nicht nur eine Fortsetzung der jetzt in der Entwicklung begriffenen Arbeit mit einfachen, doppelten und dreifachen Kombinationen von Persönlichkeitseinschätzungen, sondern auch den Gebrauch eleganterer statistischer Techniken, wie z.B. die einer vielfachen Regressions-Analyse, um optimale Gewichte von Persönlichkeitstests in der Auswahl-Batterie zu erhalten, und zum Vergleich parallele Studien für die persönliche Beschaffenheit von Personen mit hohen Trefferzahlen mit dem, was bekannt ist über die persönlichen Charakteristiken von Gruppen von Versuchspersonen, die, als Gruppe, positive Ergebnisse in ESP-Versuchen haben. Dies sollte eventuell zur Entwicklung von experimentellen und statistischen Techniken führen, um Versuchspersonen herauszufinden und ihre voraussichtlichen Versuchsergebnisse vorzuberechnen, und zwar weitgehend auf der Basis von Messungen über eine bestimmte Anzahl von Persönlichkeitstests und Schätzungen.

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