

THE MEASUREMENT OF CHARACTER BY PERSONAL RATINGS

AN EXPERIMENT IN THE CONSTRUCTION  
AND USE OF A RATING SCALE

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I N T R O D U C T I O N



This study had two primary objectives:-

- (1) To examine the Theory of Rating Scale method, and to review previous attempts to measure Character and Personality by means of Judgments by Acquaintances, and Self-Judgments.
- (2) To construct a Rating Scale and examine its validity and possibilities by analysing the Data obtained by an experiment with the Scale, and to suggest modifications in the Scale as a result of the inquiry.

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A very detailed examination, the results of which follow, was made of those scientific investigations which have examined judgments of character and personality, and into the theory of Rating Scale construction and application. An endeavour has been made to present the most important information resulting from this inquiry.

The experimental work with a Rating Scale is then reviewed. It is difficult to express the deep obligation of the writer to Dr. Martin, who supervised the work, and whose frank and constructive criticism, and most valuable guidance, have proved of the utmost assistance throughout the experiment.

HISTORICAL REVIEW

INVESTIGATIONS WHICH EMPLOYED  
MEASURES DERIVED FROM JUDGMENTS.

Although attempts have been made to judge human character and personality since the beginnings of civilization, we may commence our review of such judgments with a consideration of the work of Francis Galton. It is claimed that Galton first conceived the idea that the distribution of personality traits would be in accordance with the curve of normal distribution. Furthermore, Galton's questionnaire by which he sought to investigate the vividness of visual imagery, included a ~~p~~oint scale - with illustrative descriptions in order to assist in securing accurate judgments.

In 1906 Karl Pearson secured estimates of General intelligence, temper, popularity, self-consciousness, shyness and conscientiousness.

Norsworthy's (63) investigations led to the conclusion that reliability of ratings varies with the trait under consideration, and secondly, that some individuals are easier to rate than others. (For traits see Appendix I, No.1).

Cattell's (cf.8) study of American men of Science led him to conclude that estimates based on objective reactions to things gave close agreements in ratings, and most disagreement occurred when individual reactions to persons were involved.

Elliot & Boyce (cf.91) suggested schemes for ratings. Rugg (91) dismisses both of these as useless from viewpoint of validity or reliability.

F.L.Wells (120), discussing the systematic observation of the personality, devised a series of six-point scales to examine Intellectual Processes, output of energy, self-assertion, adaptability, general habits of work, moral sphere, recreative activities, general cast of mood, attitude towards self, attitude towards others, reactions towards self and others, position towards reality, sexual sphere, and balancing factors. This was a theoretical scheme to show the various aspects from which the self might be examined.

Some five subjects are rated by way of illustration, but no statistical treatment of the results is undertaken. (Samples of Wells' Scales are included in Appendix I - No.2).

By far the most careful study in its sphere to the time of its Publication was that of E. Webb on "Character and Intelligence" (118). He used three groups of subjects. Groups 1 and 2 were of 98 and 96 men students at a teachers' college (average age 21), divided into sections of 19 or 20 each and Group 3 consisted of 4 sections of schoolboys (average age 12) (sections of 33, 35, 35, 37) from different London Schools.

For each section two Judges, working independently, were employed. In the case of the College Students, prefects acted as Judges, while Masters judged the schoolboys.

A large list of mental qualities - arranged in the form of a questionnaire (cf. op. cit. pp.13-15) were used and these qualities were classified for college students, under the headings -

Emotions  
Self-Qualities  
Sociality  
Activity and Intellect

For schoolboys the divisions were -

Emotions  
Self-Qualities  
Activity  
Intellect

Raters were instructed to assign a mark (+3, +2, +1, 0, -1, -2, -3) to each subject, and to attempt to secure a normal distribution for each section. Tests of intelligence (opposites, reconstruction of disarranged sentences) were also given.

Reliability of estimates was calculated by the correlation (product-moment formula) between the estimates of the two Judges. The average reliability for all

estimates was Boys  $+ .49$ , Students  $+ .47$ . Some estimates were discarded and final average reliability was  $+ .55$ .

Webb then found the correlation between the estimates (correcting for attenuation because of the unreliability of estimates which were pooled). His results show the presence of "a general factor of intellectual energy 'g'" and he proceeded to use the Spearman formula for determining the existence of a general factor in order to ascertain if such a factor existed in the case of character. "As a result of this inquiry" we venture to suggest (tentatively and with much desire for further evidence) that the nature of this second factor, whose generality would appear to extend so widely in character, is in some close relation to 'persistence of motives'. This conception may be understood to mean consistency of action resulting from deliberate volition or will." (op.cit.p.60). Webb uses the symbol "w" to represent this factor.

Webb did not attempt to develop a rating scale for practical uses. His findings are important however, because they indicate that ratings of personal traits can be obtained which possess a satisfactory degree of reliability, that there is present in character a general factor, and that teachers' estimates of intelligence were distinctly biased.

Probably the genesis of the rating scale as at present used is to be found in the Quintile Rating scale of J.B.Miner (cf.8)++ (cf Miner's paper on "The evaluation of a method for Finely Graduated Estimates of Abilities".)

The main features of his method are that an attempt could be made by raters to rate S's in the correct fifth of ~~th~~ the scale, and that this was extended so that S could be graded by means of a dot placed on a line. Here the principles of rating relative to members of a group, the avoidance of qualitative terms which it is not possible to

++ Miner's work was unavailable in Sydney. It was published in J.App.Psych. for June 1917 and this number was missing from the collection in the Fisher Library.



define, allowing raters to discriminate as finely as they desired, and of securing units of measurement easy to transmute into S.D. units, appear.

A careful selection of traits

X  
 Scholarship,  
 General Ability  
 Common Sense  
 Energy  
 Initiative  
 Leadership  
 Reliability

which seemed to embody different and important factors of personality from the standpoint of employment, was made, and 140 seniors rated on these traits, each by four judges. Correlations showed a high degree of agreement between judges. The only description of each trait was the name word.

At about the time when Miner's article appeared W.D.Scott was developing a man to man rating scale, based on a type employed in commerce before the War, which was widely used - The Army Rating Scale. The Army policy of promotion by reason of efficiency resulted in the need for some standard method of evaluating efficiency. Scott's (92) claim was that this scale provided "as applied to officers.... a practical system by means of which an officer's capacity for promotion can be gauged quickly, accurately and with uniformity and justice." A master-scale can be created in 20 minutes and a rating made in 60 seconds (op.cit.p.204).

The basis of this scale was the belief that a man can only be judged in comparison with other men. The five essential qualifications of an officer,

- (1) Physical Qualities,
- (2) Intelligence,
- (3) Leadership,
- (4) Personal Qualities,
- (5) General Value to the Service,

were defined briefly (for Scale see Appendix). Each quality was analyzed into five degrees of merit and the rater constructed a master scale by selecting five officers of his acquaintance to represent the various degrees of the specific trait under consideration. Each subject could be rated by comparing him with the men on the master scale as regards that quality, and assigning him to the position (1, 2, 3, 4 or 5) which was appropriate. "The sum of these counts his total rating, which is a numerical expression of the degree in which he possesses the military qualities deemed most essential". Rating officers were usually the superiors of those rated. All officers were rated quarterly. "The accuracy of the result depends largely upon the care with which the rating scale is constructed. When instructions are followed closely and raters do their work conscientiously, the ratings show a high degree of accuracy and uniformity". (79 p.261) (A copy of Scale is in Appendix I - No.3).

Scott's theories were extended (76) and it was found that considerable improvement in accuracy resulted from greater objectivity in the definitions of qualities : e.g. Leadership, previously defined as "judgment, initiative, force etc", became "Judge his ability to develop a loyal and effective organisation by administering justice, inspiring confidence, and winning the co-operation of his subordinates" (op.cit.p.30). It was also found that greater uniformity and accuracy resulted if the ratings were corrected to allow for the tendencies of certain Judges towards consistent errors of over-estimation or under-estimation.

T.K.Folsom's "Statistical Study of Character" (25) considered 12 traits, General aggressiveness, gregariousness, kindness, Desire for admiration, cheerfulness, enthusiasm, perseverance, handsomeness of natural personal appearance, personal appearance (neatness of dress), Degree of Bodily Activity, Degree of Mental Activity, and General Intelligence. He had 3 groups of men subjects (76, 90, 27). A judge

selected from fellows rated each man in one of 5 traits. Then ratings were provided by professors on General Intelligence, General Aggressiveness, Interest in Intellectual things, Self-confidence, and Perseverance.

Although Folsom did not attempt to construct a rating scale, he found that aggressiveness had the highest average correlation with the other eleven student-judged traits, and also that a high degree of agreement existed between Professors' and classmates' estimates of aggressiveness.

R. Pintner's study of "Intelligence as estimated from Photographs" (80) in which twelve photographs were ranked by sixty-three observers for intelligence, and these rankings correlated with rankings in the Yerkes-Bridges Intelligence Test giving a correlation approximately the same as chance, serves to show the impossibility of judging intelligence from such data.

Minnie M. Robson (86) with a group of twenty-one girls who lived in the same house, secured rankings (which were anonymous) by each girl on the entire group for the following character traits:-

- (1) Pleasing Personality
- (2) Beauty
- (3) Refinement
- (4) Neatness
- (5) Enthusiasm
- (6) Optimism
- (7) Thoughtfulness of others
- (8) Leadership
- (9) Self-esteem
- (10) Snobbishness.

Separate traits were considered at intervals of one or two days to eliminate "Halo" effects. This was really a repetition of Hollingworth's work on Judgments by self and by associates.

Taking the arithmetic mean of the rankings as accurate she found greater accuracy in judging associates than in self-estimate in traits No. (1), (5), (6), (7), but not so in the others. Hollingworth had found this tendency constant. Miss Robson publishes a table of intercorrelations between the traits. In her account of this investigation there is no mention of any attempt to define the traits.

E.L.Thorndike (111) points out the danger of the "halo" effect in ratings, observed in 1915 in a study of the employees of two large industrial corporations and also in the army ratings.

C.H.Griffitts' attempt to measure cheerfulness by experimental means (37) and his comparison of results with estimates on cheerfulness by friends of the subjects is of small interest, as no attempt is made to define cheerfulness, and no results of the comparison are given.

? i/ J.L.Stenquest suggests "An improved form of rating by the Order of Merit Method" (102) a folded sheet is employed - the names of subjects may be typed on the upper surface and a carbon duplicator used to transfer them to the underneath sheet, which is perforated so that it may be detached and the names separated for the purposes of ranking. The ranks can then be included on the top sheet. The advantages claimed for this form are its novelty, and the fact that it provides an easy way of securing order of merit rankings. (See Appendix 1; No.4).

F.H. and G.W. Allport attempted to classify and measure Personality Traits (4). 55 students each got three class-fellows to rate him on the Allport Personality Scale. The average of three ratings was taken - if a discrepancy of more than 25 points occurred between the three rates then that subject was discarded for the purpose of classification with that trait.

They conclude: "a well-controlled process of rating individuals by associates is probably an adequate means of obtaining an objective notion of a group of personalities with which the results of tests devised for this sort of measurement may be correlated." (cf. cit. p. 36). A further suggestion as to the value of the graphical illustration of personality is made. (For Rating Scale see Appendix 1, No. 5).

Several forms of rating scales on personality traits and on efficiency have been used in investigations on teachers. W.S. Gray (36) suggests that a self-rating scale used by teachers will lead to careful self-analysis and consequent improvement of teaching. He does not appear to be interested in the potentialities of such a scale for accurate measurement. Godfrey H. Thomson (109) confronted with a difficulty in securing objective marks (A, B, C, D, E) to indicate teaching skill in students, suggests two means for securing standardized judgments. The first is a rating scale adapted from the American Army Scale, and a second an attempt to rate on an imaginary percentile scale. Thomson found that, despite the instructions to compare the subject with students of approximately the same age, the raters used themselves as a standard. (For Scale of Appendix 1, No. 6).

E.E. Lindsay (61) attempted to compare teachers' estimates of native capacity with objective measures. He took a small group of subjects - a 10th grade history class of 12 girls and 7 boys. The judges were 5 graduate students and 2 professors who, after one month's acquaintance, were asked to rank the class in order of native capacity. Intelligence Quotients were then secured and the following correlations found:-

Intelligence Quotients and Examination Grades	.53
" " " Estimates of Regular Teacher	.38
" " " " of Professors	.43

## Intelligence Quotients and Composite Estimate of Students .52

He concludes:-

- (1) Teachers' estimates of children's native capacity are significant, but to no marked degree.
- (2) The training and experience of the teacher does not seem greatly to affect this significance.
- (3) Individual judgments of the same children by observers with approximately the same contact differ widely.
- (4) Other factors than native abilities do enter into one's judgment of the same.

In 1922 Hollingworth ("Judging Human Character," p.110) suggested that ratings should be accompanied by a record of the actual facts "on the basis of which the judgment is passed".

F.A.C.Perrin investigated "Physical Attractiveness and Repulsiveness" (77) by means of a seven-point rating chart for physical characteristics. He found:-

- (1) Anatomical measurements of attractive people conform to the standard or the mode.
- (2) Anatomical measurements of unattractive people show slight tendency to depart from the standard.
- (3) Physical attractiveness is to be explained in terms of behaviour.

Perrin also secured ratings on some character-traits and found correlations:-

Physical attractiveness and Good Taste in Dress	.83
" " " General Social Ability	.71.

He did not examine the reliability of the measures used and did not consider the "halo" effect. (Scale is in Appendix 1, No.7).

Perrin also made "An Experimental Study of Motor Ability" (cf.77) in which he secured 5 ratings on each subject in a number of traits. His results are of no great importance (cf.Appendix 1, No.8).

H.O.Rugg (90) made a very careful inquiry into the practicability of the rating of human character. He concluded that such rating is practicable if -

- (1) The final rating is an average of three independent ratings each on a scale as objectified as the man-to-man scale.
- (2) Scales (i.e. master-scales) are comparable and equivalent.
- (3) If raters are so thoroughly acquainted with the subjects that they are qualified to rate.

Rugg's inquiry was confined mainly to the man-to-man scale employed in the U.S. Army. He points out the great difficulty of securing five representative men in the construction of the master-scale.

He considers that the criteria for judging the validity of the ratings made on the Army Scale are four:-

- (1) The degree to which a number of officers agree in rating the same officer independently, both in total rating and in specific contributory traits.
- (2) The degree to which officers' (Master) scales are comparable and represent equivalent amounts of the traits in question - personal qualities, physical qualities, intelligence, leadership and general value to the service.
- (3) The degree to which scale positions of officers used on the "intelligence" element of the rating scale correspond to scale positions determined by three objective psychological tests.
- (4) The degree to which the rating scale detects differences in ability which are detected by other conspicuous measures of success.

Ratings differed, Rugg says, because of -

- (1) Lack of acquaintance,
- (2) Individual tendencies to rate too high or too low,

- (3) Faulty analysis of scale-terms due to varying backgrounds,
- (4) Complicating elements which interfere with efforts to discriminate elements of human character, e.g. different prejudices, "halo" etc.

It is possible, he thinks, but extraordinarily difficult, for two persons to construct comparable and equivalent master-scales.

Individual ratings of character are nearly a chance event, but the averaging of a number of ratings brought the correlation with an objective intelligence test from .08 to about .40 or .50.

In the Horace Mann school Clara F. Chassel (13.) attempted to apply the Army Rating Scale to Kindergarten Pupils, obtaining ratings on Habits of Work, Participation in Social Activities, Co-operation in spontaneous activities and Responsibility (as shown in care of personal belongings etc). Ratings could be 25, 15 or 5 points for each trait, so individual scores could range from 20 to 100. Miss Chassel discusses the significance of the obtained intercorrelations, and also the comparability of the ratings of different judges. (For scale see Appendix 1, No.9).

B.V.Moore (69) in selection work on graduate engineers, secured ratings on ten different character-traits - reliability, industry, initiative, tact, attitude, analytical ability, aptitude, enthusiasm, personality and decision. Several ratings were taken for each trait. The master-scale principle was employed and Moore emphasises the fact that "proper rating is largely dependent on the possession of an accurate master-scale" (op.cit.p.27).

Ratings were obtained from interviewers, from foremen and supervisors in the shop and class, and from college instructors.



The interviewer's scale was after the type of the Army Scale and comprised Physical Qualities, Intelligence, Leadership, Social and personal qualities and General value to the Company.

The Shop and Class Scale included Intelligence, Co-operation, Industry and Leadership.

The scale used by college instructors comprised Appearance and Manner, Intelligence, Leadership, Personal Qualities, Professional Interest and Specific Work.

In the two latter, ratings were made by assigning the subject to a position on a scale graded in fifths - no master scale was used.

Some intercorrelations of foremen's ratings (about 100 cases) are interesting.

Reliability and Industry	+ .66.
Initiative and Tact	+ .66.
Initiative and Enthusiasm	+ .42.
Analytical Ability and Aptitude	+ .72.
Analytical Ability and Personal Qualities	+ .26.
Enthusiasm and Personal Qualities	+ .57.

Moore found that ratings made by foremen on men working under them only one month were very unreliable, and really valueless. This he attributed to the methods of rating employed rather than to the inability of the foremen to make judgments.

T. Slawson (97) emphasizing the necessity for the evaluation of personal traits by means of judgments, owing to lack of objective measures of almost all these traits, attempted to determine the reliability of judgments of personal traits. Judgments were made on teachers (Order of merit ratings) and the experiment was conducted in six schools, 31 judges (5+5+4+7+6+4) being employed.

Traits were selected because of -

- (1) Supposed importance in teaching.

- (2) The competency of at least 5 raters to judge on them.  
 (3) The Distinctness and exclusiveness of the traits.

The traits used were Appearance, Tact, Punctuality, Effort, Judicial Sense, Leadership, Co-operativeness, Professional Interest and Growth, Understanding of Children, Counteracting Factors, All round value to the service. (See Appendix 1, No.10 for scale).

After about two weeks ratings were repeated by all judges independently of first ratings.

The relative objectivity of the traits was determined by the degree of group agreement - the greater the agreement of competent judges in assigning positions to subjects (independently of each other) the more objective is the trait. The order of objectivity, according to this inquiry, was All round value to the service, Co-operativeness, Leadership, Effort, Understanding of children, Professional interest and growth, Appearance, Tact, Punctuality, Judicial Sense, Counteracting Factors.

Slawson found that more than one trial does not result in greater group agreement or objectivity. He suggests the substitution of specific items wherever possible, for simple definitions of traits. His results also indicated a positive correlation between official position and judicial capacity.

In 1921 Knight and Franzen (58) asked 110 Junior University Students to rate in order of importance (a) to themselves (b) to the ideal junior, (c) to the typical junior, a list of interests varying in importance from essential to trivial ones.

Correlations were (a) and (b)  $+ .46$ .

(b) and (c)  $- .64$ .

"Introspective" and  
 "Objective" (a) and (c)  $+ .13$ .

This shows the presence of a marked tendency to over-rate themselves and under-rate their fellows.

They noted "a tendency to place oneself nearer the ideal than the typical" (p.209).

Using another set of data - from Mendenhall's Moral Character Scale - they found a correlation of  $+0.52$  between the relative importance of the traits, in the opinion of the reporter, and the amounts of each trait he believed himself to possess. "This positive correlation between the relative importance of traits and the amount of each trait a subject rates himself as possessing may be considered a self-defence mechanism whereby a person tends to think well of himself in what he judges important and evens up by under-rating himself in less significant items" (op.cit.p.211).

Discussing the overlapping of traits, and "halo" effect, they conclude "the amount of the spread is a function of the method of rating as well as the inability of judges to rate for specific traits; and therefore it can be partly eliminated. The worst thing about analysed ratings is not the too high correlations between traits, but the extreme variation of the size of one intercorrelation under different circumstances. This makes it impossible to diagnose the general factor and partial it out". (op.cit.p.212).

Ruch (88) secured estimates of volitional traits (of the Downey Will-Profile) from two groups of associates, university instructors, and students in the same classes, on more than twenty advanced or graduate students. In every case social relationships were fairly intimate, and acquaintance had extended for a period of more than six months. The definition of each trait used was that given by Downey. Judges were instructed to rate the entire group on trait No.1, then on trait No.2 etc. Spearman rank correlations were corrected to Product-moment ones.

Intercorrelations between estimates by Faculty and by Students were:-

Average	- Subject by subject	$+0.47$
Average	- Trait by trait	$+0.62$

The Downey Will Profile Tests were then applied to the students.

Reliabilities of estimates and tests were obtained by correlation of scores for odd-numbered traits with those for even-numbered traits. (Scores were trait scores).

The reliabilities were as follows:-

Downey Scale	$r = -0.15$ (15 subjects)
" "	$r = -0.21$ (22 subjects)
Faculty Estimates	$r = -0.86$ (15 subjects)
Student Estimates	$r = -0.58$ (15 subjects)

A further development of rating scale methods is to be found in the Graphic Rating Scale (40.) in which the rater is freed from direct quantitative terms, and can make as fine a discrimination of merit as he chooses. This scale is claimed by Hayes and Paterson to be "Simple, Self-explanatory, concrete, definite", and to be "highly reliable on clerks, carpenters, draftsmen, machine operators and assemblers" (op.cit.p.98).

The Scott Company Graphic Rating scale was a development by B.Ruml from the man to man comparison scale of the type used in the U.S. Army Ratings (cf.74). This scale is similar to that advocated by Miner. Man to man comparisons are omitted, the rating method of awarding a position in a certain fifth is discarded, and is replaced by a check mark on a line. At suitable points along the line descriptions of degrees of the trait are included. Definite instructions for rating are given to raters. The ratings are scored by means of a stencil graduated in ten divisions. Ratings by individuals can be corrected to allow for personal tendencies to rate too high or too low. By addition of corrected ratings a final rating is obtained.

An experiment was conducted in three large companies to discover -

- (a) The reliability of judgments under this method,
- (b) Whether "final" as distinct from "total" ratings are

necessary to allow for different individual standards of judgment.

- (c) The general usefulness and practicability of the method.

The results of this experiment showed -

- (a) That ratings were highly reliable. Both the ratings of the same judges in different months, and the ratings of different judges on the same subject being highly satisfactory.
- (b) Large differences in individual standards made necessary a statistical method of correction by the translation of total scores into terms of final scores.
- (c) The method was found to be simple and practicable in actual use. (An example of this Scale is in Appendix 1, No.11).

The graphic rating scale method was used by N.C.Meier (68) to investigate the Downey Test. 106 students were given the Downey Test in individual and group form, and then an attempt was made to secure three ratings, from a teacher, a parent, and a friend, on each subject. About 60% of the subjects were completely rated.

Correlations were:- (p.c. in each case  $\pm .08$ )

(I)	Test scores with three sets of judges, pooled	.1183
(II)	" " " " " " " " separately	
	{ Teachers	.0075
	{ Parents	.0542
	{ Friends	.0067
(III)	Correlations (trait by trait) of estimates of several judges -	
	Teachers and Parents, average	.1425
	Teachers and Friends, average	.0792
	Parents and Friends, average	.2850
(IV)	Correlation (trait by trait) of Individual and group form average	.2230

- (V) Downey Test total scores with point scores of Terman  
Group Intelligence Test +.21
- (VI) Total scores individual form with total scores of  
Group form Downey +.60

From these results, especially the measure of agreement between pooled estimates and test scores (which Rugg considers most significant), in which correlations "appear to be consistently low or negligible" Meier concludes that disagreement exists, and points out that this disagreement may arise because the test is inadequate or defective, the estimates are unreliable, or, while both are satisfactory, they measure different things. The third set of correlations suggest that the estimates are not of great value.

Forrest A. Kingsbury (50) states that "ratings as ordinarily made are highly unreliable" - with a five-point scale only ideal conditions give approximate accuracy. To secure reliability for ratings he repeats Rugg's requirements of three independent estimates on comparable and equivalent scales by competent raters. Rugg's recommendation that "we should discard these loose methods of rating once and for all, and get objective methods", is quoted with approval. The point that objective methods may be dependent on ratings is overlooked.

Georgene J. Hoffman conducted "An Experiment in Self-Estimation" (45) in which 25 girl students of psychology each ranked the whole group in ten character traits: Intelligence, Neatness, Humour, Beauty, Refinement, Sociability, Likeableness, Snobbishness, Conceit, Vulgarity. No attempt at definition of these traits seems to have been made. The self-estimate of each subject was compared with the median of associates' judgments on her in each trait, and this provided the degree of displacement. Considerable over-estimation was found in the self-estimates, but "overestimation is not a constant indiscriminate tendency characterising

an individual's self-estimates, but on the contrary, is selective depending for manifestation on the trait judged." (p.45). Further, "the subjects judged by 24 of their associates to possess a given trait in the greatest degree, overestimated themselves least in respect to it". (p.46). This is not difficult to understand as those people would have least scope for over-estimation. However, the finding that "the subject who was judged most conceited showed the least tendency to over-estimate her own traits" (op.cit.p.48) suggests that the judgments may have been inaccurate.

W.Koerth and G.M.Ruch (59) examined "The Validity of Self-Estimates of College Marks". They took the mark Received and then the student's estimate of mark **E**xpected and mark Deserved.

Correlations were R. and E.	.55	(P.E. <sup>†</sup> .022)
R. and D.	.53	(P.E. <sup>†</sup> .023)
E. and D.	.01	(P.E. <sup>†</sup> .023)

The conclusion reached was that ability to estimate college marks varies with mental capacity. No sex differences were found.

*Handwritten:* The validity of H.A. traits?

J.V.Yarborough secured rankings by thirty students on thirteen traits on the basis of their importance in determining intelligence (122). As a result of this five were selected and class members were ranked by the students on each of these. To avoid "halo" rankings were done on each trait at two-day intervals. The traits were Mental Alertness, Appearance and Manner, Originality in Thinking, Leadership among Students and Impersonal Reasoning. The intercorrelation of traits which resulted (for table see Appendix) is claimed as evidence against the suggestion that such estimates are affected by "halo". The instructor ranked students on those traits and the average correlation between instructor's estimate and estimates by fellows was .61.

F.B.Knight (57) investigated the influence of the acquaintance factor on estimates of General Ability, on ratings for Physical Efficiency, "Social Efficiency" and "Dynamic Efficiency". He found that "the factor of acquaintance operates to make ratings more lenient, i.e. increases the over-rating, and to make ratings less critical and analytical, i.e., increases the halo of general estimate. It is in the direction of truth to discount the ratings of judges when acquaintance has been too long" (p.142). No suggestion is made as to the optimum length of acquaintance from the viewpoint of efficiency in rating.

June E. Downey (22) states "The main criticism directed against rating scales is the bias of judges and the influence upon them of conspicuous physical and social traits. Another criticism turns upon the failure of experimenters to define exactly the traits that are to be rated and the taking over of terms from everyday life, terms which cover a complex of native and acquired qualities rather than fundamentally simple psychological aspects of personality. Social "tact" for example, is certainly a complicated and not a simple matter" (op.cit.p.31). We could substitute intelligence for social tact in the last sentence, but it would not justify the abandonment of attempts to measure intelligence.

Thorndike, Bregman and Cobb (112) obtained from graduate students an Order of Merit Ranking of 100 tasks from the point of view of difficulty. These tasks were then given to a ninth grade class of children and the correlation between the ranked order and determined order of difficulty was  $+0.88$  (corrected correlation  $+0.92$ ).

L.W.Webb (119) with 104 students, 53 men and 51 women, asked the faculty to rate each on intelligence, placing each in the correct division of a percentile scale constructed by each rater from all students of his acquaintance. Students rated each other by the same method, being "urged to rate only those students who were well-known to



them". The students were then given Army Alpha and Thurstone A and B intelligence tests. Each group of students was found to be partial to the opposite sex and the author concludes that men cannot rate women, but women can rate men accurately.

W.H.Hughes (46) secured ratings on pupils in a junior and a senior High School on twelve character traits:-

Quickness of thought, Memory, Force of Personality, Capacity for Leadership, Initiative-Aggressiveness, Control of Attention, Self-Confidence, Sense of Accuracy, Co-operative-ness, Regularity - Persistency, Trustworthiness and Respect for Authority. These were correlated with ratings on intelligence (see Appendix for table). Hughes gives a reliability coefficient of .89 for the ratings.

A.J.Snow (98) examined the ability to judge by means of the personal interview. He attempted to determine the relative agreement between judgments on character and aptitude based on an interview and history blank by a number of "commercially competent judges".

Twelve men were interviewed individually by seven judges who were of the highest calibre of sales managers in Chicago. The men were then given the Scott mental alertness test and several tests from the Carnegie institute.

Among the judges there was fair agreement as to the best and worst applicants but a vast difference of opinion regarding the remainder. The variability of the positions of the candidates was three places out of twelve. A judge who was not a business man scored a record similar to the other judges.

The correlation between test ranking and judges' ranking was +0.12, but this may have been due to a bad sampling - the omission of one man would make  $r = +0.41$ .

H.H.Young (124) reports that in Indiana Training School for Nurses every nurse while in training is rated by

each of her instructors and head nurses on Personality, Professional Fitness, Good Points and Weak Points. The list of personality traits rated includes Truthful, Sense of Humour, Courteous, Industrious, Dignified, Even-tempered, Enthusiastic, Adaptable, Tactful, Sympathetic, Personal Appearance and Resourceful. This investigator's conclusions deal with the relation of intelligence scores to training success.

Cleeton and Knight (15) examined "The Validity of Character - Judgements based on external criteria".

Systems of character judgment by physical traits were analysed and those traits measured. Groups of individuals were judged casually for specific character traits. Close associates of members of the groups carefully rated members of the groups to establish the facts relative to the varying amounts of certain traits possessed by members of each group. These three measurements were then correlated.

The character traits studied were the ones on which the physical indicia of phrenologists agree best:- Sound Judgment, Intellectual Capacity, Frankness, Will-power, Ability to make friends, Leadership, Originality, Impulsiveness.

Three groups of subjects (10; 9; 9) from close social organisations were selected, and 20 ratings on each were secured. The reliability of these ratings was determined by taking the ratings of ten judges and correlating with the ratings of the other ten judges, and then by the use of the formula for determining the reliability of a test from one application (Garrett formula 60 p.271). The average coefficients for the three groups were very high, ranging from +.60 to +.95. An interesting table of intercorrelations of these traits is published to show "halo" effect (See Appendix ).

Casual observers' judgments (70 observers) showed, if anything, a higher degree of reliability than those of

close associates, which leads to the conclusion that close observation is consistent.

The reliability of measurements by physical indicia, calculated by the same means, was almost zero.

Correlations between physical measurements and ratings were secured by two methods. Firstly the correlation between the estimates of casual and close observers was determined for each of the three groups. Secondly, the three groups were combined by changing each rating into a standard measure and thus making comparable the scores of the groups. The formula for deriving standard measure from an individual score in one group was:

$$\text{Standard Measure} = \frac{\text{Score} - \text{true mean}}{\text{Standard Deviation}}$$

For eight traits the highest correlation between scores from physical indicia and ratings of close associates was .195. Between close and casual observers the highest agreement on any trait was .323.

Thus the investigators conclude:-

1. The ratings of close associates are reliable.
2. The ratings of 70 observers are reliable.
3. The Physical factors purporting to measure the same trait do not present any agreement.
4. The correlation between the ratings of close associates and casual observers is slightly better than chance.

Max Freyd (30) investigating "The Personalities of the Socially and Mechanically inclined", selected two groups of men, one consisting of salesmen and the other of those whose primary interests were in mechanics and engineering. These groups were compared as regards abilities, interests and personality traits, the main aim of this comparison being to determine the differences of personality between the groups. Statistical methods were applied to detect if any

traits were characteristic of either group and also to find what traits, if any, were characteristic of both.

A team of tests and several questionnaires were used. Group comparisons were then made on self-ratings, made on a graphic rating scale, on the following traits - (for his scale see Appendix 1, No.12) - Wide-awakeness, Present-mindedness, good nature, neatness, excitability, carefulness, submissiveness, self consciousness, impulsiveness, physique, self-confidence, criticism, evenness of temper, adaptability, rapidity of making friends, open-heartedness, conduct re opposite sex, intrepidity, talkativeness, taste, speed at work.

Freyd concluded that the best traits for differentiation between the socially and mechanically minded were, talkativeness, flexibility, present-mindedness, good nature and quickness in work. In all of these the sales group excelled the industries group.

E. Shen (95) who attempted to determine the influence of friendship on personal ratings, requested 28 individuals who had been classmates for three years to rank each other with respect to friendship, in addition to eight other traits. These other traits were intellectual quickness, intellectual profoundness, memory, impulsiveness, adaptability, persistence, leadership, and scholarship.

Subjects were divided into four groups and each rating treated only four of the eight other traits. Final scores showed 26 series of ranks in friendship and 13 series of ranks in the other traits. In these other traits ranks were converted to scores in terms of S.D's of a unit normal distribution and ratings by judges of the same group were averaged. The reliability of the average ratings ranged from .62 for impulsiveness to .91 for scholarship, all the others being well above .80.

Shen concludes:-

1. In a group like this intimate friendships did not increase accuracy.

2. "There seems to be a consistent relation between friendship and tendency toward over-estimation.... due to a genuine illusion". (op.cit.p.68).

But "when we conclude that there is a definite tendency toward over-estimation according to friendship, we must remember that much the larger part of the errors is due to other unknown factors".

Hollingworth (44) found that the validity of three methods of determining whether a man was or was not intoxicated was as follows:-

Testimony of Technical measurements	100%
Introspection of performer	84%
Judgment of witnesses	80%

P.M. Symonds (106) had a class of 40 pupils rated on a graphic scale by two teachers on seven traits and seven habits. After a week the same teachers ranked the pupils on the same traits and habits. The experiment was then carried out by two other teachers. No details of the rating methods employed are given. (~~For list of traits, with definitions, see Appendix~~ ).

In order to test the relative reliability of ratings as compared with rankings the coefficients of correlation of the two teachers working on one class for each trait were taken. The average of 28 coefficients derived from ratings was 0.438. The average of 28 coefficients derived from rankings was 0.445. Symonds did not attempt to determine if this difference, which appears slightly to favour the ranking method, was significant. The application of the method of partial correlation was reported to have shown evidence of a "halo" effect.

Shen (93) using a group before mentioned (95) attempted to determine the validity of self-estimates. Taking the average rating of an individual by the group (including self-rating) as a criterion, and comparing this

with his self-estimate, it is possible to derive, for estimates of each trait, three measures of errors viz:-

$$\text{Total Error.} \quad \text{T.E.} = \sqrt{\frac{\sum (x_i - x_0)^2}{n}}$$

$$\text{Systematic Error.} \quad \text{S.E.} = \sqrt{\frac{\sum (x_i - x_0)}{n}}$$

$$\text{Chance Error.} \quad \text{C.E.} = \sqrt{\frac{\sum (x_i - x_0 - \text{S.E.})^2}{n}}$$

$$= \sqrt{(\text{TE})^2 - (\text{SE})^2}$$

$x_i$  = self estimates.

$x_0$  = average ratings.

T.E. = S.D. of self-estimates from true ratings.

S.E. = Average Tendency of over or under estimation.

C.E. = S.D. of self-estimates from average ratings after systematic error is corrected.

He concludes "the constant tendency of self-estimate depends more upon the individual than the trait". "The apparent inaccuracy of the self-estimate is largely due to a systematic error of the individual - a systematic tendency to over-or under-estimate himself in all the traits according to the kind of delusion that he has about himself. Although, therefore, an individual is likely to rank himself in a group less accurately than his associates, he really knows himself well in that he knows his relative strength in the various qualities rather accurately". (op.cit.pp.106-7).

Shen (94) claims that the reliability of personal ratings by any one rater on a group cannot be satisfactorily determined by averaging correlations with other raters. He claims that "the correlation between two series of ratings on the same trait, independent in errors of each other, is

equal to the geometric mean of their true reliabilities.\* In this case, of course, ratings by a judge on a group are the subject of discussion.

Among eight different methods of studying character Symonds (107) in 1924, includes Habit Scales, Character Scales, and Questionnaire. The other five methods rely upon tests.

Sarah E. Marsh and F.A.C. Perrin (64) conducted an interesting study at the University of Texas. They were concerned with rating scale methodology from the viewpoint of the psychological laboratory.

They selected a list of traits which could be demonstrated, observed and rated (see Appendix 1, No.13). Three standard forms of rating scales, (a) Graphic (5 slots) (b) Percentage (x in suitable column) and (c) man to man (in which a master scale, previously constructed by the raters, was employed) were prepared. Competent raters of approximately the same degree of training and maturity, and a group of subjects, were selected. Certain additional measurements of the subjects (by means of tests such as standardized aiming, card sorting, oral reading, and measurements of length and width of head) were made for the purpose of intercorrelation with the ratings. The raters watched subjects undergo the tests and two series of ratings were made, one without, and one with, knowledge of the results of the tests. The first series of ratings was made while the tests were being administered. An interesting series of correlations is published, but results were not sufficiently definite to warrant more than tentative conclusions. They could not state that any one form of rating scale was superior to any other.

T.S.Kinder (49) without notice and at weekly intervals, gave a questionnaire to 42 young women at a Women's College, asking them to answer it with regard to

(first time) themselves, (second time) the average college girl, (third time) the ideal college girl. There were 30 questions (complete questionnaire is included in Appendix 1, No.14), which were answered by underlining a word.

A systematic and general tendency towards over-estimation is reported. Individuals almost invariably rated themselves superior to the average. A week later the girls rated the average man inferior to the average woman in 23 of the 30 traits.

Examples of the use of rating scales in Industry are to be found in Laird's "Psychology of Selecting Men", and Bingham and Freyd's "Procedures in Employment Psychology". Both favour the use of Graphic Rating Scales.

W.K.Trow (114) attempted to determine the consistency of a trait. He analysed confidence into subjective feeling of confidence, confidence in the correctness of one's judgments, confidence in oneself (socially), motor impulsiveness, and speed of decision. Then he determined the correlation between several different measures of speed of decision obtained from the following tests:- Line discrimination, Weight discrimination, Spelling, Ethical Judgments, Belief, Rating, Downey Speed of Decision, Finality of Judgment (a recheck of the Downey Speed of Decision test). Correlations ranged from  $+0.55$  to  $-0.25$ . He predicts that the same degree of inconsistency will be found for other traits as well.

At Hawaii Katherine Murdoch (72) secured ratings by teachers on twelve-year old children of different races for six traits. The master scale system of rating was used. Professors' opinions of the races were then obtained, and correlated with teachers' estimates of the children.

Correlations were:-

Perseverance	.91
Sensitiveness to public opinion	.65



Control of Emotions	.65
Trustworthiness	.53
Self-Assertion	.40
Ambition	.40

Teachers' estimates may have been influenced by prejudices regarding the races, similar to the prejudices of the professors.

**J.E.Winter** (121) utilised personal judgments in an attempt to examine the assertion by Blackford and Newcomb that as an individual approaches the pure blonde or pure brunette so will that individual manifest certain definite traits of character. 29 Judges (9 were women) each took two blondes and two brunettes from their acquaintances and, on an indiscriminate list of blonde and brunette traits, marked plus or minus to show the presence or absence of each trait in the subject under consideration.

The conclusions were that there is no ground for the theory that colour influences character, there is more reason to think that sex is influential, and that the sex of the judge influences the judgment.

**Cecile White Flemming** (24) used a rating scale for a number of traits in order to determine their influence on high school achievement. Each child was rated by four teachers, on a graphic scale, for the following traits:- Health, Amount of Physical Energy, General Intelligence, Industry or Application in School, School Attitude, Emotional Balance, Leadership, Will-Power and Persistence, Prudence and forethought, Sense of Duty (conscientiousness), Desire to excel. The average of four judgments on each trait was taken as the final score. Investigations were carried out in a Junior and a Senior High School, and the estimates correlated with School achievement. Correlations were almost invariably higher in the Junior High School than in the Senior. (Table appears in Appendix 2, No.4).

G.D.Stoddard and G.M.Ruch (103) secured ratings of the Downey Will-temperament traits in order to see the extent to which persons could recognise them in themselves and their intimate friends. They also correlated ratings on the traits with test results.

Tests were given and several weeks later each subject rated self and two room mates in accordance with Downey definitions and direction sheets. Then profiles were drawn for tests and for average rating, on the same chart. Subjects were then required to pick out own profile and one room-mate from a group of 5 profiles (Self, two room-mates, and two other members of the group).

Correlations were:-

Average rating of three and Downey	0.04
Self Rating and Room-mate A	0.24
Self Rating and Room-mate B	0.35
A and B	0.29

No trait was found to show significant correlation with a composite of three self-ratings. Students' ratings showed more tendency to self-consistency than test scores. There was no evidence that a student could identify profile of self or acquaintance.

Forrest A. Kingsbury (51) suggests that to make rating scales work raters should be trained, and the scales should be adapted for the use of non experts. He also gives a list of practical considerations to assist in the adaptation of scales. (See Appendix 1, No.15).

Porteous and Babcock (81a) give a social rating scale for use in determining the social inefficiency of individuals. (See Appendix 1, No.16).

Edna Heidbreder (41) secured self ratings and ratings by two acquaintances on 200 individuals in the 54 traits which Freyd (30) claims to be indicative of introversion and extraversion. She concluded that introverts and extraverts are not distinct types, but that the

distributions overlap. Individuals tend to rate themselves more introverted than their associates judge them. A greater agreement was found between self-ratings and acquaintances' ratings than between the ratings of the two acquaintances.

H.E. Garrett (33) examined personality as Habit Organisation by means of a Habit system chart. Each Habit consisted of one or more seven-point scales. The habits were as follows:- Work Habit, Personal or Body Habit, Play or Recreation Habit. System, Moral Habit System, Emotional or Temperamental Habit System, and Social Habit System. No definite conclusions were reached in the preliminary study which was reported. (See Appendix 1 for Chart - No.17).

R.M. Dorcus (19) made a careful investigation of "Some Factors involved in judging Personal Characteristics". He measured the times required to make self-judgments and judgments on others. He concluded that two thirds of the subjects needed longer to judge friends than selves. A tendency to require a longer time to judge undesirable traits was noted, and it was observed that individuals tend to class themselves above the average in desirable traits and below the average in undesirable traits.

In order to determine the reliability of Average Ratings A.W. Kornhauser (54) secured ratings by varying numbers of instructors on two groups of college students using a graphic rating scale of seven traits. The reliabilities were determined by finding the clearness of differentiation of average ratings, and then by taking the correlation of the average of one set of three ratings on the group with another set of three ratings on the same group. Group 1 was of 20 seniors and Group 2 of 50 students from all classes. In Group 1 correlations varied from .34 (initiative) to .78 (independence) and averaged .67. In Group 2 the average was about .40. (For scale see Appendix 1, No.18).

Again using two groups Kornhauser (56) made a comparison of ratings on different traits. He found that the same score meant a different relative position in each group. He also determined the correlation between traits, taking average ratings, for a group of 68 students. (For table see Appendix 2 N<sup>o</sup>5).

In the two groups he found varying reliabilities for the traits, though ratings for industry and intelligence were consistently reliable.

Using a rating scale which combined the features of the graphic and point-scales, and taking their terminology from Wells (120), Yoakum and Manson (123) used Self-ratings as a means of determining trait-relationships and the relative desirability of traits. Eight key traits were taken and three synonymous terms were taken for each, giving 24 traits (3 sets of 8). The graphic line was illustrated by ~~seven~~<sup>six</sup> marks, +! + +? -? - -! to indicate degrees of the trait and 5 groups of students (79, 24, 74, 55, 12) made self-ratings. The 3 sets were taken separately, at intervals which varied with different traits. (See Appendix 1, No.19 for traits.)

They concluded that synonyms are descriptive of closely-related traits, and that relative desirability can be exhibited indirectly. Again, speaking generally, individual variability in ratings is a function of the time interval.

In the British Journal of Medical Psychology for 1927 Eleanor A. Allen (3) reports "an experimental investigation into some traits of character and temperament". During this investigation a group of subjects were each rated by two friends on fear, repulsion and disgust, pugnacity and anger, positive self-feeling, negative self-feeling, tenderness, sex, curiosity, acquisition, work, perseverance, and attention paid to health. Obviously the traits are derived from McDougall's analysis of instincts. A reliability of .25 for estimates on perseverance and .63 for estimates on work is reported.

H.F.Adams (2) conducted an inquiry to determine the qualities of a good judge of personality. He found that the accurate self-rater was outstanding for his social qualities.

Some interesting character studies during 1928 are reported by May, Hartshorne, and Welty (66). Among them is the work of E.Heidbreder on "The Normal Inferiority Complex". She investigated the inferiority complexes of 120 men and 148 women on a rating and self rating scale of 137 traits, concluding that, taken in one direction these are symptomatic of inferiority complexes. A normal distribution was found and the reliability of the ratings is given as .73. Trow and Pu found that 21 Chinese Students tend to underrate themselves in six traits to the average extent of 7.4 points on a scale of a hundred, as compared with ratings given them by other members of the group.

May, Hartshorne and Welty (67) make another report of work in 1929. Two applications of Rating methods to teaching are included. Armentrout used a typical five-point scale to secure ratings of teachers by training teachers and superior students. Two groups of judges showed an agreement of .41. Stalnaker and Remmers inquired if students could discriminate traits associated with success in teaching. The Perdue Graphic Rating Scale of Teaching Qualities was employed. 94 students were found to agree closely as to the relative importance of ten traits involved. The average intercorrelation of .366 of the traits of one instructor as judged by his students was considered an indication of the absence of halo effect.

C.W.Valentine (115) investigated "The Relative Reliability of Men and Women in Intuitive Judgments of Character". Subjects were interviewed by men and women, who then attempted intuitive judgments on temper, conscientiousness, kindness, obstinacy, straightforwardness, and intelligence.

No distinguishable difference was found between the judgments of men and women. Judgments were given as very confident or ordinarily confident. Very confident judgments were found to be less accurate than ordinary ones.

In a very comprehensive and detailed report F.F. Bradshaw (8) discusses "The American Council on Education Rating Scale: its reliability, validity and use". (cf. Appendix 1, No.20 for scale). As a result of investigations carried on by a Committee of the National Council of Education for about three years a final (sixth) form of a "conduct rating scale" was obtained. This scale has a high reliability, and is claimed to possess some value, in conjunction with the results of other tests and college records, for the prediction of academic success.

The account of experimental work above presented has maintained as far as possible, a chronological sequence. An examination of Rating Scale Theory and Method appears in the next section.

AN ACCOUNT OF THE DEVELOPMENT AND EXAMINATION

OF THE

PRINCIPLES OF RATING METHODS.

In the modern world, in almost every sphere of human activity, considerable emphasis is being placed on the value of an accurate knowledge of the qualities of character and personality possessed by individuals, and on the necessity for methods of measurement which will make such knowledge possible. While Intelligence, Educable capacity, and many specific skills may now be measured by objective tests which are highly reliable and probably fairly valid - if we mean by validity that the test measures the quality which it purports to measure - there are few reliable objective tests of character or personality traits. While reliability and objectivity is generally low in these tests, the determination of their validity presents a problem of extreme difficulty. If we assume that individuals possess certain traits of character or personality (G.W.Allport (6) defines a trait as "a dynamic trend of behaviour which results from the integration of numerous specific habits of adjustment, and which expresses a characteristic mode of the individual's reaction to his surroundings" p.288) which may be regarded as influencing their behavior, then it seems reasonable to suppose that there is a possibility of detecting these traits, and devising some objective means for their measurement. Such means will most probably result from development of the current types of psychological tests. But supposing a test whose objectivity and reliability are established is to be used as a measure of some aspect of character, how may we determine just what trait or traits this test will measure? To establish the validity of the mental tests already in use it has frequently been possible to compare test results with some tangible criterion of performance - output is the most suitable. What definite criteria, in terms of performance or output, is available for the validation of personality or character tests? To the writer's knowledge none has yet been agreed upon. The best available criteria for the evaluation of such tests are the judgments of persons competent, by reason of their capacity



and length and intimacy of acquaintance with the subjects who have undergone the test, to form some estimate of the degree in which these subjects exhibit the trait or traits which the test purports to measure. Character ratings would appear to be absolutely fundamental from this point of view - it seems impossible to go beyond them.

According to Rugg, however, individual judgments of character are nearly chance events. It is necessary to standardize the conditions under which judgments are made, and to combine several judgments on each subject, before any expectation of accuracy can be entertained. Judgments given under conditions which are not standardised and, as far as possible, objectified, are influenced greatly by personal outlook, prejudice, perhaps insufficiency of acquaintance or knowledge, by lack of analysis of the quality to be judged, resulting in judgment based on a general impression of the rater instead of careful discrimination of some quality.

One of the most pressing problems in this sphere of psychological measurement of personality is the development of a standard and objective method of recording judgments. Several attempts have been made to secure such a method and that which at present appears to offer the greatest possibility is the rating scale.

The rating scale is a tool which promises to be of considerable value in facilitating an analysis of the qualities of personality, and providing a more accurate method of character-measurement than any of those previously employed. It should go far towards a remedy for many of the defects inseparable from many of the everyday methods of estimating personal qualities, and, with careful development, should provide a foundation for the construction of tests of the essential traits of character and personality.

The value of character ratings at present is considerable. They have been employed fairly extensively in

industry and commerce, in vocational selection and guidance, and for the purposes of educational measurement, as well as in experiments concerned with test-validation. Their use aids and stimulates the raters in a careful analysis of the subjects, while where self-ratings are obtained the introspective self-analysis which results is claimed to be of considerable value to the individual. Furthermore, properly safeguarded, they provide the most reliable and valid information regarding character which is at present available. However, for ratings to approach a satisfactory degree of objectivity, reliability, or validity, the scale on which they are made must be properly constructed. A review of the development of rating scale method is perhaps the most suitable way to approach an inquiry into the principles of scale construction.

The term "rating" is used widely by some investigators and includes ranking, or rating by order of merit method.

Ranking methods may be employed when a group of subjects is available and a knowledge of the relative degrees in which members of the group possess certain qualities is desired. Unless the group is large and representative, it is difficult to interpret a certain ranking in that group in terms of a corresponding ranking in another group, especially if the other group is not similar. The method is not difficult to employ, however, and, properly used, can provide valuable information about the subjects concerned.

In simple order-of-merit ranking the judge is required to consider the subjects for one specific trait, and to arrange them in order so that the individual possessing that trait in the greatest degree is first, the individual possessing it in the least degree last, and so on. This gives most accurate results when raters are competent to rate, when the trait (or traits) is defined so as to be clearly understood by the subjects and when the independent rankings of several judges are pooled. This last can be done by taking the average position of each subject as a final position.

Probably a more accurate form of ranking method is that of paired comparisons. In this form the subjects are taken in pairs and the judge rates one subject as possessing the trait under consideration in a greater degree than the other member of the pair. This involves comparing every subject with every other subject twice. The final score from one judge's ranking is obtained by arranging the subjects in order of merit according to the number of times they were considered first in the pair. Kitson (52) gives the formula for combining the ratings of several judges as :

$$F.R. = \frac{\sum r}{n}$$

where F.R. = Final rating  
 $r$  = rank for a judge  
 $n$  = number of judges.

Although the method of paired comparisons has been demonstrated to be more accurate than the ordinary order-of-merit ranking, it tends to become exceedingly laborious as the size of the group increases. Otherwise, it possesses the limitations of the order of merit method in the difficulty of comparisons between groups, and also in the fact that it is of little value when a group of five or less is under consideration.

In general use the order of merit method of ranking has been supplanted by what may be termed the rating scale proper, which has itself undergone several important developments.

A development of the idea of comparisons is found in the scales of the man-to-man type, best exemplified by the U.S. Army Rating Scale (see Appendix 1. No.3). This scale was constructed to secure ratings on five qualities:- Physical Qualities, Intelligence, Leadership, Personal Qualities and General value to the Service. Each of these was carefully defined and the raters were required to construct master-scales (one for each trait) before commencing to rate. The method of construction of a master scale in the army was as follows:- Take the factor of intelligence. The rater selected the most intelligent officer of his

acquaintance. He occupied the top fifth of the master scale. Then the least intelligent officer of the rater's acquaintance was selected to occupy the lowest fifth. An officer of average intelligence occupied the middle fifth, and two others, midway between middle and highest, and middle and lowest filled the other two places. Rating was then done by comparing the subject with the men whose names were on the scale, comparisons of course being restricted to the quality - intelligence in this case - under consideration. As a result of the comparisons the subject was given a rating corresponding to the position on the master scale of the man most resembling him. A separate master scale had to be constructed for each trait.

The man-to-man type of scale has been used in industry, in schools, and in teachers' training colleges. Its reliability and usefulness seem to be to a large extent dependent on the effectiveness of the construction of the original master scale. If raters are to be accurate and consistent in judging a group it is essential that the master-scales employed should be equivalent and comparable in the range and distribution of the degrees of that trait with which they are concerned. In order to facilitate the construction of equivalent and comparable master scales by a group of raters, consultations are often held when these scales are being drawn up. There has been a tendency to make trait definitions more and more concrete, i.e. based on definite instances of behavior as far as possible. Paterson and Ruml (76) too, stress the need of experimental ratings to calibrate the master scales of raters (in the case where construction was not the result of consultation). This calibration should permit the correction of a judge's ratings to eliminate his personal tendency toward over - or under-estimation.

Scott (92) claims of the man-to-man scale that "it takes approximately twenty minutes to create a working scale and sixty seconds to make a rating . . . . . No system has yet been devised which so completely eliminates the personal equation and so justly determines merit."

Rugg's (91) careful analysis of the results of ratings by the man-to-man scale leads him to suggest that the rating of character is practicable if:-

- (a) The final rating is the average of three independent ratings each on a scale as objectified as the man-to-man scale;
- (b) The scales are comparable and equivalent;
- (c) The raters are so thoroughly acquainted with the subjects that they are qualified to rate.

This is not so favourable as the praise of Scott, and is further modified by Rugg's mention of the fact that master scales are seldom comparable and equivalent.

Although the man-to-man scale met with success when used in the army, it is cumbersome in use, and its extra accuracy is not sufficient compensation for the laborious procedure involved when a rater is required to rate only a few individuals on a large number of traits. For this purpose the construction of master scales would occupy a considerable period. Scott's own estimate (assuming it to be based on entire army scale and not on one of the five qualities) suggests that almost two hours would be required for the construction of a master scale to deal with twenty-four traits. Furthermore, it seems unlikely that raters whose community of experience is not nearly so great as those considered by Rugg, and whose choice of individuals for master scales is not limited to a specific group, would produce master scales sufficiently equivalent and comparable to justify the use of this method.

In cases where the application of the man-to-man scale does not seem advisable for some of the reasons outlined above, another type of scale has been used. We may call this a point scale. It is older than the man-to-man type and has a large number of varying forms.

In this form of rating scale the rater is asked to estimate the degree in which an individual possesses the traits which comprise the scale. A trait is defined and sometimes different degrees are described, and the rater is required to rate the subject as exhibiting one of these degrees. Each degree of a trait may be considered as a point and different scales of this type have employed varying numbers of points from two to eleven. Some important scales have used the following number of points:- Galton 9, Pearson 7, Wells 6, Webb 7, Downey 11, Plant 10, Mendenhall 6-8, Army 5.

Symonds (105) reviewing this variation, remarks:- "Apparently the construction of rating scales has proceeded quite without consideration as to the reason for constructing scales with one rather than with a number of classes" (op.cit. p.456). This critic says that the optimum number of points for a scale may be determined by a consideration of the effect of the coarseness of the scale in reducing its reliability. While it is important to use a scale as finely-graduated as possible, the scale must not be too fine for the discrimination of the raters who are to use it. The improvement in estimate over a random estimate may be determined by the calculation of the "coefficient of alienation" (cf. Kelley (48) pp.173-174). The formula for this is  $k = \sqrt{1-r^2}$ .

Symonds remarks that Webb and Voelker each found the reliability of a large number of ratings to be 0.55. His conclusion is that "in constructing scales for rating traits of personality, the optimum number of class-intervals is seven.

"Rating with scales of more than this number of classes demands a discrimination which does not yield an increase in reliability sufficiently great to make the increase worth while according to an arbitrary definition of worthwhileness. Likewise, according to our definition, a rating scale with a fewer number of classes suffers from a loss of reliability greater than is allowed, due to the coarseness of the grouping". (op.cit. p.460).

While Rugg (91) considers that a five-point scale is of no value with a single rating he thinks it adequate if three ratings (made under standard conditions) are combined.

It is possible, perhaps, to criticize Symonds' general conclusion stated above, on the ground that the reliability of ratings might be affected by other factors than that of the number of points in the scale. For example, the nature of the traits under consideration, the definitions of those traits (clearness, objectivity, concreteness &c.), the definitions or otherwise of each degree, and the number of ratings on each subject. The variation of reliability of ratings on different traits will be exemplified in the account of the experiment which is the main subject of this discussion.

In point-scales an odd number of divisions, points or classes is usually employed, because of the difficulty otherwise encountered in the assessment of average individuals. The simplest form defines the trait and asks for a rating + or - to denote the presence or absence of the trait. Webb's scale, on the other hand, required the rater to assess the subject as +3, +2, +1, 0, -1, -2, or -3, in each defined quality. In these cases degrees of the trait are not explained or illustrated. In others, as in the case of the scale used in this experiment, an attempt is made to describe varying degrees of each trait.

The percentile scale, e.g. Godfrey Thompson's scale for rating teaching ability in students (see Appendix 1 No.6)

is another form of the point scale. This may be divided into 10 divisions to represent highest ten per cent of population &c. to lowest ten percent, or the scale may be marked to show the rater (as is the case of Thompson's scale) the approximate percentage of the population normally to be expected within the limits of each division. Sometimes an explanation of the degree, in addition to the percentage included, is found.

A further variation of the point scale consists of a scale which gives a series of traits and their opposites. (See Perrin's scale in Appendix 1 No.8). Here the rater rates the subject in one of the intervening divisions.

Again, each trait can be defined and the rater required to make a check on a straight line to indicate the degree of the trait possessed by the subject. (such a scale was used by Miner).

From this last type and from the point scale which explains each degree of a trait the graphic rating scale has been developed. On a graphic rating scale (cf. Appendix I, Nos. 11, 12 and 18) a number of traits are named (and sometimes the trait-name is accompanied by a brief definition) and a line - the most convenient length being five inches - is drawn across the sheet. This line is graduated by descriptive adjectives or brief phrases placed at intervals beneath it. The rater judges a subject on each trait by placing a check mark on the line at the appropriate position. Ratings on such a scale may be scored by the use of a stencil of the same length as the rating line, graduated into a number of divisions (a convenient number of divisions is ten). The stencil is applied to the line and the check mark compared with the graduations. This allows of a numerical score being recorded at the right hand side of the rating line. Each rater's judgments on a trait (when the rater has judged a group of individuals) may be converted into Final Ratings by a consideration of their frequency distribution.



Paterson (74) suggests that Final Ratings should be given to each raters judgments as follows:-

Highest 10% A; next 20% B; next 40% C; next 20% D; lowest 10% E.

From such a consideration a 'Key to final ratings' may be constructed for each rater. By the addition of the Final Ratings of several judges on a subject it is then possible to determine the subject's Total Score in a trait.

Two special features, not combined in any previous scale, are claimed for the graphic rating scale. Firstly, the rater is freed from direct quantitative terms, and secondly, is enabled to make as fine a discrimination of merit as he chooses. While the freedom from direct quantitative terms certainly facilitates the use of the scale, it may or may not be an advantage in increasing the reliability and validity of the scale. Recent developments in scale technique (cf.8) support the latter alternative. Further, it is extremely doubtful whether the unlimited fineness of discrimination permitted to the rater is not in reality illusory. The statistical examination of experiments with rating scales suggests that a scale of more than seven points does not provide an added degree of accuracy commensurate with the extra trouble involved in rating and scoring (105), while Rugg (90) is satisfied with a five-point scale. There is no doubt, however, that the possibility of converting a rater's judgments into final ratings, thus correcting errors arising from individual tendencies to rate too high or too low, promises a greater accuracy in the resulting total score.

A series of experiments carried out with graphic rating scales (74) showed that foremen's ratings were highly self-consistent from month to month and that the consistency found between ratings in the second and third months was higher than that found between those of the first and second month.

Foremen whose ratings were consistent showed close agreement in rating the same workers.

In 1923 Freyd (28) considered that the graphic rating method promised to be the most popular in use for rating purposes. Its general advantages over other methods in use up to that time lie in its simplicity and the ease with which it may be grasped, in the interest which it arouses, the rapidity with which it can be used, and its simplicity of scoring. The descriptive terms make the scale more concrete, while the graphic scale can be employed without the necessity of constructing and continually consulting master-scales. Further, corrections can be made for specific individual tendencies in rating on the part of judges (where same judge rates a group).

While it is generally admitted that graphic scales are easier and more interesting to use than those constructed on the man-to-man system, Poffenberger (81) who states that "rating scales are valid according to the degree to which they approach the order of merit method in principle" (op.cit.p.288) considers that the validity of the graphic scale is inferior to that of the man-to-man scale because it is farther from the order of merit method.

Symonds (105), too, says "the graphic rating scale, though permitting as close a discrimination as possible, contributes but little to increased reliability over a seven-point scale." (op.cit.p.460).

In the early twenties of this century, after the severe criticisms of Rugg and others, an atmosphere of despair, which has extended until the last two or three years, pervaded the attitude adopted towards rating scales. There was a distinct tendency to abandon this method in favour of objective tests of character-qualities. In 1927, when one of the sub-committees on Personnel Procedure of the American Council on

Education met to "study thoroughly the rating scale as a device for securing and standardizing data about personality traits not specifically revealed by test scores and other data on the personal record" (8. p.25), this subcommittee "felt so sceptical of the reliability of ratings as to regard their proposed experimentation as probably a decent burial of the rating scale, a final and thorough proof of its unreliability under all normal conditions" (op. cit. p.52). This attitude seems to have changed, partly because character-traits have proved so far exceedingly difficult to detect by objective tests, and partly because of improvements in rating technique.

One of the latest developments in the sphere of character rating is the conduct scale. A scale of this type, mentioned by May & Hartshorne in the February 1930 number of the 'Journal of Social Psychology' (vide 8. p.19) was employed by the Character Education Enquiry. This scale is concerned with modes of conduct which may be observed and the judge is asked to make a judgment on the subject's behavior tendencies. A sample of this scale is quoted by Bradshaw (8):-

Co-operation:

- A. Works with others if asked to do so.
- B. Works better alone. Can not get along with others.
- C. Works well and gladly with others.
- D. Indifferent as to whether or not he works with others
- E. Usually antagonistic or obstructive to joint effort.

The reliability of this scale is reported as .77, and it is claimed to discriminate satisfactorily between children suffering the greatest and least social maladjustments. It is difficult to judge a scale by an example so small as that above, and there must be some good reason for the opinion of May & Hartshorne that this type of scale represents the greatest single improvement (for 1928-9) in methods of rating character.

The American Council of Education Rating Scale, described by Bradshaw, is claimed to have embodied in its construction "most of the well-established features of scale construction since Galton's time" (p.67). An example of one of the six forms of this scale is included in Appendix I, No.20. The main features of the scale are the changes from trait nouns to behavior verbs - instead of "leadership" - "does he get others to do what he wishes" - the use of the conduct-type of ratings noted above, the provision of a blank in this scale so that rater may, if necessary, signify that he has had no opportunity to observe a trait, and the additional employment of behaviorgrams - raters are asked to cite instances to support their judgments of each trait. The scale was used on groups of college men, and found highly reliable.

Any preference of scale from the latter types discussed must at present rest on grounds other than experimental. No conclusive experimental evidence has yet been obtained which favours the point, graphic or conduct methods. The main factors of success seem to lie in the construction of the scale rather than in the type which is employed.

THE RATING SCALE AND PROCEDURE

USED IN THIS INVESTIGATION.

The investigation which is the main subject of this report consisted of an attempt to devise a rating scale for character-traits which could be used to secure assessments on individuals, as individuals alone, and not as members of a group. It was hoped that if a satisfactory scale for this purpose could be devised it would contribute valuable information which could be utilised for the purpose of vocational guidance and selection. Many of the rating scales which have previously been used are suitable for obtaining estimates on each individual in a group, the group usually being rated by several persons, each person rating all, or a section of, the group. While such scales have proved not only practicable but reasonably successful in industry, educational systems, and the American Army, there are many occasions to which they are not applicable. The rating scale which we sought was one which could be used to provide a measure of the various character traits of any individual. Hence, while several ratings on a subject were required, each compiled by a different person, each of these raters would not of necessity be concerned with more than one person. Scales devised for groups might be applicable to this situation, but not any considered seemed to be suitable.

Accordingly a tentative scale of twenty-three (23) traits was constructed. The selection of the traits for this scale was more or less random. It was considered that existing analyses of the factors of personality (e.g. those of Wells & McDougall) would hardly provide a satisfactory basis for the construction of a scale. The attempts to obtain satisfactory ratings on the Downey list of factors of Will-temperament shows the difficulties which are to be found when a theoretical analysis of personality or some of its aspects has to be considered for rating purposes. It would seem that the most satisfactory method of scale construction would be by a series of experiments with a large number of traits to determine

the reliability of ratings on those traits, and the degree of intercorrelation existing between them. From the statistical treatment of the results of such experimental work it might be possible to isolate the important features of personality. Probably any scale designed for a thorough analysis of personality would prove too cumbersome for everyday use, and would have to be modified in accordance with the purpose for which it was to be employed. For the purpose of vocational guidance, and certainly of vocational selection, such modifications would be necessary.

The traits embodied in this scale, then, were not considered as final, but were taken because they appeared to denote traits of personality recognised in everyday experience, which may or may not have been closely related. The traits selected were:-

Conscientiousness  
 Self-control  
 Tractability  
 Cheerfulness and Optimism  
 Initiative and Originality  
 Obedience  
 Sociability and Popularity  
 Accuracy and Efficiency  
 Self-confidence  
 Punctuality and Regularity  
 Enterprise  
 Kindliness and Good Manners  
 Thrift  
 Associates  
 Truthfulness  
 Loyalty  
 Perseverance and Industry  
 Caution  
 Energy and Vim  
 Honesty

Leadership

Temperance

Piety and Reverence

It was not expected that these would provide an adequate review of personality, nor that each trait was separate from and unrelated to all or any of the others. Furthermore the fact that the distribution, reliability and validity of the estimates would depend, to some extent, on the way in which the definition and rating method for each trait was drawn up, was recognised.

While traits and provisional definitions had been selected, the next problem to be solved was the rating method to be employed.

As an individual was to be judged on this scale solely as an individual, and not as a member of any small or selected group, and as it was not very probable even in this investigation, conducted with a group of university students as subjects, that one rater would provide a judgment on more than two individuals, the use of the order of merit, of paired comparisons, or of the man to man methods was ruled out. While the man to man method could have been employed, the necessity of the construction of twenty-three separate master-scales by each rater would have made the rating procedure excessively laborious. Scott's own estimates suggest that at least two hours would be involved in the construction of master scales by each rater. Rugg (90) emphasised the extreme difficulty of securing "equal and comparable" master-scales from a number of army officers, even when the persons on the scales were to be army officers only. What degree of equality and comparability was to be expected from a number of raters whose community of experience and interests was probably far less, and whose range of acquaintances available for key-positions on the master scale was certainly far greater than those of the army raters? The difficulty of constructing so many master



scales, and the probability of extreme divergence in standards (with little promise of any means of correcting such standards by a consideration of the master scales) eliminated the man to man type of scale from consideration.

The graphic rating scale, praised highly by Paterson and by Freyd, seemed very attractive. The fact that the scale used was to be either a graphic scale or a point scale led to the construction of tentative graphic and point scales after the work of arranging brief trait-definitions and examples illustrative of varying degrees of these traits, had been completed. After samples of these scales had been used by several raters the fact that there seemed little difference in using them, and that the straight-out point scale was easier to score, led to its adoption. (cf. Appendix No. 21 for graphic draft.)

Each trait was defined as briefly and as concretely as possible. The number of degrees for each to be employed had then to be decided. It was considered advisable to use a uniform number of degrees throughout the scale, and, while the experience of Webb, and the theory of Symonds, suggested that a seven-point scale would give most accuracy, the practical difficulty of providing illustrative descriptions of seven degrees of most of the traits led to the use of a five-point scale.

These degree-descriptions involved considerable time and were only completed after many experiments and after numerous consultations with the supervisor of the inquiry and with several graduate or advanced students in the Department of Psychology. Consultations were also held, as these neared finality, with persons who were interested in the practical problems of rating, to endeavour to determine the value of these descriptions in showing distinguishable degrees of each trait. Several other considerations influenced this part of the work. If the extremes for each trait were not carefully

stated, it might result in raters avoiding them altogether. Again, if the second and fourth degrees approach nearer the extremes than the centre of the scale, this will probably cause a percentage of the ratings larger than is normally to be expected to fall in the centre.

The twenty-three traits were then assembled on the scale in the order above stated (determined by a chance drawing from a basket) and, to decrease the effect due to the halo of general estimate alternate traits were graduated in opposite directions (cf. Scale at end of this Chapter). The rater was asked to state the degree of certainty:-

Positive

Fairly Certain

*Not quite*  
~~Uncertain~~

with which each judgment was made.

The completed rating scale was preceded by instructions as follows:-

INSTRUCTIONS:

It is possible to rate the character of a person by considering his various single qualities or traits. For the guidance of persons using this scale, it embodies a list of such qualities, together with illustrative definitions, and the various degrees in which they are generally manifested. You will probably be able to think of a number of individuals, each of whom could be placed in one of these degrees. A large number of persons known to you would fall in the middle group in each case, a fair number in each of the two neighbouring groups, but only a few at either extreme.

You are requested to give a careful opinion of the character of the person named above. Consider carefully each trait, alone, in turn, and judge only on that trait. Many ratings are made valueless because the rater allows himself to be influenced by a general impression of the person, favourable or unfavourable.

When you have judged the individual on a trait place a cross in the space ( ) opposite your judgment. After rating for a trait mark also, in one of the spaces ( ) provided, the certainty of your judgment. For example:-

THRIFT e.g. What degree of thriftiness is shown in personal accumulation and expenditure of money or in the case of the money or property of others?

- |                                       |   |
|---------------------------------------|---|
| ( ) So saving as to be niggardly      | <u>Degree of certainty</u>                    |
| (x) Thrifty and Saving                | ( ) Positive                                  |
| ( ) Saves moderately                  | (x) Fairly Certain                            |
| ( ) Generous, and spends freely       | ( ) <sup>Not quite</sup> <del>Uncertain</del> |
| ( ) Inclined to spend without thought |   |

The opinion given by you should be entirely your own. Your judgment will always be regarded as confidential.

When the rating is completed, kindly answer the succeeding questions on the paper.

After completing the rating the rater was asked to state the length of his acquaintance with the subject rated, the nature of the acquaintance e.g. parent, relative other than parent, friend, friend of parent, employer, teacher, Sunday School teacher etc. The rater was then asked to outline frequency and length of meetings with the subject, and the opportunities which had been available for the formation of an estimate of character.

The subjects of the experiment were a group of thirty University Students - members of a second year class in Psychology - thirteen men and seventeen women. Each subject expressed willingness to co-operate in the work.

Each person was supplied with two rating forms, one of which was to be used for the purpose of self-rating and the other to be completed by a fellow-student, a member of the class sufficiently acquainted with the subject to attempt the task. The fact that ratings were to be made individually, without any consultation of other persons, was strongly emphasised. These two forms were returned at the end of a

week, and on the back of the self-rating forms the names and addresses of two persons were placed by each subject. These persons, mainly outside the University, were, in the opinion of the subject, willing and competent (the criterion of competency being an acquaintance of reasonable length and intimacy) to furnish a rating on the subject.

Immediately on the receipt of these names and addresses a rating scale, accompanied by a covering letter, a copy of which follows, and a stamped and addressed envelope for the purpose of reply, was forwarded to each of the prospective raters.

The covering letter was as follows:-

THE UNIVERSITY OF SYDNEY

Department of Psychology.  
4-10-27.

Mr. R. Green,  
15 Kent Street,  
NEWCASTLE.

Dear Mr. Green,

In the Psychology Department at the University of Sydney an experiment is being conducted regarding the value of estimates of character. In this work students are co-operating.

John W. Smith, a student in Psychology, has volunteered as a subject for this experiment, and has mentioned you as a person competent to furnish a reliable estimate of his character.

Would you be so good as to fill in and return, within a week, the enclosed form. Directions on the initial sheet provide a detailed explanation of the necessary procedure. Your own single opinion is invited and you are requested not to ask the opinion of anyone else regarding your judgment.

Mr. Smith is desirous that you should do this, and a candid estimate is invited. The results will be treated with the strictest confidence, and used solely for experimental

work. Your valued co-operation will be greatly appreciated.

Thanking you for your help in the matter,

Yours faithfully,

A.H.MARTIN (M.A., Ph.D)

With thirty subjects, sixty rating scales were posted. Of these fifty-seven were returned complete, and one was returned blank. This meant that complete sets of four ratings were available for twenty-seven students - eleven men and sixteen women.

In addition to these ratings the group were given the Army Alpha Intelligence Tests, and scores were recorded.

The following chapters are concerned with the examination of the data thus secured. The rating scale used to obtain the estimates has been included here. The final sheet was employed to synopsis complete judgments on an individual.

CHARACTER RATING.....

NAME.....

ADDRESS.....

School:

Age

Yrs.

Months

INSTRUCTIONS:

It is possible to rate the character of a person by considering his various single qualities or traits. For the guidance of persons using this scale, it embodies a list of such qualities, together with illustrative definitions, and the various degrees in which they are generally manifested. You will probably be able to think of a number of individuals, each of whom could be placed in one of these degrees. A large number of persons known to you would fall in the middle group in each case, a fair number in each of the two neighbouring groups, but only a few at either extreme.

You are requested to give a careful opinion of the character of the person named above. Consider carefully each trait, alone, in turn, and judge only on that trait. Many ratings are made valueless because the rater allows himself to be influenced by a general impression of the person, favourable or unfavourable.

When you have judged the individual on a trait place a cross in the space ( ) opposite your judgment. After rating for a trait mark also, in one of the spaces ( ) provided, the certainty of your judgment. For example:-

THRIFT e.g. What degree of thriftiness is shown in personal accumulation and expenditure of money or in the case of the money or property of others?

- |  |   |
|--|---|
| ( ) So saving as to be niggardly.      | <u>Degree of certainty</u>                      |
| (x) Thrifty and Saving                 | (x) Positive                                    |
| ( ) Saves moderately                   | ( ) Fairly Certain                              |
| ( ) Generous, and spends freely        | ( ) <sup>Not quite</sup> <del>Not</del> certain |
| ( ) Inclined to spend without thought. |   |

The opinion given by you should be entirely your own. Your judgment will always be regarded as confidential.

When the rating is completed, kindly answer the succeeding questions on the paper.

1. CONSCIENTIOUSNESS e.g. How faithfully is a task or commission carried out in the absence of constant personal supervision?

- |  |                            |
|--|----------------------------|
| ( ) Perfectly reliable with or without supervision           | <u>Degree of Certainty</u> |
| ( ) Trustworthy  | ( ) Positive               |
| ( ) Reasonably Reliable                                      | ( ) Fairly Certain         |
| ( ) Requires Watching  | ( ) Not quite certain      |
| ( ) Cannot be depended upon unless under direct supervision. |                            |

2. SELF CONTROL e.g. To what degree is control maintained over such emotions as anger, fear, jealousy, grief or joy, especially when under stress of provocation?

- |  |   |
|--|---|
| <input type="checkbox"/> Very easily stirred to emotion. | <u>Degree of Certainty</u>                  |
| <input type="checkbox"/> Somewhat excitable.             | <input type="checkbox"/> Positive.          |
| <input type="checkbox"/> Displays emotion at times.      | <input type="checkbox"/> Fairly certain     |
| <input type="checkbox"/> Well controlled                 | <input type="checkbox"/> Not quite certain. |
| <input type="checkbox"/> Held completely in check.       |   |

3. TRACTABILITY e.g. When an opinion has been formed, or a line of action decided upon, how are suggestions and persuasions reacted to?

- |   |   |
|---|---|
| <input type="checkbox"/> Persistently obstinate.  | <u>Degree of Certainty</u>                  |
| <input type="checkbox"/> Will not change as a rule unless for a strong reason                       | <input type="checkbox"/> Positive           |
| <input type="checkbox"/> Changes fairly readily when shown good reason                              | <input type="checkbox"/> Fairly certain     |
| <input type="checkbox"/> Offers little resistance to suggestion or persuasion                       | <input type="checkbox"/> Not quite certain. |
| <input type="checkbox"/> Looks to and accepts opinions and decisions of others in place of his own. |   |

4. CHEERFULNESS AND OPTIMISM e.g. How are the ups and downs of life responded to?

- |   |   |
|---|---|
| <input type="checkbox"/> Somewhat gloomy and fairly easily depressed                | <u>Degree of certainty</u>                  |
| <input type="checkbox"/> Cheerful when things go well.                              | <input type="checkbox"/> Positive.          |
| <input type="checkbox"/> Of a generally happy nature and susceptible to misfortune. | <input type="checkbox"/> Fairly certain     |
| <input type="checkbox"/> Of a sunny disposition; seldom downcast.                   | <input type="checkbox"/> Not quite certain. |
| <input type="checkbox"/> Never out of countenance; invariably cheerful.             |   |

5. INITIATIVE AND ORIGINALITY e.g. What degree of resourceful behaviour is manifested in a novel situation, or in times of stress and difficulty?

- |   |                                    |
|---|------------------------------------|
| <input type="checkbox"/> Extremely original and adaptable.                  | <u>Degree of certainty</u>         |
| <input type="checkbox"/> Resourceful; quick to adapt himself to situations. | <input type="checkbox"/> Positive. |

- |   |   |
|---|---|
| <input type="checkbox"/> Can adapt himself moderately well. | <input type="checkbox"/> Fairly certain     |
| <input type="checkbox"/> Slow to change methods             | <input type="checkbox"/> Not quite certain. |
| <input type="checkbox"/> Tends to remain in a rut.          |   |

6. OBEDIENCE e.g. What form of behaviour is manifested when given a command or task by some authorised person, and what degree of confrmity is shown towards established rules and regulations?

- |  |   |
|--|---|
| <input type="checkbox"/> Inclined to disobedience and rebellion                            | <u>Degree of certainty</u>  |
| <input type="checkbox"/> Occasional lapses from obedience.                                 |   |
| <input type="checkbox"/> Fairly compliant  | <input type="checkbox"/> Positive.  |
| <input type="checkbox"/> Generally complies with energy, cheerfulness and alacrity.        | <input type="checkbox"/> Fairly certain                                     |
| <input type="checkbox"/> Cheerful and wholehearted obedience even to distasteful commands. | <input type="checkbox"/> <sup>Not quite</sup> <del>Not quite</del> certain. |

7. SOCIABILITY AND POPULARITY e.g. To what extent are happy personal relationships with others developed and friendships made?

- |  |   |
|--|---|
| <input type="checkbox"/> Invariably popular, makes friends very readily. | <u>Degree of certainty</u>                  |
| <input type="checkbox"/> Generally well-liked                            | <input type="checkbox"/> Positive.          |
| <input type="checkbox"/> Liked by his own circle of friends              | <input type="checkbox"/> Fairly certain     |
| <input type="checkbox"/> Makes few friends                               | <input type="checkbox"/> Not quite certain. |
| <input type="checkbox"/> Keeps rather to himself.                        |   |

8. ACCURACY AND EFFICIENCY e.g. How thoroughly and exactly are duties and tasks carried out?

- |   |  |
|---|--|
| <input type="checkbox"/> Carelessly and inadequately.           | <u>Degree of certainty</u>   |
| <input type="checkbox"/> Only sufficiently accurate to get-by   |  |
| <input type="checkbox"/> With a fair degree of thoroughness     | <input type="checkbox"/> Positive.   |
| <input type="checkbox"/> Thoroughly: few errors only            | <input type="checkbox"/> Fairly certain                                    |
| <input type="checkbox"/> With fullest accuracy and thoroughness | <input type="checkbox"/> <sup>Not quite</sup> <del>Not quite</del> certain |

9. SELF-CONFIDENCE e.g. How much self-assurance is maintained in the presence of fellows or superiors?

- |   |                            |
|---|----------------------------|
| <input type="checkbox"/> Self Assertive and Dominating obviously assured as to ability. | <u>Degree of certainty</u> |
|---|----------------------------|



- |  |  |
|--|--|
| <input type="checkbox"/> Self assured and not easily abashed.            | <input type="checkbox"/> Positive          |
| <input type="checkbox"/> Moderately confident, but aware of limitations. | <input type="checkbox"/> Fairly certain    |
| <input type="checkbox"/> Retiring and unobtrusive, very modest           | <input type="checkbox"/> Not quite certain |
| <input type="checkbox"/> Shy, bashful and timid.                         |  |

10. PUNCTUALITY AND REGULARITY e.g.. What degree of punctuality and regularity is maintained in regard to school attendance, regular duties and appointments?

- |  |   |
|--|---|
| <input type="checkbox"/> Very frequent irregularity and unpunctuality. | <u>Degree of certainty</u>                  |
| <input type="checkbox"/> Somewhat unpunctual and irregular             | <input type="checkbox"/> Positive.          |
| <input type="checkbox"/> Fairly regular and punctual                   | <input type="checkbox"/> Fairly certain     |
| <input type="checkbox"/> Very seldom irregular and unpunctual          | <input type="checkbox"/> Not quite certain. |
| <input type="checkbox"/> Regular and punctual without exception.       |   |

11. ENTERPRISE e.g. To what extent is displayed a willingness to take risks in order to improve standing in any sphere of life?

- |   |   |
|---|---|
| <input type="checkbox"/> Greatly daring and showing great nerve | <u>Degree of certainty</u>                  |
| <input type="checkbox"/> Prefers to take risks.                 |   |
| <input type="checkbox"/> Will take reasonable chances           | <input type="checkbox"/> Positive.          |
| <input type="checkbox"/> Takes risks now and then.              | <input type="checkbox"/> Fairly certain     |
| <input type="checkbox"/> Risks nothing; takes no chances        | <input type="checkbox"/> Not quite certain. |

12. KINDLINESS AND GOOD MANNERS e.g. How are these qualities of courtesy displayed in relations with other persons, especially ~~elderly~~ towards elderly people and younger associates?

- |   |  |
|---|--|
| <input type="checkbox"/> Uncouth and ill mannered                   | <u>Degree of certainty</u>                 |
| <input type="checkbox"/> Occasionally bad-mannered and discourteous | <input type="checkbox"/> Positive.         |
| <input type="checkbox"/> Fairly well-mannered and polite            | <input type="checkbox"/> Fairly certain    |
| <input type="checkbox"/> Behaves courteously in most situations     | <input type="checkbox"/> Not quite certain |
| <input type="checkbox"/> Invariably courteous and chivalrous.       |  |

13. THRIFT e.g.. What degree of thriftiness is shown in personal accumulation and expenditure of money, or in the case of the money or property of others?

- |  |   |
|--|---|
| <input type="checkbox"/> So saving as to be niggardly.     | <u>Degree of certainty</u>                  |
| <input type="checkbox"/> Thrifty and saving.               |   |
| <input type="checkbox"/> Saves moderately.                 | <input type="checkbox"/> Positive.          |
| <input type="checkbox"/> Generous, and spends freely.      | <input type="checkbox"/> Fairly certain     |
| <input type="checkbox"/> Inclined to spend without thought | <input type="checkbox"/> Not quite certain. |

14. ASSOCIATES e.g. Are his companions of a desirable type?

- |  |   |
|--|---|
| <input type="checkbox"/> Associates only with individuals of very highest character  | <u>Degree of certainty</u>                  |
| <input type="checkbox"/> Chooses friends from acquaintances of good character        | <input type="checkbox"/> Positive.          |
| <input type="checkbox"/> Companions not outstanding either for good or bad qualities | <input type="checkbox"/> Fairly certain     |
| <input type="checkbox"/> Not careful as to the character of associates               | <input type="checkbox"/> Not quite certain. |
| <input type="checkbox"/> Companions are usually undesirable and disreputable.        |   |

15. TRUTHFULNESS e.g. To what extent may statements be relied upon, especially those made under possibility of punishment?

- |   |   |
|---|---|
| <input type="checkbox"/> Dependable without an exception.             | <u>Degree of certainty</u>                  |
| <input type="checkbox"/> Quite reliable and dependable.               |   |
| <input type="checkbox"/> Fairly dependable.                           | <input type="checkbox"/> Positive.          |
| <input type="checkbox"/> Not altogether dependable, inclined to waver | <input type="checkbox"/> Fairly certain     |
| <input type="checkbox"/> Untruthful                                   | <input type="checkbox"/> Not quite certain. |

16. LOYALTY e.g. How closely is adherence to friends and aims manifested, especially in the face of the criticism and opposition of others?

- |   |   |
|---|---|
| <input type="checkbox"/> Fickle and unreliable.                             | <u>Degree of certainty</u>                  |
| <input type="checkbox"/> Not dependable when needed                         | <input type="checkbox"/> Positive.          |
| <input type="checkbox"/> Sticks fairly well to his associates               | <input type="checkbox"/> Fairly certain     |
| <input type="checkbox"/> Loyal unless a very great inducement to disloyalty | <input type="checkbox"/> Not quite certain. |

- ( ) Adherence never shaken, sticks at all costs.

17. PERSEVERANCE AND INDUSTRY e.g. How long is a course of action, requiring an appreciable time for completion, continued?

- |   | <u>Degree of certainty</u> |
|---|----------------------------|
| ( ) Tends to persist to the goal in spite of difficulties.    |                            |
| ( ) Persists with steadiness; does not readily give in.       | ( ) Positive.              |
| ( ) Works for a time and then gives up                        | ( ) Fairly certain.        |
| ( ) Gives up in face of slight opposition                     | ( ) Not quite certain.     |
| ( ) Abandons the task readily when a small difficulty occurs. |                            |

18. CAUTION e.g. How hurriedly or thoughtfully is a decision which demands a reasonable consideration of its possible consequences arrived at?

- |  | <u>Degree of certainty</u> |
|--|----------------------------|
| ( ) Decides immediately and impetuously                          |                            |
| ( ) Comes rapidly to a decision, without careful thought         | ( ) Positive.              |
| ( ) Is careful and deliberate about important matters            | ( ) Fairly certain         |
| ( ) Inclined to take a long time, and weigh all the consequences | ( ) Not quite certain.     |
| ( ) Markedly cautious: never makes a hurried decision.           |                            |

19. ENERGY AND VIM e.g. With what amount of vim and enthusiasm are school-work, duties, hobbies and sports entered upon?

- |  | <u>Degree of certainty</u> |
|--|----------------------------|
| ( ) With noticeable vim and dash                     |                            |
| ( ) With a fair degree of energy and enthusiasm      | ( ) Positive.              |
| ( ) Steadily, but without much enthusiasm            | ( ) Fairly certain         |
| ( ) Somewhat lackadaisically.                        | ( ) Not quite certain.     |
| ( ) Without showing any interest-in task or pastime. |                            |

20. HONESTY e.g. To what extent may trust and confidence with regard to money or property be extended?

- |  |   |
|--|---|
| <input type="checkbox"/> Untrustworthy: not reliable               | <u>Degree of certainty</u>                  |
| <input type="checkbox"/> Susceptible under temptation              |   |
| <input type="checkbox"/> Fairly trustworthy                        | <input type="checkbox"/> Positive.          |
| <input type="checkbox"/> Reliable and trustworthy                  | <input type="checkbox"/> Fairly certain     |
| <input type="checkbox"/> May be trusted fully in all circumstances | <input type="checkbox"/> Not quite certain. |

21. LEADERSHIP e.g. What place as leader among associates or equals is taken in games or social life?

- |  |   |
|--|---|
| <input type="checkbox"/> Invariably takes the lead                   | <u>Degree of certainty</u>                                  |
| <input type="checkbox"/> Frequently a leader                         |   |
| <input type="checkbox"/> Occasionally leads the group                | <input type="checkbox"/> Positive                           |
| <input type="checkbox"/> Will accept leadership on strong persuasion | <input type="checkbox"/> Fairly certain                     |
| <input type="checkbox"/> Shrinks entirely from leadership            | <input type="checkbox"/> <del>Uncertain.</del><br>Not quite |

22. TEMPERANCE e.g. To what extent is displayed moderation, and restraint from undue self-indulgence, in amusement, eating, and drinking, sweets, etc.

- |   |   |
|---|---|
| <input type="checkbox"/> Excessively indulgent: greedy        | <u>Degree of certainty</u>                  |
| <input type="checkbox"/> Inclined to over-indulgence.         |   |
| <input type="checkbox"/> Partakes in fair moderation          | <input type="checkbox"/> Positive.          |
| <input type="checkbox"/> Manifests a high degree of restraint | <input type="checkbox"/> Fairly certain     |
| <input type="checkbox"/> Abstemious and self-denying          | <input type="checkbox"/> Not quite certain. |

23. PIETY AND REVERENCE e.g. What religious sincerity or depth is displayed?

- |   |   |
|---|---|
| <input type="checkbox"/> Devout in all religious duties: carries religion into every-day life     | <u>Degree of certainty</u>                                  |
| <input type="checkbox"/> Observant of religious duties, and usually maintains this reverence well | <input type="checkbox"/> Positive.                          |
| <input type="checkbox"/> Fairly observant of religious duties.                                    | <input type="checkbox"/> Fairly certain.                    |
| <input type="checkbox"/> Somewhat inclined to irreverence, especially in secular matters          | <input type="checkbox"/> <del>Uncertain.</del><br>Not quite |
| <input type="checkbox"/> Always irreverent.   |   |

SIGNATURE OF RATER.....

ADDRESS.....

DATE:

Length of acquaintance with Person Rated:

Years                      Months

Nature of Acquaintance: Parent ( ) Relative ( ) Friend ( )  
Friend of Parent ( ) Employer ( ) Teacher ( ) Sunday School  
Teachers ( ).

Outline the frequency and length of your meetings  
with him and the opportunities you have for estimating his  
character.

CHARACTER PSYCHOGRAPHSubject:Rater:Date:Catalogue No.

No.	Trait	Rating					Remarks
		1	2	3	4	5	
4	Cheerfulness & Optimism						
11	Enterprisæ						
19	Energy & Vim						
9	Self-Confidence						
5	Initiative & Originality						
21	Leadership						
7	Sociability & Popularity						
3	Tractability						
12	Kindliness & Manners						
6	Obedience						
10	Punctuality & Regularity						
1	Conscientiousness						
15	Truthfulness						
20	Honesty						
14	Associates						
16	Loyalty						
2	Self-control						
22	Temperance						
13	Thrift						
8	Accuracy & Efficiency						
18	Caution						
17	Perseverance & Industry						
23	Piety & Reverence						
24							
25							

THE CERTAINTY OF JUDGMENTS.

In examining the data obtained the first problem was that of scoring the ratings. While the scoring method to be used was that of combining the ratings on each subject, the problem still remained, as to how these ratings were to be combined. Was each rating to have equal value, or were they to be weighted? In the absence of any other criterion for weighting purposes (such as might be found in the case of a scale to measure a quality which could also be measured by performance), the only available method of weighting appeared to be in accordance with the degree of certainty with which judgments were made.

While Cady found that the validity of judgments increased with the degree of certainty with which the judgments were made, Valentine, under different conditions, found that very certain judgments were just as likely, or perhaps more likely, to be inaccurate, as those of which the judge was just ordinarily certain.

In order to see if judgments could be weighted in accordance with the certainty with which they were made, the ratings were analysed to determine the factors upon which the degree of certainty depended, and the characteristics, if any, of judgments of differing degrees of certainty.

Two factors appeared to be of some importance in determining the degree of certainty - the traits and the subjects under consideration. A "Percentage of Certainty" was determined for each trait. If all ratings on a trait were "perfectly certain" that trait would have a percentage of certainty of 100%; if all ratings on a trait were "~~not~~ <sup>not quite</sup> certain" the score would be 33%. The average certainty of all raters on a trait was determined and expressed as a fraction which had 324 as denominator ( $3 \times 108$ ). This fraction was then converted to a percentage.



The traits are ranked in Table I in order of the percentage of certainty of all judgments.

TABLE I.

Traits Ranked in order of Percentage of Certainty.

Rank.	Trait	Percentage of Certainty.
1.	Associates	94.4
2.	Honesty	93.7
3.	Kindliness & Manners	93.2
4.	Conscientiousness	92.2
5.	Truthfulness	91.2
6.	Temperance	90.6
7.	Punctuality & Regularity	90
8.	Self Confidence	89.6
10 $\frac{1}{2}$ <del>9<math>\frac{1}{2}</math></del>	{ Cheerfulness & Optimism	88.3
9	{ Sociability & Popularity	88.8
10 $\frac{1}{2}$	Energy & Vim	88.3
12.	Accuracy & Efficiency	88
13.	Obedience	86.7
14.	Perseverance & Industry	86.3
15.	Self-control	85.9
16.	Tractability	84.6
17.	Loyalty	83.8
18.	Leadership	82.6
19.	Piety & Reverence	80.2
20.	Initiative & Originality	79.4
21.	Thrift	78.6
22.	Caution	77.3
23.	Enterprise	71.3

From this table the average percentage of certainty of the ratings, trait by trait, was 86.37 (S.D. 5.77).

These figures lead to the conclusion that different traits can be judged with different amounts of certainty. Although there is marked difference between the certainty of judgments on the traits at the extremes of the table, the difference between adjacent traits does not appear significant. There is no room for doubt about the fact that the certainty of a judgment is to some extent dependent on the trait judged. The rankings, however, are probably influenced by the construction of the scale, and a modification of the scale would probably alter the certainty of judgments on a number of the traits.

Considering the influence of the subject rated on the degree of certainty, the total certainty of the four series of ratings on each subject was obtained as a fraction with the denominator 276 ( $4 \times 3 \times 23$ ), and converted to a percentage, for each subject. It was then possible to rank the subjects in order of the certainty with which they were judged. These rankings are shown on Table 2.

These results give an average percentage of certainty for ratings, subject by subject, of 86.4 (S.D. 5.25) - difference between results of Tables 1 and 2 in this average is probably attributable to approximations in decimals, especially in Table 1.

Here again, it is obvious that some subjects may be judged with greater certainty than others. The construction of the scale would not influence these certainty scores so much as in the case of the traits, as the complete scale was used for each subject, but another factor, of disturbance, absent when traits were examined, was the personalities of the individual raters. If differences existed between individual raters in the degree of certainty with which they made judgments, then ratings on a subject by four "uncertain" raters would show a lower percentage of certainty than ratings on the same person by four "certain" raters. It may be stated here, however, that the certainty of ratings is to some extent dependent on the subject.

TABLE 2.

INDIVIDUAL SUBJECTS.

Ranked in order of Certainty of Judgments.

Rank.	Subject	Percentage of Certainty.
1.	2	93.11
2.	9	92.65
3.	20	92.03
4.	26	91.27
5½ )	7	91.21
5½ )	17	91.21
7	8	90.74
8.	21	90.57
9½ )	16	89.49
9½ )	18	89.49
11	10	89.13
12	23	88.77
13½ )	3	87.68
13½ )	12	87.68
15	15	86.96
16	4	86.60
17	1	85.65
18	11	85.51
19	24	85.29
20	27	84.93
21	19	83.69
22	14	83.33
23	22	81.51
24	5	80.53
25	6	77.22
26	25	75.09
27	13	71.74

An attempt was made to examine individual tendencies in rating. Altogether 108 ratings form the data of this study. They were obtained from 81 different raters.

Table 3 shows the number of subjects who made 1, 2, 3, 4, or 5, ratings each.

TABLE 3.

No. of Raters	No. of Ratings	Total.
1.	5	5
0.	4	0
1.	3	3
21.	2	42
58.	1	58
Grand Totals 81	---	108

From this it will be seen that the available data was inadequate to provide information on the tendencies of certainty of rating displayed by individual judges. A consideration of the 23 raters who rated more than one subject suggested that the degree of certainty of a rater might vary considerably for different subjects. The average variations in certainty of these 23 raters was 5.6 points (S.D. 3.85) on a scale of 69 points (Range of Certainty:- Highest 69 - lowest 45.). While this individual tendency of rating must be admitted as a possible factor in influencing the certainty of ratings, its presence was not definitely shown in this experiment.

The influence of length of acquaintance on certainty of ratings was examined. This involved a consideration of the 81 ratings by acquaintances. The length of acquaintance varied from twelve months to 25 years. The average length of acquaintance was 85 months (S.D. 72). As the degree of certainty was influenced by the traits and the subjects of the rating, it is very difficult to give more than an approximate indication of the relationship between length of acquaintance and total certainty (for one rater) of judgment. To show if such relationship was important, Karl Pearson's, Contingency Method of Calculating Correlation was used. The calculation is shown in Table 4.

TABLE 4.

Relationship between Certainty of Rating and Length of Acquaintance.

(Garrett (32) pp.202-203).

Degree of Certainty (Points out of 69).

	34-39	40-45	46-51	52-57	58-63	64-69	Totals
12-31		3	2	7	9	4	25
32-51		1	1	1	7	3	13
Length of 52-71				1	4	3	8
Acquaintance 72-91		1	1	2	6	4	14
in Months. 92-111					6		6
112-132+			1	3	8	3	15
Totals.		5	5	14	40	17	81

$$\text{Column 2} \quad \frac{1}{5} \left( \frac{9}{25} + \frac{1}{13} + \frac{1}{14} \right) = .1017$$

$$\text{Column 3} \quad \frac{1}{5} \left( \frac{4}{25} + \frac{1}{13} + \frac{1}{14} + \frac{1}{15} \right) = .0443$$

$$\text{Column 4} \quad \frac{1}{14} \left( \frac{49}{25} + \frac{1}{13} + \frac{1}{8} + \frac{4}{14} + \frac{9}{15} \right) = .2215$$

$$\text{Column 5} \quad \frac{1}{40} \left( \frac{81}{25} + \frac{49}{13} + \frac{16}{8} + \frac{36}{14} + \frac{36}{6} + \frac{64}{15} \right) = .5384$$

$$\text{Column 6} \quad \frac{1}{17} \left( \frac{16}{25} + \frac{9}{13} + \frac{9}{18} + \frac{16}{14} + \frac{9}{15} \right) = \frac{.2412}{P = 1.1471}$$

$$C = \sqrt{\frac{P-1}{P}} = \sqrt{\frac{1.1471 - 1}{1.1471}} = \sqrt{\frac{.1471}{1.1471}} = \sqrt{.1282} = .36$$

While this correlation (for such a calculation C is almost equal to Product-Moment r) cannot be taken as a true indication of the relationship which we attempted to measure, owing to the interfering factors previously discussed, we may conclude that there is a slight but definite relationship between length of acquaintance and certainty of judgments on character.

No attempt was made to <sup>determine</sup>~~influence~~ the influence of sex of judges or subjects on the certainty of judgments.

It was thought that a difference might exist between the degree of certainty of self ratings and ratings by acquaintances. To examine this matter the average degree of certainty of selfratings was found and compared with the average degree of certainty of ratings by acquaintances. (Total possible certainty 69). These averages were:-

Average degree of certainty	Self Ratings	60 (S.D. 7.12)
	Acquaintance's ratings	59 (S.D. 2.75).

The difference between the averages is not significant. It is noteworthy that the S.D. of certainty of self ratings was considerably greater than the S.D. of certainty of ratings by acquaintances.

The correlation between degree of certainty of Self-Ratings and Degree of Certainty of Ratings by Acquaintances, subject by subject, was calculated (Spearman Rank method converted by tables to Produce Moment  $r$ ) and found to be .2091 (P.E. .117). It was not only very low, but, on account of the relatively large P.E., insignificant.

Ratings in self-confidence (all ratings unweighted) and the degree of certainty of Self-Ratings were correlated, subject by subject.  $r$  in this case was .2611 (P.E. .112); again low and insignificant.

In order to determine whether a high degree of certainty on the part of the four judgments on any subject was indicative of close agreement between judgments the correlation between the total spread of judgments (found by summing the range from lowest to highest judgment in each trait for each of the subjects) and the total degree of certainty of the judges (ranks as in Table 2), subject by subject, was computed. It was .0000.

By correlation procedure an attempt was made to determine the relationship between the certainty with which a subject was judged, and the degree of the various traits which he exhibited (score for subject was total of unweighted ratings in each case). Here the correlations were calculated by the

Spearman Foot-Rule Method, and converted by table to Product-moment coefficients. Results are shown on Table 5.

Table.5.

Correlation between Certainty of Judgment and Scores in Traits.

(R converted to r).

TRAIT BY TRAIT.

No.	Trait	
4.	Cheerfulness & Optimism	.089
11	Enterprise	.323
19	Energy & Vim	.275
9	Self-confidence	— .307
5	Initiative & Originality	.192
21	Leadership	.071
7	Sociability & Popularity	.275
3	Tractability	.124
12	Kindliness & Manners	.307
6	Obedience	.323
10	Punctuality & Regularity	.089
1	Conscientiousness	.275
15	Truthfulness	.275
20	Honesty	.384
14	Associates	.500
16	Loyalty	.158
2	Self-control	.275
22	Temperence	.242
13	Thrift	— .192
8	Accuracy & Efficiency	.323
18	Caution	.071
17	Perseverance & Industry	.071
23	Piety & Reverence	— .176

No attempt was made to correct for attenuation, because, although the reliability of the estimates could be calculated (cf Section VIII) it was not possible to allow for

unreliability of the degree of certainty of judgments.

The correlations on Table 5 are all low, most being so small as to be negligible, but there is some indication that, in this case, a person rated with a high degree of certainty, will be rated high in regard to Associates, Honesty, Obedience, Enterprise and Accuracy and Efficiency. The lowness of the correlations, together with the meagre data on which they are based, makes these indications suggestive only.

Our conclusions are that the degree of certainty of judgments is influenced by the trait under consideration, the subject of the rating, and the length of acquaintance of rater and subject. In addition, the personality of the rater might possibly influence the rating. A high degree of certainty on the part of the four judges is not indicative of a close agreement in judgments by those judges on a subject. From the evidence available it does not seem possible to indicate any traits as characteristic of those individuals who are judged with certainty.

The several factors which influence the certainty of ratings make it impossible to weight the judgments for scoring purposes in accordance with the degree of certainty with which those judgments were made.



AN EXAMINATION OF THE  
DISTRIBUTION OF JUDGMENTS  
AND A CRITICISM OF THE SCALE.

The next problem was the examination of the rating scale in the light of the distribution of the scores obtained by its use. Any conclusions on this question must be of necessity tentative on account of the size and nature of the group of subjects.

A further examination of the judgments may show the tendencies in rating displayed by self raters, class mates and friends other than academic associates.

Giving all judgments, no matter the degree of certainty with which they were made, the same value, the data were assembled and the following information obtained:-

The average Total score (out of 20) from four ratings.	Table 6.
The average Score (out of 5) from four ratings.	Table 7
The Average Score (out of 5) for <u>self</u> ratings.	Table 8
The average Score (out of 5) for (3) <u>other</u> ratings.	Table 9
The average Score (of 5) for Class-mates' ratings (1)	} Table 10.
The average Score (of 5) for friend's ratings (2)	

TABLE 6.

AVERAGE TOTAL SCORES - ALL FOUR RATINGS.

No.	Trait	Average Total Score	S.D. Distribution	P.E. Average.
4	Cheerfulness & Optimism	12.5	2.9614	.3844
11	Enterprise	11	1.5264	.1191
19	Energy & Vim	16.3	1.456	.1890
9	Self-confidence	12.9	1.6553	.2148
5	Initiative & Originality	13.7	1.5937	.2068
21	Leadership	12	2.646	.3435
7	Sociability & Popularity	14.4	2.498	.3243
3	Tractability	10.4	1.5232	.1977
12	Kindliness & Manners	16.7	1.51	.1960
6	Obedience	14	1.9519	.2533
10	Punctuality & Regularity	15.2	2.358	.3061
1	Conscientiousness	17.4	1.4036	.1822
15	Truthfulness	16.6	1.5427	.2003
20	Honesty	18.4	1.3153	.1707
14	Associates	15.7	.784	.1018
16	Loyalty	17	1.2	.1558
2	Self Control	13.4	1.4933	.1938
22	Temperance	13.2	1.4071	.1827
13	Thrift	11.4	2.1142	.2744
8	Accuracy & Efficiency	14.9	1.9105	.2480
18	Caution	12.8	1.4071	.1827
17	Perseverance & Industry	16.9	1.3528	.1756
23	Piety & Reverence	13.4	3.0871	.4007

TABLE 7.

## AVERAGE SCORES - ALL FOUR RATINGS.

No.	Trait	Average	S.D. Distri- bution	S.D. Average
4	Cheerfulness & Optimism	3.10	.97	.0947
11	Enterprise	2.75	.64	.0625
19	Energy & Vim	4.10	.63	.0615
9	Self-Confidence	3.23	.69	.0673
5	Initiative & Originality	3.43	.67	.0654
21	Leadership	3.00	.85	.0830
7	Sociability & Popularity	3.60	.94	.0917
3	Tractability	2.60	.65	.0634
12	Kindliness & Manners	4.18	.71	.0693
6	Obedience	3.50	.82	.0800
10	Punctuality & Regularity	3.80	.88	.0859
1	Conscientiousness	4.35	.68	.0664
15	Truthfulness	4.15	.73	.0712
20	Honesty	4.60	.57	.0556
14	Associates	3.93	.49	.0478
16	Loyalty	4.25	.63	.0615
2	Self-control	3.35	.70	.0683
22	Temperance	3.30	.66	.0644
13	Thrift	2.85	.78	.0761
8	Accuracy & Efficiency	3.73	.75	.0732
18	Caution	3.20	.65	.0634
17	Perseverance & Industry	4.23	.61	.0595
23	Piety & Reverence	3.35	.99	.0966.

TABLE 8

AVERAGE SCORE - SELF RATINGS.

No.	Trait	Average	S.D. Distribution	S.D. Average
4	Cheerfulness & Optimism	2.78	.79	.1520
11	Enterprise	2.52	.50	.0962
19	Energy & Vim	3.89	.69	.1327
9	Self Confidence	3.00	.55	.1049
5	Initiative & Originality	3.33	.67	.1289
21	Leadership	3.04	.64	.1232
7	Sociability & Popularity	3.10	.84	.1616
3	Tractability	2.74	.70	.1347
12	Kindliness & Manners	3.78	.74	.1424
6	Obedience	3.30	.94	.1809
10	Punctuality & Regularity	3.48	.83	.1597
1	Conscientiousness	4.10	.72	.1386
15	Truthfulness	3.63	.82	.1578
20	Honesty	4.44	.63	.1212
14	Associates	3.89	.42	.0808
16	Loyalty	4.00	.54	.1039
2	Self-control	3.19	.61	.1174
22	Temperance	3.15	.52	.1001
13	Thrift	2.56	.96	.1848
8	Accuracy & Efficiency	3.22	.63	.1212
18	Caution	3.18	.67	.1287
17	Perseverance & Industry	3.93	.66	.1270
23	Piety & Reverence	2.74	.80	.1539

TABLE 9.

AVERAGE SCORE - RATINGS OF ACQUAINTANCES  
(Three Ratings)

No.	Trait	Average	S.D. Distri- bution	S.D. Aferage
4	Cheerfulness & Optimism	3.24	1.00	.1111
11	Enterprise	2.83	.66	.0733
19	Energy & Vim	4.14	.62	.0689
9	Self-confidence	3.30	.72	.0800
5	Initiative & Originality	3.46	.67	.0744
21	Leadership	2.99	.91	.1011
7	Sociability & Popularity	3.77	.92	.1022
3	Tractability	2.55	.63	.0700
12	Kindliness & Manners	4.31	.66	.0733
6	Obedience	3.57	.73	.0811
10	Punctuality & Regularity	3.91	.87	.0967
1	Conscientiousness	4.43	.65	.0722
15	Truthfulness	4.24	.61	.0678
20	Honesty	4.65	.54	.0600
14	Associates	3.94	.51	.0567
16	Loyalty	4.33	.66	.0733
2	Self-control	3.40	.72	.0800
22	Temperance	3.35	.69	.0767
13	Thrift	2.95	.68	.0756
8	Accuracy & Efficiency	3.89	.70	.0778
18	Caution	3.21	.62	.0689
17	Perseverance & Industry	4.32	.56	.0622
23	Piety & Reverence	3.55	.99	.1100

With a scale correctly constructed, a representative sampling of the population, and a sufficient number of judges, an approximately normal distribution of scores is to be expected for each trait.

A perfectly normal distribution, even with sufficient raters and a thoroughly accurate scale, could not be expected from this experiment, because of the smallness of the group and the fact that it was not at all representative of the population. Even with a sampling representative of University Students, judged on this scale, one could not expect an evenly distributed curve of distribution for each trait as possibly undergraduates have some common characteristics not so noticeable in the total population. This scale was not constructed for use solely with undergraduates.

In the results of this investigation the distribution of scores is likely to be influenced by the smallness of the group, the lack of a representative sampling as subjects, faults in the construction of the rating scale, and the inaccuracy of the ratings. Inaccuracy of the ratings could be caused by the faulty construction of the scale, or the inadequacy of the raters for their task. This inadequacy of the raters may be due to the fact that they are incompetent to make judgments either from inability to discriminate and assess the degree to which some or all of the traits are exhibited by the subjects, or from insufficient acquaintance to provide opportunities for satisfactory observation of the subjects' behaviour, or to the fact that in some of the traits to be judged a number of judges larger than that employed is necessary in order to provide a valid total rating.

Neglecting, for the present, the factors influencing the distribution curve which results from the smallness of the group and the inadequacies of the raters, it is possible, by an examination of the distribution of scores for each trait, to criticise the construction of the scale and suggest modifications which will probably result in an improved distribution.

The individual traits will be examined, in the order in which they are shown on Table 7, from the point of view of the distribution curves shown on that table and plotted on the accompanying charts.

The numbers in brackets for each trait show the divisions numbered from left to right on the charts.

4. CHEERFULNESS AND OPTIMISM e.g. How are the ups and downs of life responded to?

- |   |                            |
|---|----------------------------|
| (1) Somewhat gloomy and fairly easily depressed               | <u>Degree of certainty</u> |
| (2) Cheerful when things go well                              | ( ) Positive               |
| (3) Of a generally happy nature and susceptible to misfortune | ( ) Fairly certain         |
| (4) Of a sunny disposition; seldom downcast                   | ( ) Not quite certain.     |
| (5) Never out of countenance; invariably cheerful.            |                            |

Here the average (3.10) is near the third division. The S.D. (.97) is large, possibly because of the wide variation between self-ratings and ratings by others. No alteration seems necessary.

11. ENTERPRISE e.g. To what extent is displayed a willingness to take risks in order to improve standing in any sphere of life?

- |   |                             |
|---|-----------------------------|
| (5) Greatly daring and showing great nerve. | <u>Degree of certainty.</u> |
| (4) Prefers to take risks                   |                             |
| (3) Will take reasonable chances            | ( ) Positive                |
| (2) Takes risks now and then                | ( ) Fairly certain          |
| (1) Risks nothing; takes no chances         | ( ) Not quite certain.      |

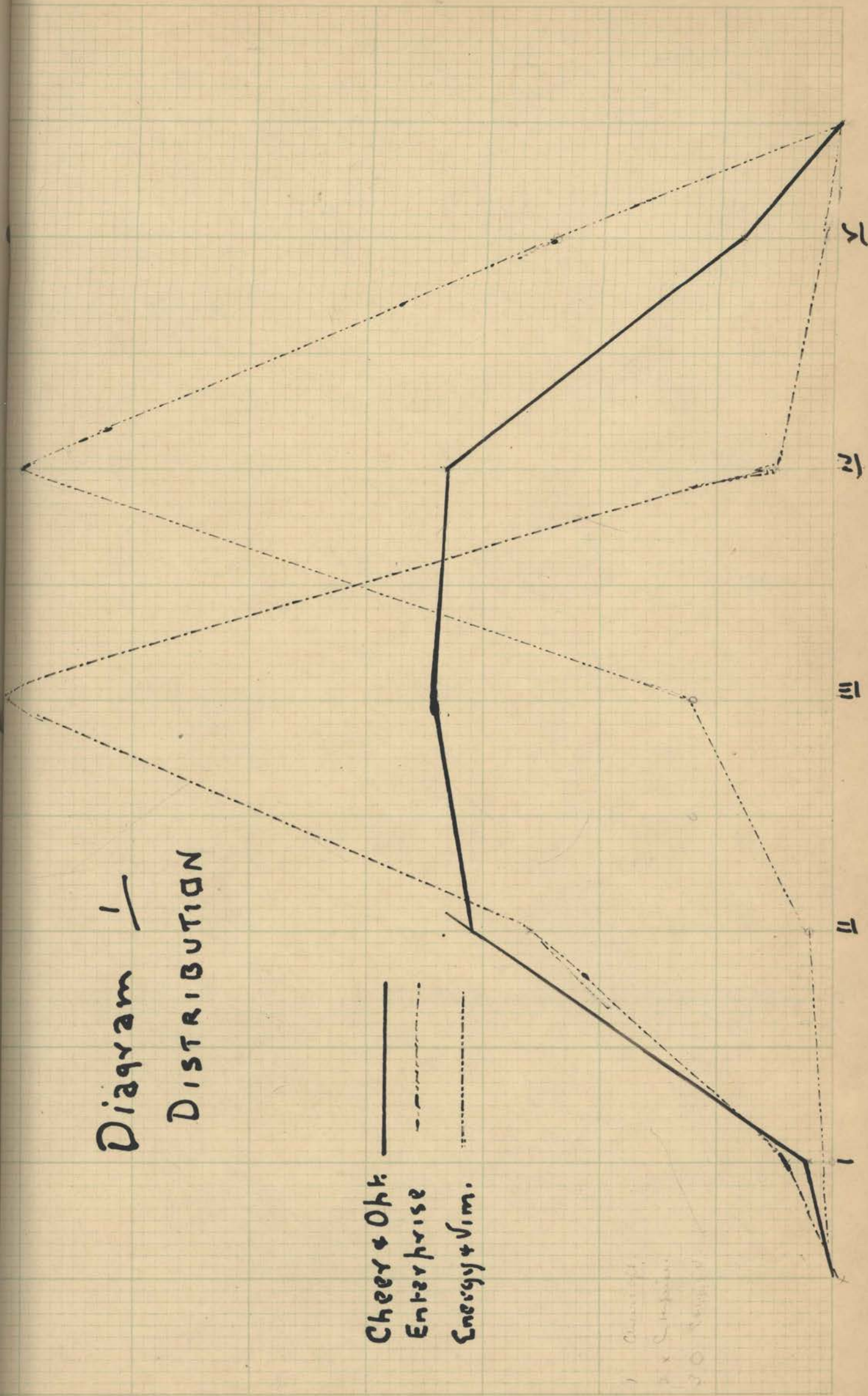
Average (2.75) in this case is close to the third division. S.D. is .64.

The diagram shows a tendency to avoid divisions (4) and (5)



# Diagram I DISTRIBUTION

—————  
 Cheer & Oht.  
 - - - - -  
 Enterprise  
 ······  
 Energy & Vim.



1. Cheer & Oht.  
 2. Enterprise  
 3. Energy & Vim.

(4) might be altered, to read,

"Takes dangerous risks sometimes".

(2) to read,

"Takes risks sometimes if not dangerous."

19. ENERGY AND VIM e.g. With what amount of vim and enthusiasm are school-work, duties, hobbies and sports entered upon?

- |  |                                    |
|--|------------------------------------|
| (5) With noticeable vim and dash                     | <u>Degree of Certainty.</u>        |
| (4) With a fair degree of energy and enthusiasm      | ( ) Positive                       |
| (3) Steadily, but without much enthusiasm            | ( ) Fairly certain                 |
| (2) Somewhat lackadaisically                         | ( <del>/</del> ) Not quite certain |
| (1) Without showing any interest in task or pastime. |                                    |

Here the Average (4.10) is high, possibly owing to the selected group of subjects, but perhaps because of the scale descriptions. S.D. (.63) is satisfactory. The mode falls in division (4) and the diagram shows a marked avoidance of the first three divisions.

A modification of the scale for this trait is suggested as follows:-

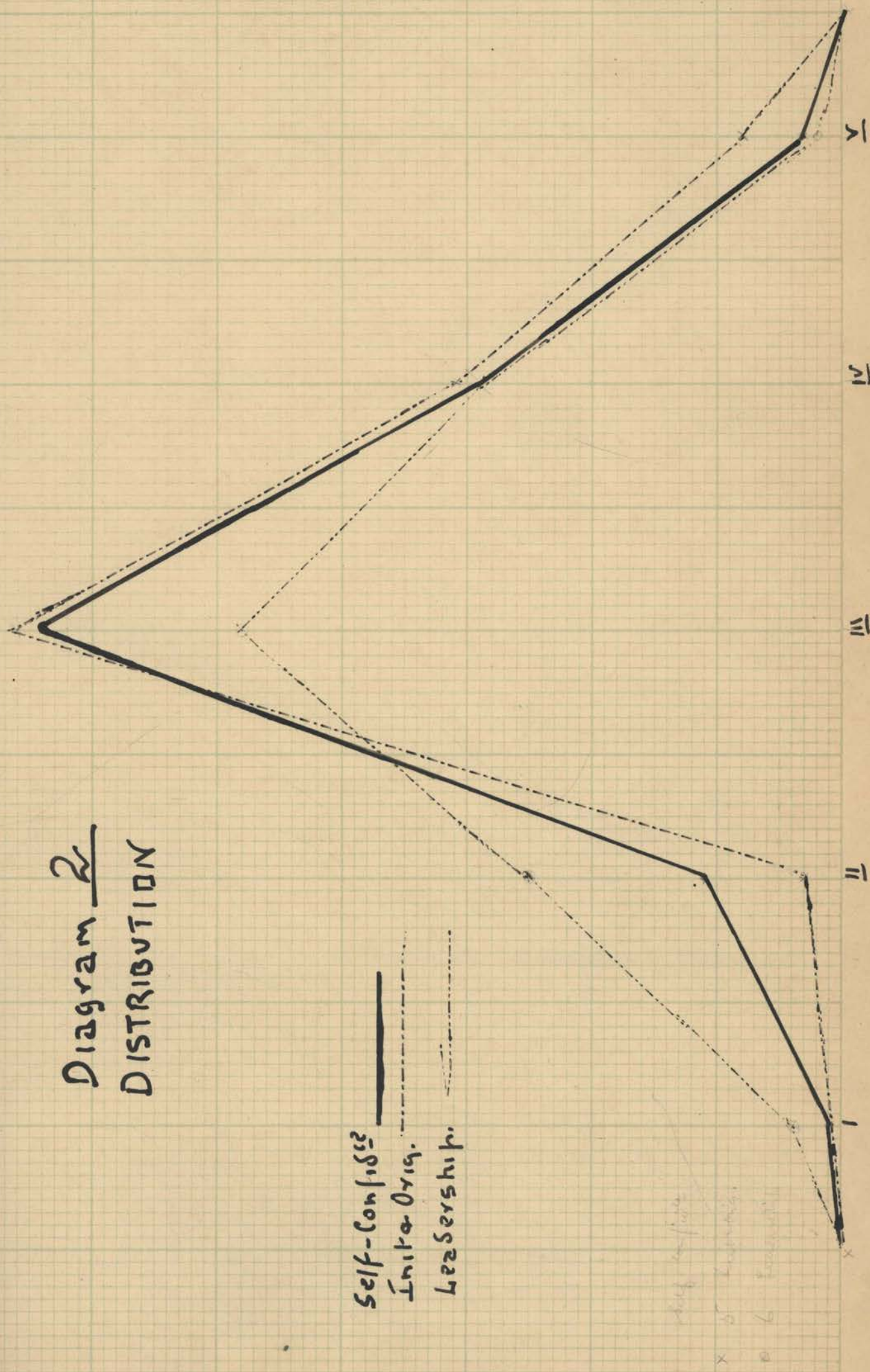
- (5) as above.
- (4) Enthusiastically and with energy.
- (3) With moderate enthusiasm.
- (2) Steadily, but seldom with enthusiasm.
- (1) Always in a phlegmatic manner.

9. SELF-CONFIDENCE e.g. How much self-assurance is maintained in the presence of fellows or superiors?

- |   |                             |
|---|-----------------------------|
| (5) Self Assertive and Dominating: obviously assured as to ability. | <u>Degree of Certainty.</u> |
| (4) Self assured and not easily abashed                             | ( ) Positive                |
| (3) Moderately confident, but aware of limitations                  | ( ) Fairly certain          |
| (2) Retiring and unobtrusive, very modest                           | ( ) Not quite certain       |
| (1) Shy, bashful and timid.   |                             |

# Diagram 2 DISTRIBUTION

————— Self-Confid<sup>ce</sup>  
 - - - - - Initia Orig.  
 - - - - - Leadership.



x 5  
 6  
 6

The average (3.23) is as near the third division as could be expected, and the S.D. (.69) not very large. A slight tendency on the part of raters to avoid division (2) is apparent in the diagram. Division (1) might be altered to read:-

(1) Often bashful and timid.

5. INITIATIVE AND ORIGINALITY e.g. What degree of resourceful behaviour is manifested in a novel situation, or in times of stress and difficulty?

- |   |                            |
|---|----------------------------|
| (5) Extremely original and adaptable                  | <u>Degree of Certainty</u> |
| (4) Resourceful; quick to adapt himself to situations | ( ) Positive               |
| (3) Can adapt himself moderately well                 | ( ) Fairly certain         |
| (2) Slow to change methods.                           | ( ) Not quite certain      |
| (1) Tends to remain in a rut.                         |                            |

In this case the Average (3.43) is satisfactory, and S.D. (.67) not very large. Division (2) was avoided. The following modification is suggested:-

- (2) Attempts to adapt himself to circumstances on a few occasions.
- (1) Only seldom changes methods.

21. LEADERSHIP e.g. What place as leader among associates or equals is taken in games or social life?

- |   |                            |
|---|----------------------------|
| (5) Invariably takes the lead                   | <u>Degree of Certainty</u> |
| (4) Frequently a leader                         |                            |
| (3) Occasionally leads the group                | ( ) Positive               |
| (2) Will accept leadership on strong persuasion | ( ) Fairly certain         |
| (1) Shrinks entirely from leadership            | ( ) Uncertain              |

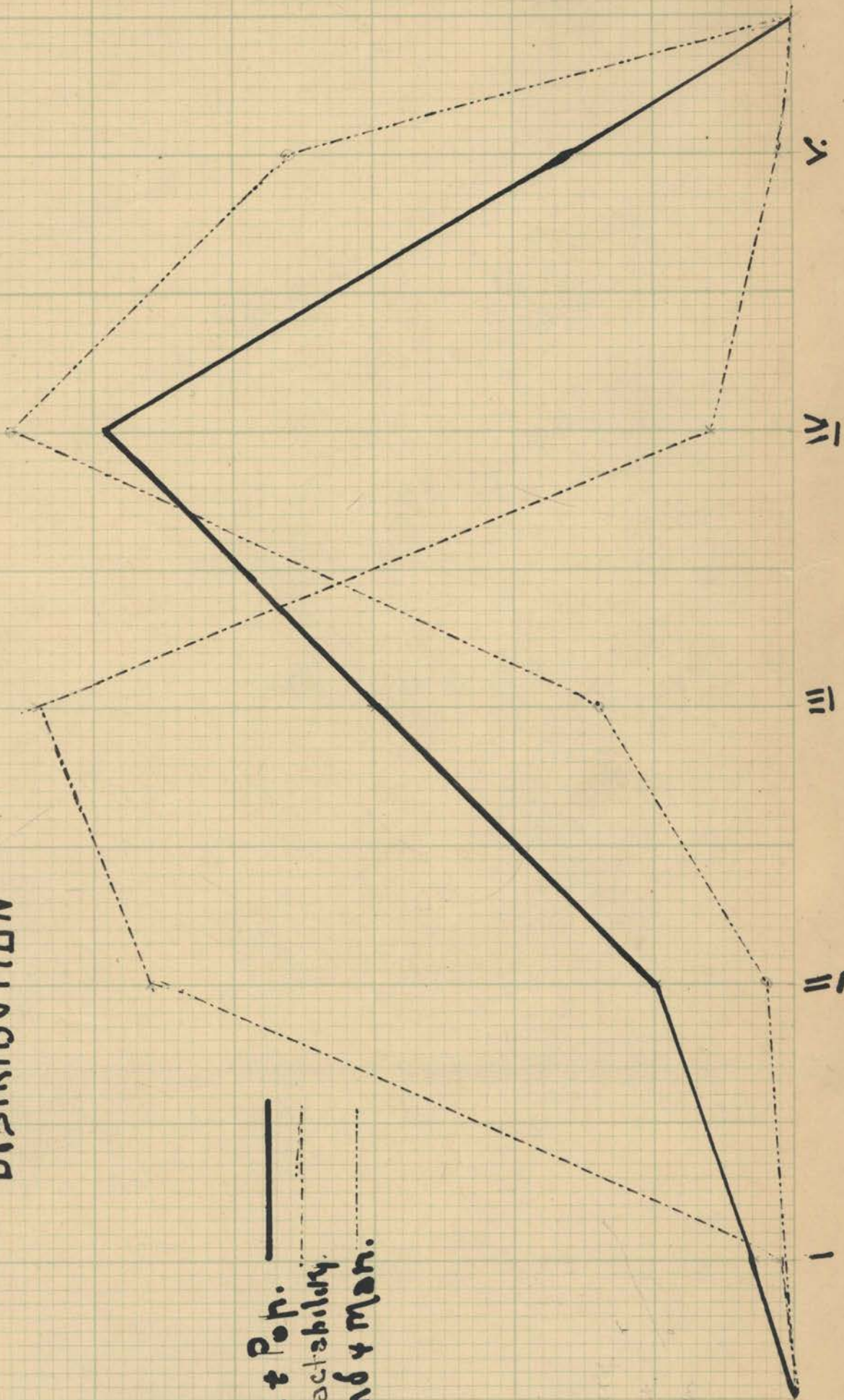
The Average (3.00) is satisfactory but the S.D. (.85) is large. The distribution is well-balanced but spread is larger than desirable. This is possibly due to closeness of divisions (4), (3) and (2).

(2) could be altered to read:

"Leads sometimes, but only after considerable persuasion."

Diagram 3  
DISTRIBUTION

Sect Pop. —  
Tractability - - -  
Kind & Man. - - -



7. SOCIABILITY AND POPULARITY. e.g. To what extent are happy personal relationships with others developed and friendships made?

- |   |                            |
|---|----------------------------|
| (5) Invariably popular, makes friends very readily. | <u>Degree of Certainty</u> |
| (4) Generally well-liked                            | ( ) Positive               |
| (3) Liked by his own circle of friends              | ( ) Fairly certain         |
| (2) Makes few friends                               | ( ) Not quite certain      |
| (1) Keeps rather to himself.                        |                            |

The average (3.60) is high and the S.D (.94) large. The skewed distribution may result in the large S.D. The mode falls in division (4) while divisions (1) and (2) are not used frequently.

Alterations for this trait are:-

- (4) "Popular with the great majority of his acquaintances".
- (3) as (4) above.
- (2) as (3) above
- (1) as (2) above.

3. TRACTABILITY e.g. When an opinion has been formed, or a line of action decided upon, how are suggestions and persuasions reacted to?

- |  |                            |
|--|----------------------------|
| (1) Persistently obstinate   | <u>Degree of Certainty</u> |
| (2) Will not change as a rule unless for a strong reason                       | ( ) Positive               |
| (3) Changes fairly readily when shown good reason                              | ( ) Fairly certain         |
| (4) Offers little resistance to suggestion or persuasion.                      | ( ) Not quite certain      |
| (5) Looks to and accepts opinions and decisions of others in place of his own. |                            |

Average (2.60) is low; S.D. (.65) satisfactory.

The mode falls in division (3) but the distribution is skewed, a large number of judgments falling in (2) and a small number in (4).

The altered form is:-

- (1) Will not change unless for a very strong reason.
- (2) Changes reluctantly when shown good reason.
- (3) Changes willingly for a good reason.
- (4) Offers but slight resistance to persuasion.
- (5) Suggestible; usually changes as a result of advice or opinions of others.

12. KINDLINESS AND GOOD MANNERS e.g. How are these qualities of courtesy displayed in relations with other persons, especially towards elderly people and younger associates?

- |  |                            |
|--|----------------------------|
| (1) Uncouth and ill mannered.                  | <u>Degree of Certainty</u> |
| (2) Occasionally bad-mannered and discourteous | ( ) Positive               |
| (3) Fairly well mannered and polite            | ( ) Fairly certain         |
| (4) Behaves courteously in most situations     | ( ) Not quite certain      |
| (5) Invariably courteous and chivalrous.       |                            |

The average (4.18) is very high - possibly due to the selected group - and the S.D. (.71) is perhaps the result of the skewed distribution. The mode falls in division (4) and the diagram shows a neglect of divisions (1), (2), and (3).

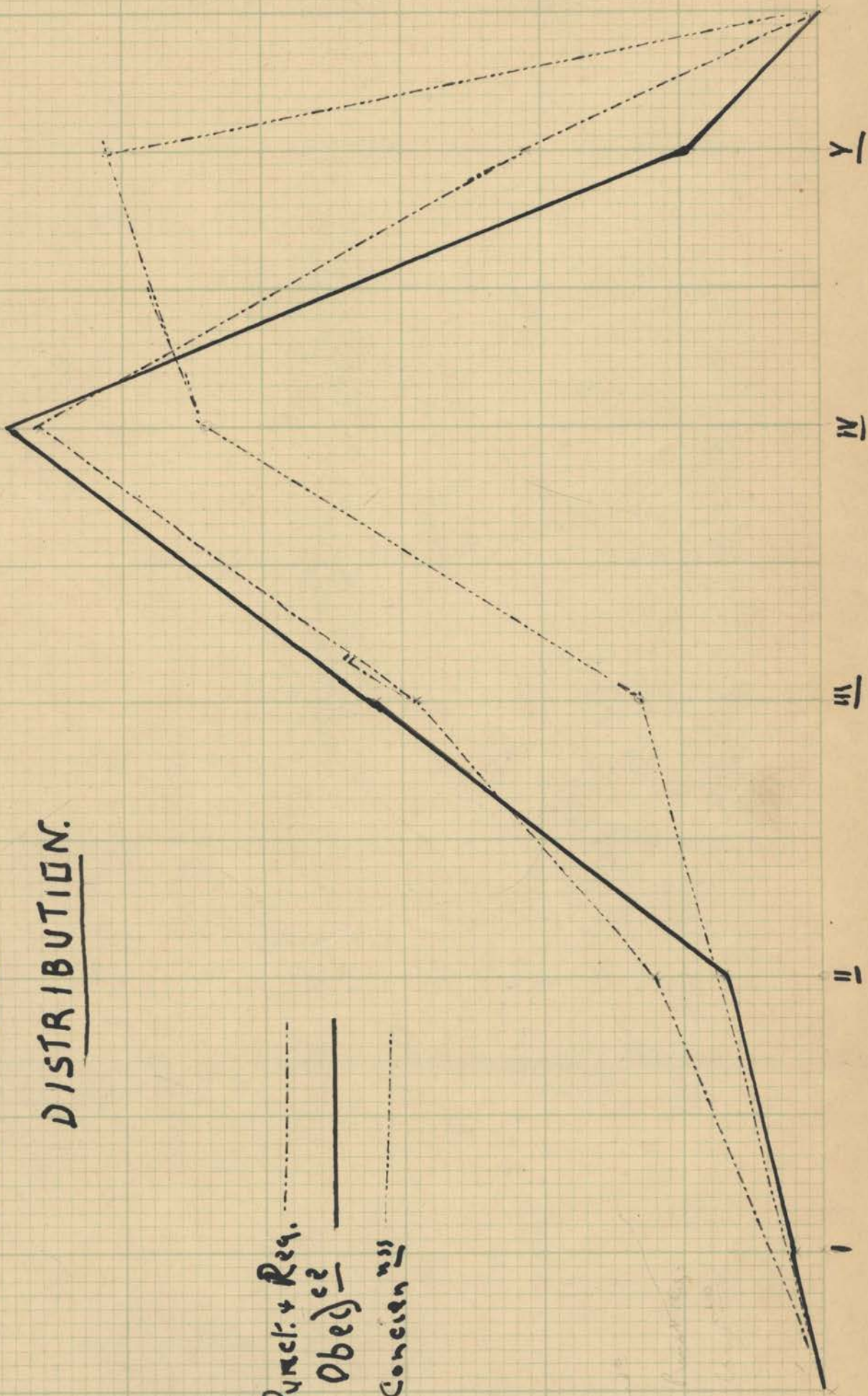
This has been recast as follows:-

- (1) Often bad mannered and discourteous.
- (2) Sometimes abrupt or disagreeable.
- (3) Generally well-mannered and polite.
- (4) Well mannered but aloof.
- (5) Invariably courteous and agreeable.

Diagram 4

DISTRIBUTION.

Punct. + Reg. -----  
 Obedience -----  
 Conscience -----





6. OBEDIENCE e.g. What form of behaviour is manifested when given a command or task by some authorised person, and what degree of conformity is shown towards established rules and regulations?

- |   | <u>Degree of Certainty</u> |
|---|----------------------------|
| (1) Inclined to disobedience and rebellion.                           |                            |
| (2) Occasional lapses from obedience                                  | ( ) Positive               |
| (3) Fairly compliant.   | ( ) Fairly certain         |
| (4) Generally complies with energy, cheerfulness and alacrity.        | ( ) Uncertain              |
| (5) Cheerful and wholehearted obedience even to distasteful commands. |                            |

The Average (3.50) is high, and S.D. (.82) large.

The diagram shows a skewed distribution, with the mode at division (4). Divisions (1) and (2) were rarely used.

Suggested modifications are:-

- (3) Obeys usually.
- (4) Always obedient, sometimes cheerfully.

10. PUNCTUALITY AND REGULARITY e.g. What degree of punctuality and regularity is maintained in regard to school attendance, regular duties and appointments?

- |  | <u>Degree of Certainty</u> |
|--|----------------------------|
| (1) Very frequent irregularity and unpunctuality |                            |
| (2) Somewhat unpunctual and irregular            | ( ) Positive               |
| (3) Fairly regular and punctual                  | ( ) Fairly certain         |
| (4) Very seldom irregular and unpunctual         | ( ) Not quite certain      |
| (5) Regular and punctual without exception.      |                            |

The average (3.80) is high and S.D. (.88) large.

The distribution is skewed in a similar manner to obedience, the mode falling in division (4) and few judgments occurring in divisions (1) and (2).

Modifications are:-

- (1) Frequent irregularity and unpunctuality.
- (3) Regular and punctual in important affairs.

1. CONSCIENTIOUSNESS e.g. How faithfully is a task or commission carried out in the absence of constant personal supervision?

- |  | <u>Degree of Certainty</u> |
|--|----------------------------|
| (5) Perfectly reliable with or without supervision.          |                            |
| (4) Trustworthy  | ( ) Positive               |
| (3) Reasonably Reliable.                                     | ( ) Fairly certain         |
| (2) Requires watching  | ( ) Not quite certain      |
| (1) Cannot be depended upon unless under direct supervision. |                            |

The average (4.35) is very high and S.D. (.68) normal. The mode is in division (5) and the neglect of the first three divisions results in a markedly skewed distribution.

Alterations are:-

- (5) Always thoroughly dependable.
- (4) Reliable with or without supervision.
- (3) Trustworthy.
- (2) Sometimes unreliable.
- (1) Needs supervision.

15. TRUTHFULNESS e.g. To what extent may statements be relied upon, especially those made under possibility of punishment?

- |   | <u>Degree of Certainty</u> |
|---|----------------------------|
| (5) Dependable without an exception.              |                            |
| (4) Quite reliable and dependable                 | ( ) Positive               |
| (3) Fairly dependable                             | ( ) Fairly certain         |
| (2) Not altogether dependable; inclined to waver. | ( ) Not quite certain.     |
| (1) Untruthful.                                   |                            |

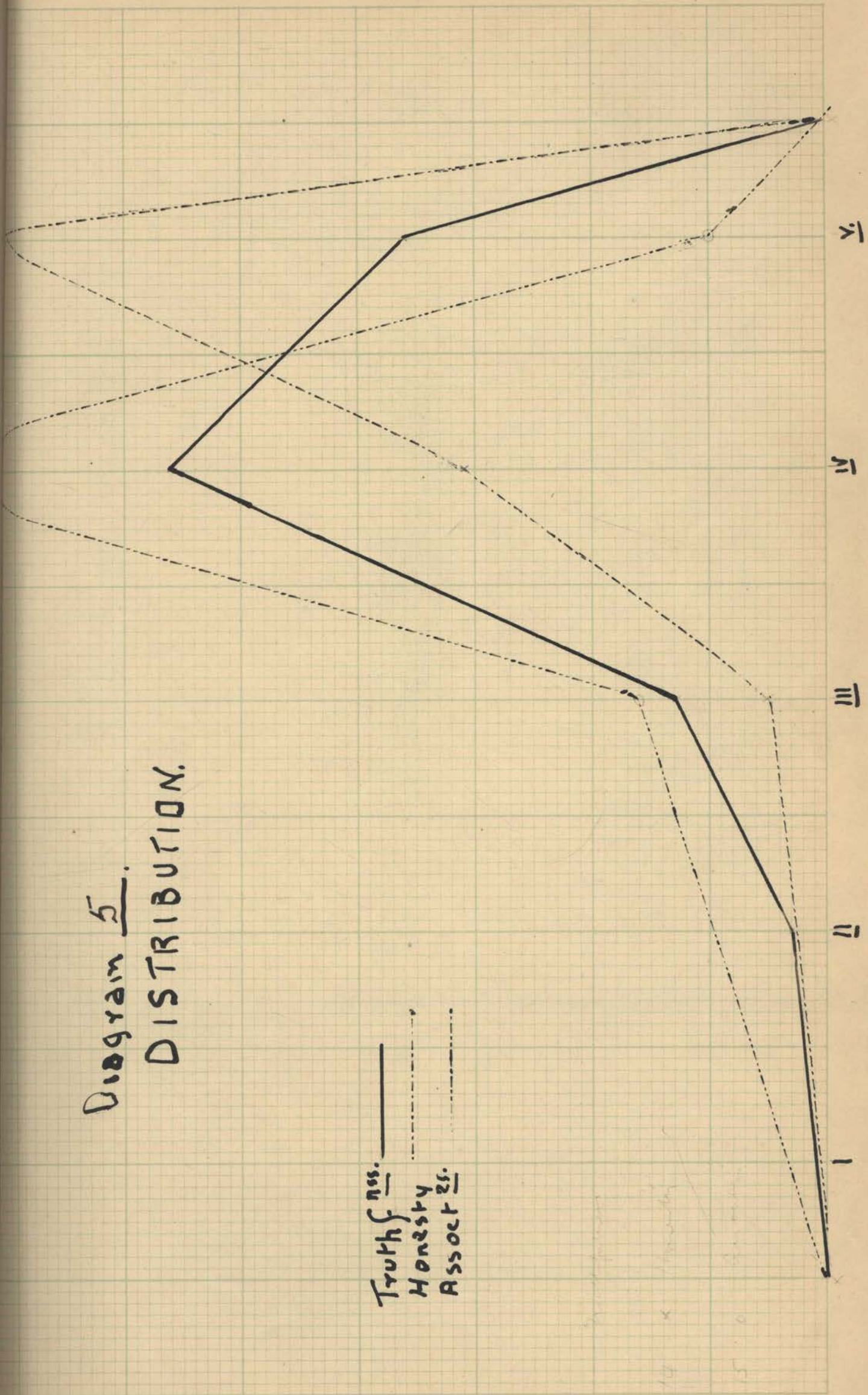
The average (4.15) is high. S.D. is .73. The mode falls in division (4) and the distribution is skewed, few judgments falling in divisions (1), (2), and (3).

Alterations are:-

- (5) Always tells whole truth.
- (4) Will omit facts on occasions.
- (2) Not altogether dependable.
- (1) Inclined to be untruthful.

Diagram 5.  
DISTRIBUTION.

Truth  $f_{nss}$ . ———  
 Honesty .....  
 Assoc  $z_s$ . - - - -



20. HONESTY e.g. To what extent may trust and confidence with regard to money or property be extended?

- |  | <u>Degree of Certainty</u> |
|--|----------------------------|
| (1) Untrustworthy: not reliable                |                            |
| (2) Susceptible under temptation               | ( ) Positive               |
| (3) Fairly trustworthy                         | ( ) Fairly certain         |
| (4) Reliable and trustworthy                   | ( ) Not quite certain      |
| (5) May be trusted fully in all circumstances. |                            |

The average (4.60) is exceedingly high but S.D. (.57) low. The mode falls in division (5). Divisions (1), (2) and (3) were seldom used.

Modifications are:-

- (1) Succumbs to temptation.
- (2) Fairly trustworthy.
- (3) Reliable and trustworthy.
- (4) Dishonest on very rare occasions.
- (5) Invariably and complete honesty.

14. ASSOCIATES e.g. Are his companions of a desirable type?

- |  | <u>Degree of Certainty</u> |
|--|----------------------------|
| (5) Associates only with individuals of very highest character.  |                            |
| (4) Chooses friends from acquaintances of good character.        | ( ) Positive               |
| (3) Companions not outstanding either for good or bad qualities. | ( ) Fairly certain         |
| (2) Not careful as to the character of associates.               | ( ) Not quite certain.     |
| (1) Companions are usually undesirable and disreputable.         |                            |

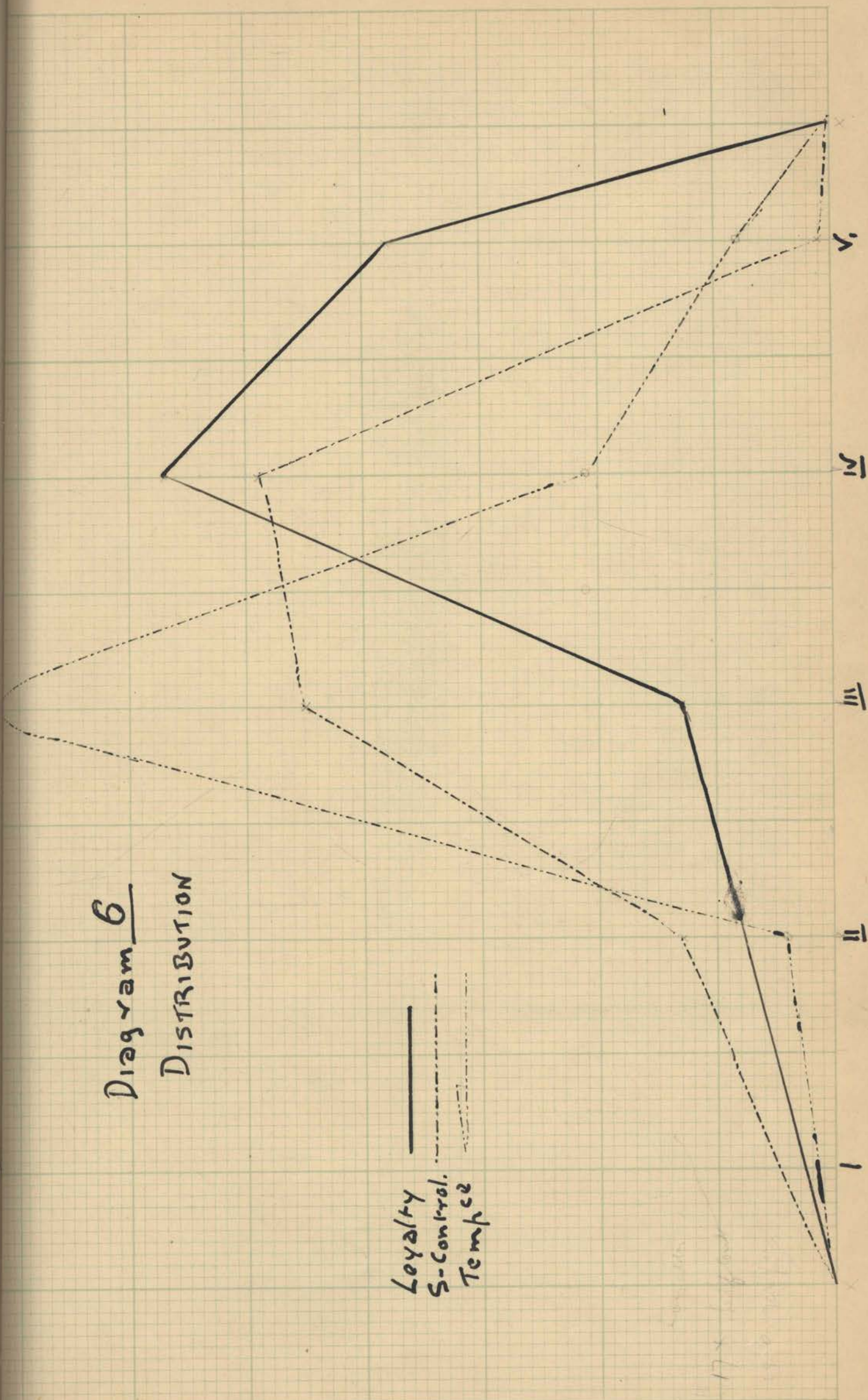
Average (4.25) is very high; S.D. (.63) satisfactory. The distribution is skewed, with mode in Division (4).

Modifications are:-

- (5) Seeks friendship only with acquaintances of good character.
- (3) Associates with all types.
- (2) As (3) above
- (1) As (2) above.

Diagram 6  
DISTRIBUTION

— Loyalty  
 - - - S-Control.  
 - - - Temple



16. LOYALTY e.g. How closely is adherence to friends and aims manifested, especially in the face of the criticism and opposition of others?

- |  | <u>Degree of Certainty</u> |
|--|----------------------------|
| (1) Fickle and unreliable                              |                            |
| (2) Not dependable when needed                         | ( ) Positive               |
| (3) Sticks fairly well to his associates               | ( ) Fairly certain         |
| (4) Loyal unless a very great inducement to disloyalty | ( ) Not quite certain.     |
| (5) Adherence never shaken, sticks at all costs.       |                            |

The Average (4.25) is very high but S.D. (.63) is not very large. Few judgments were made in divisions (1), (2) and (3) while the mode falls in (4).

Modifications are:-

Change "aims" to "opinions" in introduction.

(1) as (2) above.

(2) as (3) above

(3) Usually loyal to friends and opinions.

(4) Loyal unless loyalty involves a heavy sacrifice.

2. SELF CONTROL e.g. To what degree is control maintained over such emotions as anger, fear, jealousy, grief or joy, especially when under stress of provocation?

- |                                    | <u>Degree of Certainty.</u> |
|------------------------------------|-----------------------------|
| (1) Very easily stirred to emotion |                             |
| (2) Somewhat excitable.            | ( ) Positive                |
| (3) Displays emotion at times      | ( ) Fairly certain          |
| (4) Well controlled                | ( ) Not quite certain       |
| (5) Held completely in check.      |                             |

Average (3.35) is satisfactory, and S.D. (.70) not excessive. But the distribution is skewed, the mode falling in division (4) while divisions (1) and (2) are seldom used.

Modifications are:-

(1) Easily stirred to emotion.

(2) as (3) above.

(3) Usually does not display emotion.

- (4) Vary rarely disturbed.  
 (5) Never displays any emotion.

22. TEMPERANCE e.g. To what extent is displayed moderation and restraint from undue self-indulgence, in amusement, eating and drinking, sweets &c.

- |   | <u>Degree of Certainty</u> |
|---|----------------------------|
| (1) Excessively indulgent; greedy         |                            |
| (2) Inclined to over-indulgence           | ( ) Positive               |
| (3) Partakes in fair moderation           | ( ) Fairly certain         |
| (4) Manifests a high degree of restraint. | ( ) Not quite certain.     |
| (5) Abstemious and self-denying.          |                            |

The average (3.35) is satisfactory, and the S.D. (.66) normal. The distribution is almost normal, but a slight tendency to avoid division (2) is noticeable.

Alteration is:

- (2) Very rarely over-indulgent.

13. THRIFT e.g. What degree of thriftiness is shown in personal accumulation and expenditure of money, or in the case of the money or property of others?

- |  | <u>Degree of Certainty.</u> |
|--|-----------------------------|
| (5) So saving as to be niggardly       |                             |
| (4) Thrifty and saving                 | ( ) Positive                |
| (3) Saves moderately.                  | ( ) Fairly certain          |
| (2) Generous, and spends freely.       | ( ) Not quite certain       |
| (1) Inclined to spend without thought. |                             |

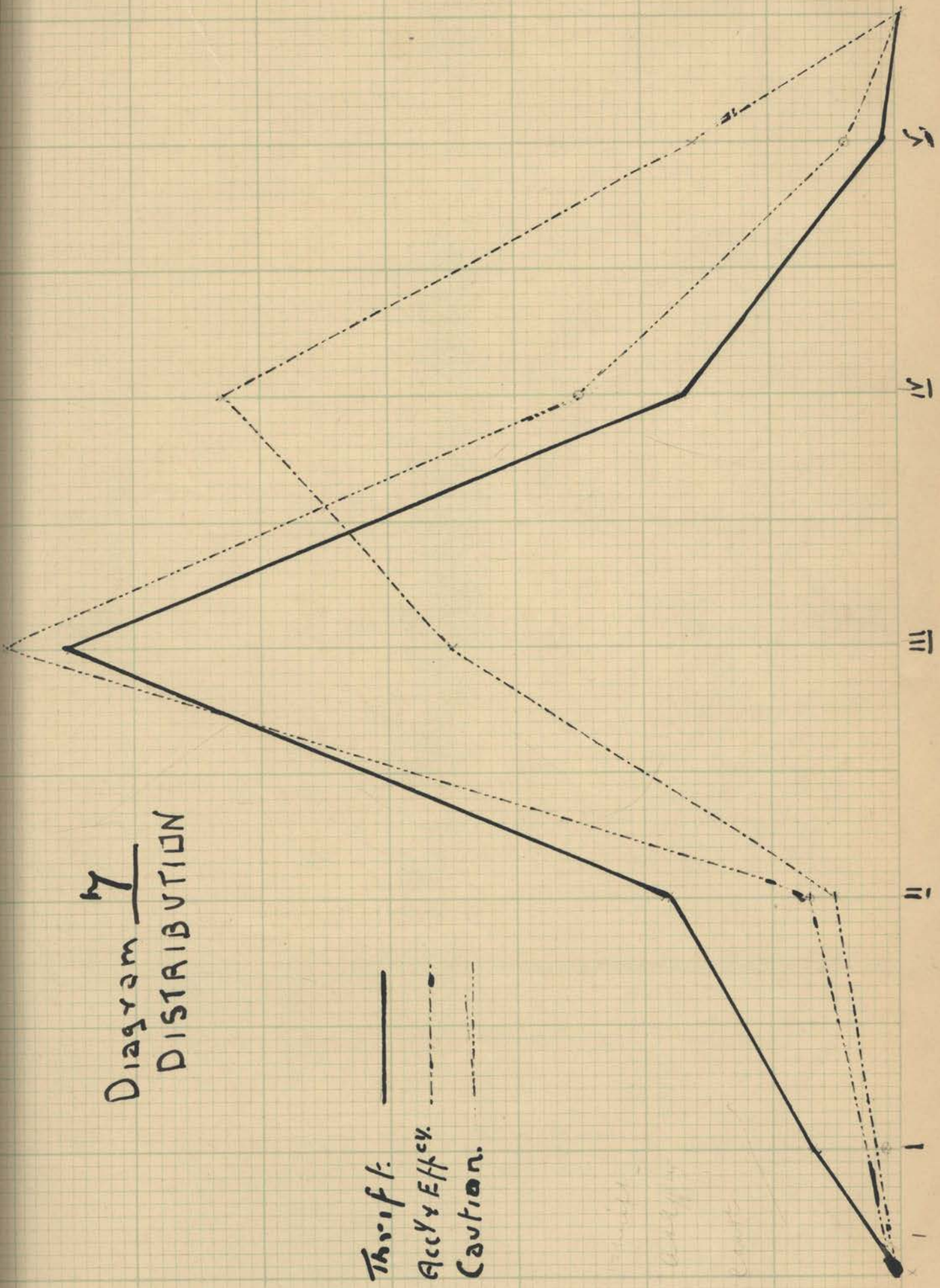
Average (2.85) is satisfactory; S.D. (.78) is high.

Only one alteration is suggested:-

- (5) Inclined to be parsimonious.

Diagram 7  
DISTRIBUTION

Thrift. ———  
Acc'y & Effcy. - - -  
Caution. - · - · -



So x really  
is 0



8. ACCURACY AND EFFICIENCY e.g. How thoroughly and exactly are duties and tasks carried out?

- |   |                            |
|---|----------------------------|
| (1) Carelessly and inadequately             | <u>Degree of Certainty</u> |
| (2) Only sufficiently accurate to get by.   | ( ) Positive               |
| (3) With a fair degree of thoroughness      | ( ) Fairly certain         |
| (4) Thoroughly; few errors only.            | ( ) Uncertain.             |
| (5) With fullest accuracy and thoroughness. |                            |

Average (3.73) is not too high and S.D. (.75) is perhaps due to skew.

Alterations are:-

- (1) Carelessly.
- (2) With sufficient accuracy to get by.

18. CAUTION e.g. How hurriedly or thoughtfully is a decision which demands a reasonable consideration of its possible consequences arrived at?

- |   |                             |
|---|-----------------------------|
| (1) Decides immediately and impetuously                           | <u>Degree of Certainty.</u> |
| (2) Comes rapidly to a decision, without careful thought          | ( ) Positive                |
| (3) Is careful and deliberate about important matters.            | ( ) Fairly certain          |
| (4) Inclined to take a long time, and weigh all the consequences. | ( ) Not quite certain       |
| (5) Markedly cautious; never makes a hurried decision.            |                             |

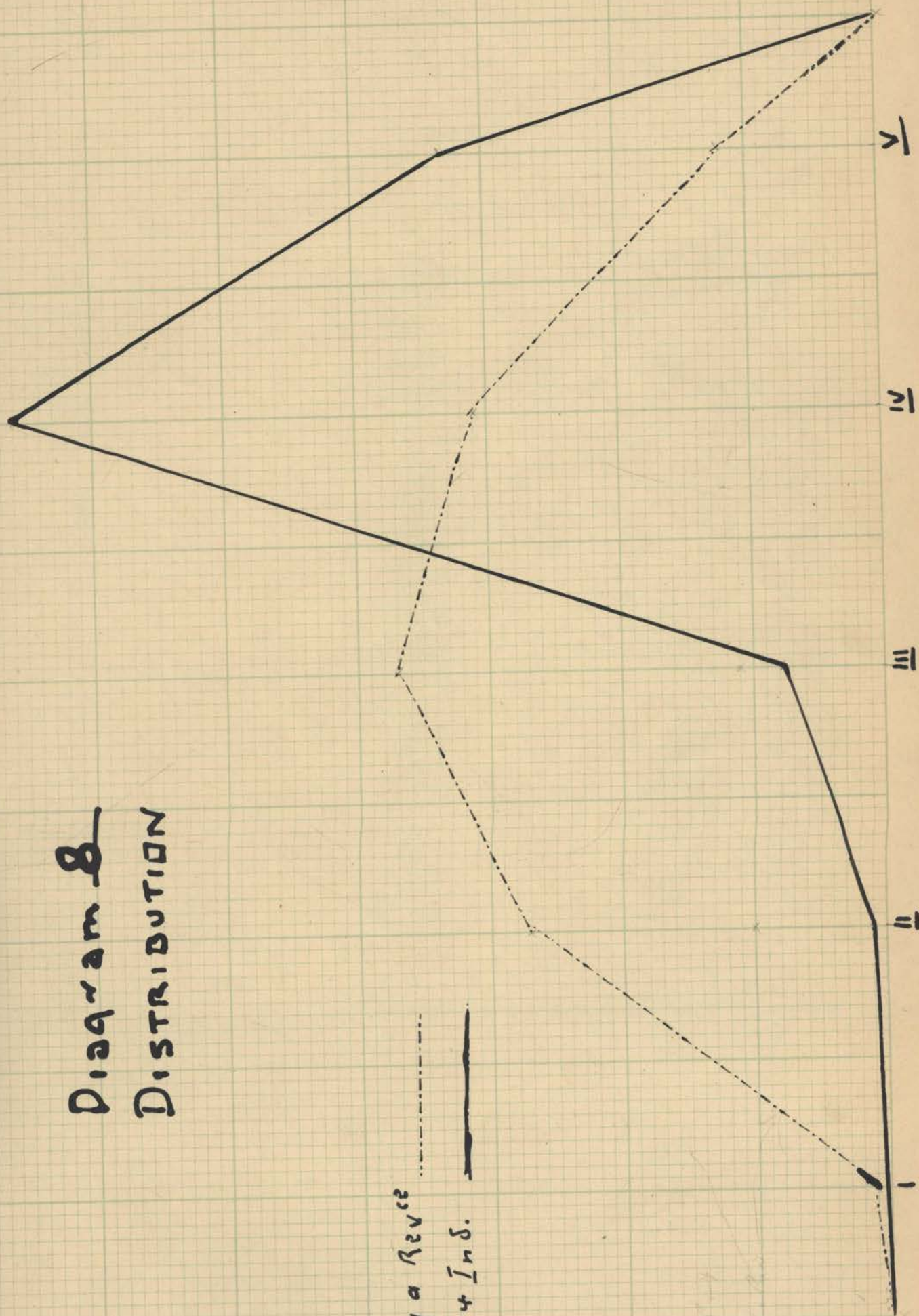
Average (3.20) and S.D. (.65) are satisfactory. The distribution is almost normal, but division (2) not often used.

Modifications are:

- (1) As (2) above
- (2) Tends to be hasty in deciding.

# Diagram 8 DISTRIBUTION

Party a Rev<sup>ce</sup> .....  
 Pers. & Ind. ———



17. PERSEVERANCE AND INDUSTRY e.g. How long is a course of action, requiring an appreciable time for completion, continued?

- |   |                             |
|---|-----------------------------|
| (5) Tends to persist to the goal in spite of difficulties.    | <u>Degree of Certainty.</u> |
| (4) Persists with steadiness; does not readily give in.       | ( ) Positive                |
| (3) Works for a time and then gives up.                       | ( ) Fairly certain          |
| (2) Gives up in face of slight opposition.                    | ( ) Not quite certain       |
| (1) Abandons the task readily when a small difficulty occurs. |                             |

The average (4.23) is high, and S.D. (.61) satisfactory. The skewed distribution, with mode in division (4) and few ratings in (1), (2) and (3) may be due to the group.

The scale could be modified:-

- (5) Persists to goal in spite of difficulties.
- (4) Only gives in if difficulties are very great.
- (3) as (4) above.
- (2) as (3) above. (add "if unsuccessful")
- (1) as (2) above.

23. PIETY AND REVERENCE e.g. What religious sincerity or depth is displayed?

- |   |                            |
|---|----------------------------|
| (5) Devout in all religious duties: carries religion into everyday life.      | <u>Degree of Certainty</u> |
| (4) Observant of religious duties, and usually maintains this reverence well. | ( ) Positive               |
| (3) Fairly observant of religious duties.                                     | ( ) Fairly certain         |
| (2) Somewhat inclined to irreverence, especially in secular matters.          | ( ) Uncertain              |
| (1) Always irreverent.  |                            |



Average (3.35) is satisfactory but large S.D. (.99) is due to difference between self ratings and those by acquaintances. (cf. Table 10). No alteration is proposed.

The complete altered scale follows.

CHARACTER RATING.

NAME .....

ADDRESS .....

School:                      Age      yrs.      months.

INSTRUCTIONS.

It is possible to rate the character of a person by considering his various single qualities or traits. For the guidance of persons using this scale, it embodies a list of qualities, together with illustrative definitions and various degrees in which they may be manifested. You will probably be able to think of a number of individuals, each of whom could be placed in one of these degrees. A large number of persons known to you would fall in the middle group in each case, a fair number in each of the two neighbouring groups, but only a few at either extreme.

You are requested to give a careful estimate of the character of the person named above. Consider carefully each trait, alone, in turn, and judge only on that trait. Judge on your knowledge of behavior, not on your opinion of it. Many ratings are made valueless because the rater allows himself to be influenced by a general impression of the person, favourable or unfavourable.

When you have judged the individual on a trait place a cross in the space ( ) opposite your judgment. After rating for a trait mark also, in one of the ( ) spaces provided, the certainty of your judgment. for example:-

THRIFT e.g. What degree of thriftiness is shown in personal accumulation and expenditure of money or in the case of the money or property of others?

( )	So saving as to be niggardly.	<u>Degree of Certainty.</u>
(x)	Thrifty and Saving.	( ) Positive
( )	Saves moderately.	(x) Fairly certain
( )	Generous, and spends freely.	( ) Uncertain
( )	Inclined to spend without thought.	

The opinion given by you should be entirely your own. Your judgment will always be regarded as confidential.

When the rating is completed, kindly answer the succeeding questions on the paper.

1. CONSCIENTIOUSNESS e.g. How faithfully is a task or commission carried out in the absence of constant personal supervision?

- |   |  |
|---|--|
| <input type="checkbox"/> Always thoroughly reliable<br><input type="checkbox"/> Reliable without or without supervision<br><input type="checkbox"/> Trustworthy<br><input type="checkbox"/> Sometimes unreliable<br><input type="checkbox"/> Needs supervision. | <u>Degree of Certainty</u><br><input type="checkbox"/> Positive<br><input type="checkbox"/> Fairly certain<br><input type="checkbox"/> Not quite certain |
|---|--|

2. SELF-CONTROL e.g. To what degree is control maintained over such emotions as anger, fear, jealousy, grief or joy, especially when under stress of provocation?

- |  |  |
|--|--|
| <input type="checkbox"/> Easily stirred to emotion.<br><input type="checkbox"/> Displays emotion at times<br><input type="checkbox"/> Usually does not display emotion<br><input type="checkbox"/> Very rarely disturbed<br><input type="checkbox"/> Never displays any emotion. | <u>Degree of Certainty</u><br><input type="checkbox"/> Positive<br><input type="checkbox"/> Fairly certain<br><input type="checkbox"/> Not quite certain |
|--|--|

3. TRACTABILITY e.g. When an opinion has been formed, or a line of action decided upon, how are suggestions and persuasions reacted to?

- |   |  |
|---|--|
| <input type="checkbox"/> Will not change as a rule unless for a strong reason<br><input type="checkbox"/> Changes reluctantly when shown good reason<br><input type="checkbox"/> Changes willingly for a good reason<br><input type="checkbox"/> Offers but slight resistance to persuasion<br><input type="checkbox"/> Suggestible; usually changes as a result of advice or opinions of others. | <u>Degree of Certainty</u><br><input type="checkbox"/> Positive<br><input type="checkbox"/> Fairly certain<br><input type="checkbox"/> Not quite certain |
|---|--|

4. CHEERFULNESS AND OPTIMISM e.g. How are the ups and downs of life responded to?

- |  |  |
|--|--|
| <input type="checkbox"/> Somewhat gloomy and fairly easily depressed.<br><input type="checkbox"/> Cheerful when things go well<br><input type="checkbox"/> Of a generally happy nature and susceptible to misfortune<br><input type="checkbox"/> Of a sunny disposition: seldom downcast.<br><input type="checkbox"/> Never out of countenance; invariably cheerful. | <u>Degree of Certainty</u><br><input type="checkbox"/> Positive<br><input type="checkbox"/> Fairly certain<br><input type="checkbox"/> Not quite certain |
|--|--|

5. INITIATIVE AND ORIGINALITY e.g. What degree of resourceful behaviour is manifested in a novel situation, or in times of stress and difficulty?

- |  |  |
|--|--|
| <input type="checkbox"/> Extremely original and adaptable<br><input type="checkbox"/> Resourceful: quick to adapt himself to situations.<br><input type="checkbox"/> Can adapt himself moderately well<br><input type="checkbox"/> Attempts to adapt himself to circumstances on a few occasions.<br><input type="checkbox"/> Only seldom changes methods. | <u>Degree of Certainty</u><br><input type="checkbox"/> Positive<br><input type="checkbox"/> Fairly certain<br><input type="checkbox"/> Not quite certain |
|--|--|

6. OBEDIENCE e.g. What form of behaviour is manifested when given a command or task by some authorised person, and what degree of conformity is shown towards established rules and regulations?

- |                          |  |                             |
|--------------------------|--|-----------------------------|
| <input type="checkbox"/> | Inclined to disobedience and rebellion                             | <u>Degree of Certainty.</u> |
| <input type="checkbox"/> | Occasional lapses from obedience.                                  | { } Positive                |
| <input type="checkbox"/> | Obeys usually.   |                             |
| <input type="checkbox"/> | Always obedient, sometimes cheerfully.                             | { } Uncertain               |
| <input type="checkbox"/> | Cheerful and wholehearted obedience, even to distasteful commands. |                             |

7. SOCIABILITY AND POPULARITY e.g. To what extent are happy personal relationships with others developed and friendships made?

- |                          |   |                             |
|--------------------------|---|-----------------------------|
| <input type="checkbox"/> | Invariably popular, makes friends very readily        | <u>Degree of Certainty.</u> |
| <input type="checkbox"/> | Popular with the great majority of his acquaintances. | { } Positive                |
| <input type="checkbox"/> | Generally well liked.                                 |                             |
| <input type="checkbox"/> | Liked by his own circle of friends                    | { } Not quite certain       |
| <input type="checkbox"/> | Makes few friends.                                    |                             |

8. ACCURACY AND EFFICIENCY e.g. How thoroughly and exactly are duties and tasks carried out?

- |                          |   |                             |
|--------------------------|---|-----------------------------|
| <input type="checkbox"/> | Carelessly                              | <u>Degree of Certainty.</u> |
| <input type="checkbox"/> | With sufficient accuracy to get by.     | { } Positive                |
| <input type="checkbox"/> | With a fair degree of thoroughness.     |                             |
| <input type="checkbox"/> | Thoroughly: few errors only             | { } Uncertain               |
| <input type="checkbox"/> | With fullest accuracy and thoroughness. |                             |

9. SELF CONFIDENCE e.g. How much self-assurance is maintained in the presence of fellows or superiors?

- |                          |  |                             |
|--------------------------|--|-----------------------------|
| <input type="checkbox"/> | Self Assertive and Dominating obviously assured as to ability. | <u>Degree of Certainty.</u> |
| <input type="checkbox"/> | Self assured and not easily abashed.                           | { } Positive                |
| <input type="checkbox"/> | Moderately confident, but aware of limitations.                |                             |
| <input type="checkbox"/> | Retiring and unobtrusive, very modest.                         | { } Not quite certain       |
| <input type="checkbox"/> | Often bashful and timid.                                       |                             |

10. PUNCTUALITY AND REGULARITY e.g. What degree of punctuality and regularity is maintained in regard to school attendance, regular duties and appointments?

- |                          |  |                             |
|--------------------------|--|-----------------------------|
| <input type="checkbox"/> | Frequent irregularity and unpunctuality.   | <u>Degree of Certainty.</u> |
| <input type="checkbox"/> | Somewhat unpunctual and irregular.         | { } Positive                |
| <input type="checkbox"/> | Regular and punctual in important affairs. |                             |
| <input type="checkbox"/> | Very seldom irregular and unpunctual.      | { } Not quite certain       |
| <input type="checkbox"/> | Regular and punctual without exception.    |                             |

11. ENTERPRISE e.g. To what extent is displayed a willingness to take risks in order to improve standing in any sphere of life?

- |   |  |
|---|--|
| <input type="checkbox"/> Greatly daring and showing great nerve.<br><input type="checkbox"/> Takes dangerous risks sometimes<br><input type="checkbox"/> Will take reasonable chances.<br><input type="checkbox"/> Takes risks sometimes if not dangerous.<br><input type="checkbox"/> Risks nothing; takes no chances. | <u>Degree of Certainty</u><br><input type="checkbox"/> Positive<br><input type="checkbox"/> Fairly certain<br><input type="checkbox"/> Not quite certain |
|---|--|

12. KINDLINESS AND GOOD MANNERS e.g. How are these qualities of courtesy displayed in relations with other persons, especially towards elderly people and younger associates?

- |   |  |
|---|--|
| <input type="checkbox"/> Often badmannered and discourteous<br><input type="checkbox"/> Sometimes abrupt or disagreeable<br><input type="checkbox"/> Generally well-mannered and polite<br><input type="checkbox"/> Well mannered but aloof<br><input type="checkbox"/> Invariably courteous and agreeable. | <u>Degree of Certainty</u><br><input type="checkbox"/> Positive<br><input type="checkbox"/> Fairly certain<br><input type="checkbox"/> Not quite certain |
|---|--|

13. THRIFT e.g. What degree of thriftiness is shown in personal accumulation and expenditure of money, or in the case of the money or property of others?

- |  |  |
|--|--|
| <input type="checkbox"/> Inclined to be parsimonious<br><input type="checkbox"/> Thrifty and saving<br><input type="checkbox"/> Saves moderately<br><input type="checkbox"/> Generous and spends freely<br><input type="checkbox"/> Inclined to spend without thought. | <u>Degree of certainty</u><br><input type="checkbox"/> Positive<br><input type="checkbox"/> Fairly certain<br><input type="checkbox"/> Not quite certain |
|--|--|

14. ASSOCIATES e.g. Are his companions of a desirable type?

- |  |  |
|--|--|
| <input type="checkbox"/> Associates only with individuals of very highest character.<br><input type="checkbox"/> Seeks friendship only with acquaintances of good character<br><input type="checkbox"/> Associates with all types.<br><input type="checkbox"/> Companions not outstanding either for good or bad qualities.<br><input type="checkbox"/> Not careful as to the character of associates. | <u>Degree of Certainty</u><br><input type="checkbox"/> Positive<br><input type="checkbox"/> Fairly certain<br><input type="checkbox"/> Not quite certain |
|--|--|

15. TRUTHFULNESS e.g. To what extent may statements be relied upon, especially those made under possibility of punishment?

- |   |  |
|---|--|
| <input type="checkbox"/> Always tells whole truth.<br><input type="checkbox"/> Will omit facts on occasions<br><input type="checkbox"/> Fairly dependable<br><input type="checkbox"/> Not altogether dependable.<br><input type="checkbox"/> Inclined to be untruthful. | <u>Degree of Certainty</u><br><input type="checkbox"/> Positive<br><input type="checkbox"/> Fairly certain<br><input type="checkbox"/> Not quite certain |
|---|--|

16. LOYALTY e.g. How closely is adherence to friends and opinions manifested, especially in the face of the criticism and opposition of others?

- |  |  |
|--|--|
| <input type="checkbox"/> Not dependable when needed.<br><input type="checkbox"/> Sticks fairly well to his associates<br><input type="checkbox"/> Usually loyal to friends and opinions.<br><input type="checkbox"/> Loyal, unless loyalty involves a very heavy sacrifice.<br><input type="checkbox"/> Adherence never shaken, sticks at all costs. | <u>Degree of certainty</u><br><input type="checkbox"/> Positive<br><input type="checkbox"/> Fairly certain<br><input type="checkbox"/> Not quite certain |
|--|--|

17. PERSEVERANCE AND INDUSTRY e.g. How long is a course of action, requiring an appreciable time for completion, continued?

- |  |   |
|--|---|
| <input type="checkbox"/> Persists to the goal in spite of difficulties.      | <u>Degree of Certainty.</u>                 |
| <input type="checkbox"/> Only gives in if difficulties are great             | <input type="checkbox"/> Positive           |
| <input type="checkbox"/> Persists with steadiness, does not readily give in. | <input type="checkbox"/> Fairly certain     |
| <input type="checkbox"/> Works for a time and then gives up.                 | <input type="checkbox"/> Not quite certain. |
| <input type="checkbox"/> Gives up in face of slight opposition.              |   |

18. CAUTION e.g. How hurriedly or thoughtfully is a decision which demands a reasonable consideration of its possible consequences arrived at?

- |  |   |
|--|---|
| <input type="checkbox"/> Comes rapidly to a decision without careful thought.          | <u>Degree of Certainty.</u>                 |
| <input type="checkbox"/> Tends to be hasty in deciding                                 | <input type="checkbox"/> Positive           |
| <input type="checkbox"/> Is careful and deliberate about important matters.            | <input type="checkbox"/> Fairly certain     |
| <input type="checkbox"/> Inclined to take a long time, and weigh all the consequences. | <input type="checkbox"/> Not quite certain. |
| <input type="checkbox"/> Markedly cautious: never makes a hurried decision.            |   |

19. ENERGY AND VIM e.g. With what amount of vim and enthusiasm are school-work, duties, hobbies and sports entered upon?

- |  |   |
|--|---|
| <input type="checkbox"/> With noticeable vim and dash.         | <u>Degree of Certainty.</u>                 |
| <input type="checkbox"/> Enthusiastically and with energy.     | <input type="checkbox"/> Positive           |
| <input type="checkbox"/> With moderate enthusiasm.             | <input type="checkbox"/> Fairly certain     |
| <input type="checkbox"/> Steadily, but seldom with enthusiasm. | <input type="checkbox"/> Not quite certain. |
| <input type="checkbox"/> Always in a phlegmatic manner.        |   |

20. HONESTY e.g. To what extent may trust and confidence with regard to money or property be extended?

- |   |  |
|---|--|
| <input type="checkbox"/> Succumbs to temptation.          | <u>Degree of Certainty.</u>                |
| <input type="checkbox"/> Fairly Trustworthy.              | <input type="checkbox"/> Positive          |
| <input type="checkbox"/> Reliable and trustworthy         | <input type="checkbox"/> Fairly certain    |
| <input type="checkbox"/> Dishonest on very rare occasions | <input type="checkbox"/> Not quite certain |
| <input type="checkbox"/> Invariable and complete honesty. |  |

21. LEADERSHIP e.g. What place as leader among associates or equals is taken in games or social life?

- |   |   |
|---|---|
| <input type="checkbox"/> Invariably takes the lead.                             | <u>Degree of Certainty.</u>             |
| <input type="checkbox"/> Frequently a leader                                    | <input type="checkbox"/> Positive       |
| <input type="checkbox"/> Occasionally leads the group                           | <input type="checkbox"/> Fairly certain |
| <input type="checkbox"/> Leads sometimes but only after considerable persuasion | <input type="checkbox"/> Uncertain.     |
| <input type="checkbox"/> Shrinks entirely from leadership.                      |   |

22. TEMPERANCE e.g. To what extent is displayed moderation and restraint from undue self-indulgence, in amusement, eating and drinking, sweets &c.

- |   |  |
|---|--|
| <input type="checkbox"/> Excessively indulgent greedy         | <u>Degree of Certainty.</u>                |
| <input type="checkbox"/> Rarely over indulgent.               | <input type="checkbox"/> Positive          |
| <input type="checkbox"/> Partakes in fair moderation          | <input type="checkbox"/> Fairly certain    |
| <input type="checkbox"/> Manifests a high degree of restraint | <input type="checkbox"/> Not quite certain |
| <input type="checkbox"/> Abstemious and self-denying.         |  |



23. PIETY AND REVERENCE e.g. What religious sincerity or depth is displayed?

- ( ) Devout in all religious duties: Degree of Certainty.  
carries religion into every-day life. ( ) Positive
- ( ) Observant of religious duties and usually maintains this reverence well. ( ) Fairly certain
- ( ) Fairly observant of religious duties. ( ) Uncertain
- ( ) Somewhat inclined to irreverence, especially in secular matters.
- ( ) Always irreverent.

SIGNATURE OF RATER: .....

ADDRESS .....

DATE

Length of Acquaintance with Person Rated:

Years                      Months.

Nature of Acquaintance: Parent ( ) Relative ( ) Friend ( )  
Friend of Parent ( ) Employer ( ) Teacher ( ) Sunday School  
Teacher ( ).

Outline the frequency and length of your meetings with him and the opportunities you have for estimating his character.

Assuming that the scale as used was suitably constructed, and the ratings reliable and valid, it would be possible to analyse the qualities of this group of individuals, to shew the manner in which they differed from the average of the population. They show a superiority in Energy and Vim, Kindliness and good manners, Conscientiousness, Truthfulness, Honesty, Loyalty and Perseverance and Industry. The data available however, in view of the unreliability of the ratings on the majority of the traits (cf Chapter on R<sub>v</sub>) and the fact that the scale was only tentative, do not justify any detailed examination of this type; the indications are only very tentative.

In Table 10 a comparison is shown between the Total Average Ratings, the Self-ratings, Ratings by Class mates, and Ratings by other friends. The differences between Total Average Ratings and Self-Ratings will be discussed later (cf Section VII). It is of interest now to compare the Ratings by Classmates with the Ratings by Other Friends.

For several traits, cheerfulness and optimism, Leadership, Initiative and Originality, Kindliness and Good Manners, Truthfulness, Honesty, Associates, Self-control, Thrift and Caution, the differences in averages is less than one tenth of a division.

For other traits, Tractability, Obedience, Punctuality and Regularity and Conscientiousness, the difference is between one tenth and one fifth of a ~~degree~~<sup>division</sup>. Only for Conscientiousness are the classmates' Ratings lower than the Friends'.

The other qualities, Energy and Vim, Self-Confidence, Leadership, Sociability and Popularity, Loyalty, Temperance, Accuracy and Efficiency, Perseverance and Industry, and Piety and Reverence, show a difference between one and two fifths of a ~~degree~~<sup>division</sup>. On all of these qualities Friends rated higher than Class Mates.

In 15 Traits averages of Classmates' ratings were

nearer averages of Self-Ratings than were Averages of Friends' Ratings; in 7 the opposite was the case, and in one trait they were equidistant from the Average of Self Ratings. All of these differences, however, were very small, and most were not significant.

As a result of a consideration of the ratings obtained, the scale has been modified with regard to the individual traits. The effects of this modification cannot be determined until the scale is used on a number of subjects.

TABLE 10.

A V E R A G E S.

TOTAL SCORE - ALL RATINGS  
 SCORE - ALL RATINGS  
 SCORE - SELF RATINGS  
 SCORE - CLASSMATES' RATINGS  
 (1 rater)  
 SCORE  $\frac{2}{3}$  FRIENDS' RATINGS (2 raters)

No.	Trait	Average Total Score	A V Score	E R Self Rat- ing	A G E Class Mates Rat'g	Friend's Rating.
4	Cheerfulness & Optimism	12.5	3.10	2.78	3.30	3.21
11	Enterprise	11.0	2.75	2.52	2.78	2.86
19	Energy & Vim	16.3	4.10	3.89	3.90	4.26
9	Self-Confidence	12.9	3.23	3.00	3.07	3.42
5	Initiative & Originality	13.7	3.43	3.33	3.52	3.43
21	Leadership	12.0	3.00	3.04	2.78	3.10
7	Sociability & Popularity	14.4	3.60	3.10	3.22	3.55
3	Tractability	10.4	2.60	2.74	2.67	2.49
12	Kindliness & Manners	16.7	4.18	3.78	4.33	4.30
6	Obedience	14.0	3.50	3.30	3.67	3.52
10	Punctuality & Regularity	15.2	3.80	3.48	3.99	3.87
1	Conscientiousness	17.4	4.35	4.10	4.30	4.50
15	Truthfulness	16.6	4.15	3.63	4.26	4.23
20	Honesty	18.4	4.60	4.44	4.63	4.66
14	Associates	15.7	3.93	3.89	3.93	3.95
16	Loyalty	17.0	4.25	4.00	4.19	4.40
2	Self Control	13.4	3.35	3.19	3.37	3.42
22	Temperance	13.2	3.30	3.15	3.19	3.43
13	Thrift	11.4	2.85	2.56	2.90	2.98
8	Accuracy & Efficiency	14.9	3.73	3.22	3.67	4.00
18	Caution	12.8	3.20	3.18	3.22	3.22
17	Perseverance & Industry	16.9	4.23	3.93	4.15	4.40
23	Piety & Reverence	13.4	3.35	2.74	3.30	3.68

THE SELF RATINGS

Some mention has already been made of the Self-Ratings obtained in this investigation.

It was noted in section V that the average degree of confidence of Self-Ratings did not differ to a significant extent from the average degree of confidence of other ratings. Again, a Product-Moment coefficient of correlation between degree of confidence in Self-Rating and the Total Rating on Self-confidence (subject by subject) was found to be .2611 (P.E. .112).

A consideration of Tables 7 and 8 shows that the distribution of the self-ratings did not vary greatly from the distribution of the total ratings. The averages were very similar and, although S.D's varied there was not wide divergence, those of the Self-Ratings being smaller than those of the Total Ratings in twelve of the twenty-three traits. Distributions of Self-Ratings have not been graphed, but are shown in Table 8. Table 10 shows that in all the traits except Leadership and Tractability the average of Self-Ratings was smaller than the average of Total Ratings.

This is a most remarkable result, when compared with the findings of Hollingworth, Shen and others, that individuals tend to over-rate themselves in traits which are considered desirable, and to compensate for this in traits which appear less desirable, or of smaller account. In other investigations, e.g. those of Knight and Franzen (58) Hoffman (45) and Kinder (49) the results have displayed consistent tendencies of self-estimates toward over-estimation. To the writer's knowledge, only in one other investigation, that of Trow and Pu on 21 Chinese Students (cf (66)) was any general tendency of under-estimation found in self-estimates. No explanation of the disagreement of this result with the generality of the results of previous investigations can be offered, unless it arises from a general inferiority complex not to be found across the Pacific. It may be that the

traits on the scale were such that under-estimation in strength would be nearer the level of desirability, but the total ratings give little evidence to support such a conjecture.

Shen (95) gives a group of formulae which he used in an attempt to determine "The Validity of the Self-Estimate". These formulae are discussed in our historical review of experimental work. By their use it is possible to obtain three measures of error of the self-estimate. These are:-

$$(1) \text{ Total Error} = \sqrt{\frac{\sum (x_i - x_0)^2}{n}}$$

$$(2) \text{ Systematic Error} = \sqrt{\frac{\sum (x_i - x_0)}{n}}$$

$$(3) \text{ Chance Error} = \sqrt{\frac{\sum (x_i - x_0 - SE)^2}{n}} = \sqrt{(T.E.)^2 - (S.E.)^2}$$

Where  $x_i$  = self estimates,  $x_0$  average ratings, and  $n$  the number of cases. The total error (T.E.) is the Standard Deviation of Self-Estimates from average Ratings, the Systematic Error (S.E.), the average tendency of over-or under-estimation, and the Chance Error (C.E.) the Standard Deviation of Self-Estimates from average ratings after the systematic error is corrected.

Shen used these in the case of individuals in a group where ratings were made on 8 traits. His conclusion was that "the constant tendency of self-rating depends more upon the individual than the trait". In this investigation it was not thought necessary to calculate the errors of self-estimate subject by subject.

The errors of self-estimate for each trait were found and are recorded in Table **11**. Errors were scored with the unit as one scale division. As many errors were in decimals, the squaring process reduced the Total Error to such an extent in some traits that it was less than the

Systematic Error. In these cases the Chance Error could not be calculated as the calculation required the finding of a square root of a negative quantity. This result might have been altered, but hardly to a significant extent, if the unit taken had been a quarter of a scale division. The calculations involved however, are rather lengthy and  $\$0$  were not undertaken.

TABLE 11

ERRORS OF SELF-RATING (UNIT, ONE SCALE DIVISION)  
TRAIT BY TRAIT (UNLESS MARKED +, S.E.'s ARE NEGATIVE)

No.	Trait	Total Error	Systematic Error	Chance Error
4	Cheerfulness & Optimism x	.585	.625	---
11	Enterprise x	.525	.535	---
19	Energy & Vim x	.500	.440	.230
9	Self-Confidence x	.470	.490	---
5	Initiative & Originality//	.620	.370	.500
21	Leadership	.440	+ .135	.420
7	Sociability & Popularity x	.715	.640	.330
3	Tractability	.590	+ .335	.490
12	Kindliness & Manners x	.845	.695	.480
6	Obedience x	.705	.550	.440
10	Punctuality & Regularity//	.590	.610	---
1	Conscientiousness x	.670	.525	.410
15	Truthfulness x	.750	.595	.460
20	Honesty	.450	.450	---
14	Associates x	.340	.300	.150
16	Loyalty x	.560	.480	.280
2	Self-control x	.465	.410	.225
22	Temperance x	.475	.410	.240
13	Thrift x	.680	.560	.385
8	Accuracy & Efficiency	.675	.707	...
18	Caution	.550	.167	.510
17	Perseverance & Industry x	.540	.535	.050
23	Piety & Reverence x	.675	.700	---



From Table 11 it would appear that only in the traits in which the Chance Error is less than the Systematic Error (such traits are marked X in the table) is the tendency of self-rating significant.

We may conclude then that self-ratings in this experiment gave scores very similar to total ratings as regards degree of certainty and (in most cases) the shape of the distribution curve. The scores of the self-ratings, however, were slightly lower, and for most of the traits this difference was significant.

THE VALIDITY AND RELIABILITY

OF RATINGS ON THIS SCALE.

It is very difficult to give any accurate estimate of the validity of the ratings made on this scale. The usual validating procedure is a comparison of measurements made by the instrument of which the validity is sought, with criteria which are of superior validity and independent of the instrument itself. In this case, however, the ratings must be taken as ultimates, and it is exceedingly difficult, if not impossible, to find criteria against which they may be validated. This would need a separate procedure for evaluation in the case of each trait, and separate criteria would be required for each one.

It is possible, of course, to test the validity of individual ratings by comparing them with the total estimates on the trait, as we have already done in the case of self-ratings, but there is no data available for use as a criterion of the validity of the total ratings.

One measure of the validity of the scale will be its reliability. There is no possibility of securing valid measurements by means of an instrument which is itself unreliable. The reliability of the scale was obtained by correlating the total scores of the Self-Ratings and Ratings by Classmates, with the total scores of the ratings by the two friends. By correlation procedure, considering each trait separately, we were able to determine the reliability coefficient for each trait, for two-ratings against two other ratings.

By the application of the Spearman "prophecy" formula:-

$$r_x = \frac{N_r}{1 + (N-1) r} \quad (\text{Garrett (32) formula 59.})$$

it was possible to determine the reliability of four ratings against four. In this case, when the number of ratings was doubled, the formula gave identical results with the formula for finding the coefficient of reliability from one application of a test (cf. Garrett (32) Formula 60).

The reliability coefficients of two ratings against two were obtained by the Spearman Rank-difference method, converted by tables to Product-Moment coefficients. The application of the "prophecy" formula then gave the reliability coefficient of four ratings against four. These coefficients are set out in Table 12.

TABLE 12  
RELIABILITY COEFFICIENTS OF RATINGS

No.	Trait	2	4
		vs 2	vs 4
4	Cheerfulness & Optimism	.60	.75
11	Enterprise	.35	.52
19	Energy & Vim	.21	.35
9	Self-Confidence	.31	.47
5	Initiative & Originality	.39	.56
21	Leadership	.86	.92
7	Sociability & Popularity	.45	.62
3	Tractability	.20	.33
12	Kindliness & Manners	.57	.73
6	Obedience	.52	.68
10	Punctuality & Regularity	.50	.67
1	Conscientiousness	.10	.18
15	Truthfulness	.45	.62
20	Honesty	.35	.52
14	Associates	.18	.31
16	Loyalty	.16	.28
2	Self-control	.15	.26
22	Temperance	.04	.08
13	Thrift	.55	.71
8	Accuracy & Efficiency	.59	.74
18	Caution	.27	.43
17	Perseverance & Industry	.31	.47
23	Piety & Reverence	.76	.86

Another use of the "prophecy" formula allowed the calculation of the number of ratings necessary to secure a certain reliability coefficient for ratings on each trait. (cf. Garrett (32) p.270). Taking .80 as a satisfactory reliability coefficient for ratings, the number of ratings necessary to obtain that coefficient in the case of each trait on the scale as used in the investigation was determined. This information is shown in Table 13. Some of these estimates, in the cases where the number of raters is over 12, are too low, owing to the error which is found in the application of the "prophecy" formula, where N is greater than five (c.f. Garrett (32) p.271).

TABLE 13

THE NUMBER OF RATINGS NEEDED FOR A RELIABILITY OF .80.

No.	Trait	No. of Ratings
4	Cheerfulness & Optimism	6
11	Enterprise	15
19	Energy & Vim	31
9	Self-Confidence	18
5	Initiative & Originality	13
21	Leadership	1
7	Sociability & Popularity	10
3	Tractability	32
12	Kindliness & Manners	6
6	Obedience	8
10	Punctuality & Regularity	8
1	Conscientiousness	57
15	Truthfulness	10
20	Honesty	15
14	Associates	36
16	Loyalty	42
2	Self-Control	46
22	Temperance	--
13	Thrift	7
8	Accuracy & Efficiency	6
18	Caution	22
17	Perseverance & Industry	18
23	Piety & Reverence	3

It is interesting to compare the reliability of judgments on each trait with the normality of the distributions as shown by the diagrams which illustrate Section VI. Taking reliabilities (4 against 4) of below .50 as low, .50 to .70 as medium and above .70 as high (purely relative terms of course) and considering the distributions as skewed, slightly skewed, or normal (this classification was made by inspection), the comparison is shown on Table 14. This table seems to indicate a tendency towards higher reliabilities in the traits where the distribution approaches normal. Using the data of Table 14 it was possible to calculate, with a 3 x 3 fold classification, the coefficient of contingency between the distribution curve and the reliability of judgments (this method of calculation is illustrated in Section V). C in this case was .33. As the maximum value for C in a 3 x 3 fold classification is .816, the coefficient determined is probably lower than the coefficient which would express the true relationship between these properties of the ratings. (c.f. Garrett (32) p.200).

Only six of the twenty-three traits on this Scale, Leadership, Piety and Reverence, Cheerfulness and Optimism, Accuracy and Efficiency, Kindliness and Good Manners and Thrift, show reliability coefficients, for four ratings, which approach a satisfactory standard. With a group of ten raters, ten traits on the scale would have satisfactory reliability coefficients. (cf. Table 13). There is a slight relationship between the distribution of ratings on a trait, and the reliability coefficient of the trait. It is probable that the scale as amended in Section VI will possess higher reliability-coefficients. Probably these coefficients would be raised by adding two divisions to the scale, but this does not seem practicable, as two more graduated illustrations would be required for each trait. A considerable improvement in reliability should result if the illustrative

definitions of the various degrees of each trait were made more concrete, and consisted of examples of behavior. To satisfy these demands, however, would be extremely difficult.

TABLE 14  
A COMPARISON, TRAIT BY TRAIT, OF RELIABILITIES ON  
DISTRIBUTIONS OF JUDGMENTS

No.	Trait	Reliability	Distributions
4	Cheerfulness & Optimism	High	Normal
11	Enterprise	Medium	Normal
19	Energy & Vim	Low	Skewed
9	Self-Confidence	Low	Normal
5	Initiative & Originality	Medium	Normal
21	Leadership	High	Normal
7	Sociability & Popularity	Medium	S. Skewed
3	Tractability	Low	S. Skewed
12	Kindliness & Manners	Medium	Skewed
6	Obedience	Medium	Skewed
10	Punctuality & Regularity	Medium	Skewed
1	Conscientiousness	Low	Skewed
15	Truthfulness	Medium	Skewed
20	Honesty	Medium	Skewed
14	Associates	Low	Skewed
16	Loyalty	Low	Skewed
2	Self-Control	Low	S. Skewed
22	Temperance	Low	Normal
13	Thrift	High	Normal
8	Accuracy & Efficiency	High	S. Skewed
18	Caution	Low	Normal
17	Perseverance & Industry	Low	Skewed
23	Piety & Reverence	High	Normal

THE INTERCORRELATION OF TRAITS



No examination of the results of this experiment would be complete without a consideration of the inter-correlations existing between the scores in the various traits.

Using the Spearman Rank - difference formula, and converting the results by tables to Product-Moment coefficients, the data in Table 15 was assembled. At the intersection of the column and row for each trait an underlined coefficient is included. This is the reliability coefficient for ratings on the trait (4 against 4). The averages of correlation for each trait with the other 22 traits, the final row, were compiled from the four-figure coefficients from which the two-figure coefficients in Table 15 were derived.

Corrections were not made for attenuation in the case of each coefficient because in some cases the corrected coefficients would have been under .1, and in other cases the fact that correlation coefficients were greater than the square roots of the product of the reliability coefficients of the traits correlated would have resulted in a corrected coefficient greater than 1.

TABLE 15

## INTERCORRELATION OF TRAITS (r)

	Ch. & O.	E. & Ent.	S. & V.	I. & O.	L. & shp.	S. & P.	Tr- & act.	K. & M.	Ob- & ed.	P. & R.	Con- & ness	T- & ness	Hon- & y.	Ass.	Loy- & lty.	S. & cont.	Te- & mp.	Thr- & ift	Acc. & Eff.	Caut.	P. & I.	P. & R.	
Ch. & O.	<u>.75</u>	.60	.29	.08	.44	.33	.52	.33	.27	.24	.06	.25	.30	.17	.31	.27	.22	.39	.12	-.03	.02	.08	.36
Enterprise	.60	<u>.52</u>	.30	.15	.62	.44	.46	-.02	.19	.06	.18	.02	.13	.12	.04	.17	.10	.16	.18	.20	.34	.13	.05
E. & V.	.29	.30	<u>.35</u>	.48	.50	.61	.48	.25	.06	.03	-.04	.42	.19	.17	.53	.03	.16	.00	-.18	.28	.01	.37	.03
Self-Conf.	.08	.15	.48	<u>.47</u>	.33	.39	.23	.29	-.28	-.01	.16	.14	-.02	-.20	.06	-.03	.05	.08	.16	.15	.27	.12	-.12
I. & O.	.44	.62	.50	.33	<u>.56</u>	.63	.52	-.05	.10	.13	-.02	.13	-.08	-.05	.26	.08	.36	.23	-.17	.20	-.20	.35	.02
Leadership	.33	.44	.61	.39	.63	<u>.92</u>	.55	-.10	-.12	.05	-.06	-.03	-.12	.17	.25	-.15	.35	.17	-.06	.12	-.11	.21	-.09
S. & P.	.52	.46	.48	.23	.52	.55	<u>.62</u>	.26	.20	.23	-.04	.26	.45	.06	.29	.13	.04	.02	-.05	-.04	-.14	.04	.13
Tractability	.33	-.02	.25	.29	-.05	-.10	.26	<u>.33</u>	-.26	-.09	.10	-.13	.10	-.04	-.02	-.21	.05	.00	-.10	-.07	-.10	.02	.00
K. & M.	.27	.19	.06	-.28	.10	-.12	.20	-.26	<u>.73</u>	.44	.30	.57	.63	.58	.23	.56	.30	.27	.04	.48	.24	.26	-.07
Obedience	.24	.06	.03	-.01	.13	.05	.23	-.09	.44	<u>.68</u>	.42	.37	.46	.39	.26	.14	.16	.49	.16	.32	.31	.30	.44
P. & R.	.06	.18	-.04	.16	-.02	-.06	-.04	.10	.30	.42	<u>.67</u>	.37	.32	.42	-.22	-.05	.22	.32	.17	.64	-.15	.25	-.08
C'nness.	.25	.02	.42	.14	.13	-.03	.26	-.13	.57	.37	.37	<u>.18</u>	.58	.50	.45	.41	.04	-.15	.09	.60	-.06	.46	.25
Truthfulness	.30	.13	.19	-.02	-.08	-.12	.45	.10	.63	.46	.32	.58	<u>.62</u>	.45	.48	.58	.04	.17	.14	.31	-.01	.25	.17
Honesty	.17	.12	.17	-.20	-.05	.17	.06	-.04	.58	.39	.42	.50	.45	<u>.52</u>	.20	.01	.29	.17	.06	.54	.25	.29	.06
Associates	.31	.04	.53	.06	.26	.25	.29	-.02	.23	.26	-.22	.45	.48	.20	<u>.31</u>	.42	.13	.22	-.10	.02	.39	.16	.28
Loyalty	.27	.17	.03	-.03	.08	-.15	.13	-.21	.56	.14	-.05	.41	.58	.01	.42	<u>.28</u>	.22	.17	.10	.08	.08	.06	.04
Self Control	.22	.10	.16	.05	.36	.35	.04	.05	.30	.16	.22	.04	.04	.29	.13	.22	<u>.26</u>	.28	.07	.47	.39	.24	-.36
Temperance	.39	.16	.00	.08	.23	.17	.02	.00	.27	.49	.32	-.15	.17	.17	.22	.17	.28	<u>.08</u>	.03	.13	.35	.14	.23
Thrift	.12	.18	-.18	.16	-.17	-.06	-.05	-.10	.04	.16	.17	.09	.14	.06	-.10	.10	.07	.03	<u>.71</u>	.13	.21	.20	-.07
A. & E.	-.03	.20	.28	.15	.20	.12	-.04	-.07	.48	.32	.64	.60	.31	.54	.02	.08	.47	.13	.13	<u>.74</u>	.04	.67	-.19
Caution	.02	.34	.01	.27	-.20	-.11	-.14	-.10	.24	.31	-.15	-.06	-.01	.25	.39	.08	.39	.35	.21	.04	<u>.43</u>	.02	.10
P. & I.	.08	.13	.37	.12	.35	.21	.04	.02	.26	.30	.25	.46	.25	.29	.16	.06	.24	.14	.20	.67	.02	<u>.47</u>	.15
P. & R.	.36	.05	.03	-.12	.02	-.09	.13	.00	-.07	.44	-.08	.25	.17	.06	.28	.04	-.36	.23	-.07	-.19	.10	.15	<u>.86</u>
Averages	.26	.21	.23	.11	.20	.16	.20	.04	.23	.24	.10	.27	.25	.21	.22	.14	.17	.17	.06	.26	.11	.22	.06

Taking the intercorrelations between traits which possessed reliability coefficients of above .70, and correcting for attenuation due to the unreliability of the estimates, Table 16 was constructed (correction formula, Garrett (32) formula 48). These traits were selected because of high reliability coefficients.

TABLE 16  
INTERCORRELATIONS (CORRECTED)

	Cheer & Opt.	L. shp	K.& M	Thrift	Accy & Effcy	Piety & Rev.	Average
Cheerfulness & Optimism	---	.40	.37	.17	-.04	.45	.27
Leadership	.40	---	-.15	-.07	.15	-.10	.05
Kindness & Manners	.37	-.15	---	.06	.65	-.09	.17
Thrift	.17	-.07	.06	---	.18	-.09	.05
Accuracy & Efficiency	-.04	.15	.65	.18	---	-.23	.14
Piety & Reverence	.45	-.10	-.09	-.09	-.23	---	.01

The average correlations here, and those in Table 15, cannot be adduced as evidence of a "halo" of general estimate. They cannot, legitimately, be advanced as evidence against the existence of a general tendency of ratings. The question of the "halo" effect seems to have been considered in three different ways, first as expressed by a tendency to high intercorrelations between different traits, (such a tendency could be observed if the traits concerned were closely related); second as due to a tendency for judgments on any one individual to be partly due to the fact that these judgments are made, not so much by discriminating analysis of separate traits, but by a general estimate which is always influenced by the presence of some outstanding quality in the subject, so that judgments in other qualities tend to approximate to the judgment given on that quality (such a "halo" of estimate, which would possibly centre around a different trait in each of a small group of

subjects, would tend to be disguised when data was arranged as in tables 15 and 16 as the traits would vary for different members and thus correlations would not be evidence); and third, as due to a tendency on the part of the rater to consider one or more traits as of greater importance than others, and to give judgments which are biased by his opinions about the "important" qualities (this would also be cancelled by a treatment as in Tables 15 and 16). Possibly all three forms of "halo" exist in ratings, but by far the most important is the second outlined above. This form could best be investigated by securing a large number of ratings on one individual, and then determining the relationship between the ratings on each trait. If however, the analysis of character-development presented by William MacDougal in his "Social Psychology" is accurate, and a trait corresponding to the dominating trait in the subject's personality were included in the scale, such a "halo" effect might occur, and yet the judgments be perfectly valid. If the third type of "halo" occurs to any extent, it would tend to diminish the "halo" effect of the second type in the experiment suggested. Here it is only possible to state that the first form of "halo" mentioned above was not evident.

Trait scores were correlated with scores in the Army Alpha Intelligence Test, and the resulting coefficients are shown in Table 17. These coefficients are not all corrected for attenuation because, while such correction would have increased the coefficients, in most cases the corrected coefficient would have been extremely small. Positive correlations of over .2 were corrected (the reliability of the test was not known but was taken as .95, a figure which may be high for a group intelligence test but is not above several coefficients determined in investigations of the reliability of individual tests).

TABLE 17  
CORRELATIONS (UNCORRECTED AND CORRECTED) - TRAIT SCORES  
AND ARMY ALPHA SCORES.

No.	Trait	Raw	Corrected
4	Cheerfulness & Optimism	-.15	
11	Enterprise	.35	.50
19	Energy & Vim	.02	
9	Self-Confidence	.24	.36
5	Initiative & Originality	.26	.36
21	Leadership	.06	
7	Sociability & Popularity	-.15	
3	Tractability	-.14	
12	Kindliness & Manners	-.15	
6	Obedience	-.51	
10	Punctuality & Regularity	-.03	
1	Conscientiousness	-.22	
15	Truthfulness	-.08	
20	Honesty	-.30	
14	Associates	-.02	
16	Loyalty	.22	.43
2	Self-Control	-.04	
22	Temperance	-.01	
13	Thrift	.05	
8	Accuracy & Efficiency	.04	
18	Caution	-.40	
17	Perseverance & Industry	-.04	
23	Piety & Reverence	-.34	

The coefficients, where corrected, are included on Table 17. Even they are very low. This may be taken to indicate that the traits on this scale are not at all closely related to intelligence as measured by the Army Alpha test.

From a consideration of the reliability coefficients of the various traits, the intercorrelations in traits, and the correlations between the traits and intelligence, it is possible to suggest that a rating scale for use with a group - and such a scale (cf.8) should not include a large number of traits - could be constructed by the use of the traits included in Table 16. Such a scale should be reliable and might possibly be useful in assisting the prediction of school, academic, or commercial success. These traits show high reliability, low intercorrelation and relationship to intelligence. The form suggested for the scale would be a modification of the amended scale which is presented in Section VI, with the same instructions and final data sheet, including only the six traits above, omitting the degree of certainty of judgment, and providing an extra division.

“( ) No opportunity to observe”, for each trait. It is hoped to use such a scale on school-children in the near future, to determine the value of ratings in predicting school and examination success.

DISCUSSION AND CONCLUSIONS.

The historical examination of the use of rating scales and other methods for obtaining personal assessments of character, shows the wide diversity and gives some idea of the scope of the previous investigations which have been carried out.

The results have varied considerably, and many investigations have value only as indications of ways in which research might be carried out, owing to the fact that no measures of the self-consistency of the results have been obtained. On the otherhand some have made important contributions to psychological theory (e.g. Webb) while others promise to be of considerable practical value (e.g. Bradshaw).

The more important rating scale methods which have been developed are the man-to-man type of scale, the point or division scale (such as the one used in this investigation), the percentile type of scale, the graphic scale, and the conduct scale. While some investigations have been conducted to compare the accuracy of various types of scales, no definite conclusions have been reached. Considerable criticism, both constructive and destructive, has been made of rating procedures, and for a time an attitude of despair as to the usefulness of these methods was evident. The fact that objective tests of character, which it was hoped would replace ratings, were difficult to construct, inaccurate, and unreliable, has led to further attempts to develop rating technique, and some of these have been agreeably successful.

A rating scale of 23 traits was constructed and used on a group of undergraduates. Four ratings, one by the subject and three by acquaintances, were secured on each subject. It was found that the degree of certainty with which judgments were made was influenced by the trait and the subject under consideration, and the length of acquaintance between the rater and the subject. It is possible too, that



the degree of certainty with which judgments were made depended upon the personality of the judge, but the data available was not sufficient to permit of an investigation of this matter. From these facts it was impossible to weigh judgments in accordance with the degree of certainty with which they were made.

An examination of the distribution of judgments on each trait showed varied types of distribution. The scale was modified in a way which, it was hoped, would secure distributions of judgments approximating more closely to normal.

Self-ratings gave scores very similar to other ratings, both as regards the degree of certainty with which they were made, and the distribution of the ratings. Self-ratings, however, showed a definite and almost a constant tendency towards under-estimation.

The only criterion of the validity of the judgments was the reliability coefficient calculated for each trait. The reliability coefficients varied from .92 to .08 for the various traits (calculated on 4 ratings). Only six traits, Leadership, Piety and Reverence, Cheerfulness and Optimism, Accuracy and Efficiency and Thrift show reliability coefficients which are at all satisfactory. There was a slight relationship between the reliability coefficients and the distribution of the scores for the traits.

Trait intercorrelations showed no evidence of "halo" but "halo" effects may be due to three different types of cause, and only those due to one of these three would have been detected by our treatment of the data. The correlation between trait scores and intelligence test scores was very low, no trait showing a high correlation with intelligence.

As a result of a consideration of the reliabilities and intercorrelations of the traits, it was possible to construct a six-trait scale, including the six traits of high

reliability enumerated above, which would have high reliability, low intercorrelations between the traits, and low correlations with intelligence. The value of this scale for practical purposes must be determined by experiment.

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APPENDIX I.

SOME EXAMPLES OF RATING SCALES &C. EMPLOYED  
IN THIS AND OTHER INVESTIGATIONS.

No. 1

Naomi Norsworthy (73)Ratings on a percentile Scale, against all individuals in a similar sphere, of the rater's acquaintance.List of Traits.

Physical Health	Perseverance
Mental Balance (E)	Reasonableness
Intellect	Co-operativeness
Emotion	Unselfishness
Will	Kindliness (H)
Quickness	Cheefffulness
Intensity	Refinement (H)
Breadth	Integrity (H)
Energy	Courage
Judgment (E)	Efficiency
Originality (E)	Leadership

From these 8 were selected:

Intellect	Co-operativeness
Quickness	Refinement
Breadth	Efficiency
Originality	Leadership

(H) = Hard to judge

(E) = Easy to judge.

No.2

F.L.Wells (120) (Some samples of 14 scales).

## I. Intellectual Processes

How Easily does the person learn.

How good a memory.

What fund of information (relative to opportunities).

How well able to observe.

How vivid mental imagery.

Subjects

	A	B	C	D
How Easily does the person learn.				
How good a memory.				
What fund of information (relative to opportunities).				
How well able to observe.				
How vivid mental imagery.				

## V. General Habits of Work.

How prompt in reactions to situations.

How systematic in work.

How executive.

How persistent.

How punctual.

Subjects

	A	B	C	D
How prompt in reactions to situations.				
How systematic in work.				
How executive.				
How persistent.				
How punctual.				

## VIII. General Cast of Mood.

How Cheerful.

How stable

How deep.

Subjects

	A	B	C	D
How Cheerful.				
How stable				
How deep.				

Ratings to be made

+1	Marked presence above ordinary		
+	Distinct presence	"	"
+?	Doubtful	"	"
-?	Doubtful presence below	"	"
-	Distinct	"	"
-1	Marked	"	"

No.3.

The U.S.Army Rating Scale.1. Physical Qualities:

Physique, bearing, neatness, voice,	Highest	15
energy, endurance	High	12
Consider how he impresses his command	Middle	9
in these respects.	Low	6
	Lowest	3

II. Intelligence:

Accuracy, ease in learning; ability to	Highest	15
grasp quickly the point of view of	High	12
commanding officer, to issue clear	Middle	9
and intelligent orders, to estimate	Low	6
a new situation, and to arrive at	Lowest	3
a sensible decision in a crisis.		

III. Leadership:

Initiative, force, self reliance,	Highest	15
decisiveness, tact, ability to	High	12
inspire men and to command their	Middle	9
obedience, loyalty and co-operation.	Low	6
	Lowest	3

IV. Personal Qualities:

Industry, dependability, loyalty,	Highest	15
readiness to shoulder responsibility	High	12
for his own acts; freedom from	Middle	9
conceit and selfishness, readiness	Low	6
and ability to co-operate.	Lowest	3

V. General Value to the Service:

Professional knowledge, skill and ex-	Highest	40
perience; success as administrator	High	32
and instructor; ability to get	Middle	24
results.	Low	16
	Lowest	8

No.4.

J. L. Stenquist (102)

An Improved Form of Rating by O.M. Method.

Adams	.....
Baker	.....
Butcher	.....
Cash	.....
Dowling	.....
	.....
	.....
	.....
	.....

Names typed as above; R.H.S. Folded under and carbon copy.  
 R.H.S. could be detached and divided (dotted lines represent perforations) Separate names ranked and positions recorded in column to left of top sheet.

No. 5

Allport F.H. and Allport G.W. (4) p.39.RATING SCALE.Personal Rating of .....These will be treated confidentially.

Directions - Read carefully. Rate on a scale from 1 to 50, compared with average college students in each of the following 10 traits. Read descriptions carefully.

- | <u>TRAIT</u>   | <u>RATING.</u> |
|--|----------------|
| 1. (1) Most pronounced tendency in a group of 50 college men to take active role and dominate, lead or organise fellows.<br>(25) Average<br>(50) Most prominent tendency in a group of 50 college men to be passive in contact with fellows. |                |
| -----  |                |
| II. (1) Most highly emotional; (frequent reaction to objects & things)<br>(25) Average<br>(50) Least emotion (phlegmatism)   |                |
| -----  |                |
| III. (1) Deepest and strongest emotions.<br>(25) Average<br>(50) Most superficial and weak emotions.   |                |
| -----  |                |
| IV. (1) Most pronounced tendency to direct his thoughts and acts outward.<br>(25) Average<br>(50) Most pronounced tendency to direct thoughts inward.  |                |
| -----  |                |
| V. (1) Greatest ability to see virtues and defects &c. as others do.<br>(25) Average<br>(50) Most pronounced lack.   |                |
| -----  |                |
| VI. (1) Greatest tendency to engage in social work<br>(25) Average<br>(50) Least tendency to engage in social work.  |                |
| -----  |                |
| VII. (1) Highest general Intelligence<br>(25) Average<br>(50) Least general intelligence.  |                |
| -----  |                |
| VIII. (1) Most pronounced tendency to spread himself and expand<br>(25) Average<br>(50) Most pronounced tendency to keep feelings to himself.  |                |
| -----  |                |
| IX. (1) Most pronounced tendency to overestimate himself<br>(25) Average<br>(50) Most pronounced tendency to underestimate himself   |                |
| -----  |                |

No.5 (Continued)

	<u>TRAIT</u>	<u>RATING.</u>
X.	(1) Most unselfish	
	(25) Average	
	(50) Most selfish.	

No.6 Godfrey H. Thomson (109).

	Lowest 5th	Fourth 5th	Middle 5th	Second 5th	Highest 5th
Care in Preparation					
Logical Explanation & Questioning					
Blackboard & other Illustrations					
Voice, manner & power of arousing enthusiasm					
Power of interesting chil- dren keeping them busy, and getting results					
Lesson as a whole					

An alternative plan:

Definition of Marks A. B. C. D. E in terms of frequency:  
A 5%; B 20%; C 50%; D 25%; E Very poor indeed.

No. 7 F.A.C. Ferrin (77)A RATING CHART FOR PHYSICAL CHARACTERISTICS.

- A. Physical characteristics:
1. Head and Face
  2. Arms and Hands
  3. Legs and Feet
  4. Trunk
- B. Personal Habits
- C. Expressive behaviour
- D. Voice
- E. Dress.

Each individual rated on each characteristic in seven columns:  
1, very low; 2, low; 3, slightly below average; 4, average;  
5, slightly above average; 6, high; 7, very high.



No.8. F.A.C.Perrin.AN EXPERIMENTAL STUDY OF MOTOR ABILITYJ.Exp.Psych. 4:24-56 (1921).Percentiles taken as referring to Univ.Students.

	Highest 10%	9	8	7	6	5	4	3	2	Lowest 10%	
Poise Self- Possession											Embarrass- ment re- sulting in incap- acity
Pract- ical											Vision- ary.

A sample of the scale used to obtain judgments.

No.9 Clara F. Chassel (13) p.44.I. Habits of Work

- Ability to initiate or adopt projects & carry them out.
- Ability to fail and persevere.
- Ability to carry out directions of others.

II. Participation.

- Ability to contribute to the social development of the room.
- " " take an intelligent interest in social activities.
- " " participate & be responsible for the social organisation (the making & carrying out of rules).

III. Co-operation.

- Ability to work & play together (spontaneous activities)
- Does he work & play by himself or does he work & play in a group - gregarious or co-operative?
- In group activities has he the ability to hold his own and does he show proper consideration for others?

IV. Responsibility.

- Does he do his part in the general care of the room?
- Does he take care of his locker and personal belongings?
- Can he be trusted to care for himself in such matters as putting on coat when going outdoors?
- Does he stay with group when taking excursions, crossing street &c.

Ratings in 3 steps. 25 : 15 : 5 for each trait.

No.10.

J. Slawson (97) p. 162.

No.	Trait	Definition.
1.	Appearance	Personal neatness in dress, cleanliness &c.
2.	Tact	Ability to deal with others without giving offense.
3.	Punctuality	Habit of being on time.
4.	Effort	How hard does this person try.
5.	Judicial sense	Fairmindedness, Impartiality.
6.	Leadership	Ability to lead, guide, direct, influence.
7.	Co-operativeness	Willingness to work effectively with others.
8.	Professional Interest and growth	Interest to become a better teacher.
9.	Understanding of children	Insight into Child nature. Success in handling children.
10.	Counteracting factors	Environment - order of greatness of difficulties with which they were faced.
11.	All round value to the Service	Not a <u>total</u> of the other items. A single estimation disregarding special items above.

Order of merit ratings were used.

No.11.

Paterson D.G. (74)

A SPECIMEN OF A GRAPHIC RATING SCALE.

GRAPHIC RATING REPORT ON WORKERS.

Name of Employee ..... Branch.....

Position of employee ..... Department .....

Employee rated by ..... Date .....

Instructions for Making Out this Report: Rate this employee on the basis of the actual work he is now doing. Before attempting to report on this employee, it is necessary to have clearly in mind the exact qualities which are to be reported on. Read the definitions very carefully. In each quality compare this employee with others in the same occupation in this company or elsewhere. Place a check (✓) somewhere on the line running from "very high" to "very low" to indicate this employee's standing in each quality. It is not necessary to put the check directly above any of the descriptive adjectives.

QUALITIES

REPORT.

1. Ability to learn: consider the ease with which this employee is able to learn new methods and to follow directions given him.	<p>Very Superior Learns with Ease Ordinary Slow to Learn Dull</p>
2. Quantity of work; Consider the amount of work accomplished and the promptness with which work is completed	<p>Unusually High Output Satisfactory Limited Output Unsatisfactory Output</p>
3. Quality of work: Consider the neatness and accuracy of his work and his ability constantly to turn out work that is up to standard	<p>Highest Quality Good Quality Careless Makes Many Errors.</p>
4. Industry; Consider his energy & application to the duties of his job day in and day out	<p>Very Energetic Industrious Indifferent Lazy</p>
5. Initiative: Consider his success in going ahead with a job without being told every detail; his ability to make practical suggestions for doing things in a new and better way.	<p>Very Original Resourceful Occasionally Suggests Routine Worker Needs Constant Supervision</p>
6. Co-operativeness: Consider his success in effectively co-operating with his co-workers and with those exercising greater authority.	<p>Highly Co-operative. Co-operative. Difficult to handle Obstructionist</p>
7. Knowledge of Work: Consider present knowledge of job & of work related to it.	<p>Complete Well informed Moderate Meagre Lacking</p>

REMARKS: (See Reverse Side for suggestions)..... Total.....  
..... Final  
..... Rating.....

REVERSE SIDE OF ONE OF THE RATING SCALES FOR WORKERS (Scale B)GRAPHIC RATING REPORT ON WORKERS.The Purpose of Periodic Rating Reports.

1. The graphic rating report is a practical method by means of which each employee's ability and fitness for promotion can be known quickly, with a reasonable degree of accuracy and with uniformity throughout the company.
2. The ratings are converted into a numerical expression indicating the ability of each person in those qualities deemed most essential, such as ability to learn new methods, quantity of work, quality of work, industry, initiative, co-operativeness and knowledge of work.
3. Because the Rating Report calls attention separately to each of these essential qualifications, it lessens the danger that opinions will be based on minor points, with a corresponding disregard of important qualities. It is to the interest of all concerned to replace snap judgments by carefully thought-out reports.
4. This rating report has been devised after careful consideration of the best practices throughout the country. Its chief claim for the support of the supervisor and the employee is the fact that it is simple, concrete and definite. It reduces the time required to rate an employee to a minimum, yet it is so arranged that the interests of each employee are safeguarded as regards accuracy and fairness.
5. All rating reports are confidential. Any employee who is rated, however, may be told where he stands in order that he may improve himself if he so desires.

## To Supervisors: Supplement Your Rating with Appropriate Remarks

When you have completed your rating of the employee on the front of this report, enter under REMARKS any comments which are appropriate.

In doing so, consider the possible comments suggested here and write the numbers of any comments that are particularly pertinent.

1. Recommend that Personnel Department interview this employee to advise him:
  - (a) How he can improve himself.
  - (b) Concerning his present and future opportunities.
2. Deserves promotion.
3. Desires transfer to other work.
4. Well liked by fellow-employees.
5. Would do well in a supervisory position.
6. Is handicapped physically as follows.....
7. Is taking a course in .....

No.12 Max Freyd (30).GRAPHIC SCALE FOR SELF RATINGS.Comments above rating line give approximate distribution of judgments.Trait 1. Wide Awakeness - Present mindedness(All at this end  
badly balanced).

Very absent minded, continually absorbed in thought	Often becomes abstracted & out of touch with his surroundings	Usually present minded	Always wide awake & alive to present situation
---	---	------------------------	--

Trait 2. Good Nature.(All this end inade-  
quately balanced).

Very good natured; has winning manner	Agreeable	Rather Glum and unresponsive	Grouchy and unpleasant	Very ill-natured & uncivil.
---------------------------------------	-----------	------------------------------	------------------------	-----------------------------

Trait 3. Neatness(Nearly all in  
here)

Extremely neat & clean; almost a dude	Appropriately and neatly dressed	Inconspicuous in dress	Somewhat careless in his dress	Very slovenly and unkempt
---------------------------------------	----------------------------------	------------------------	--------------------------------	---------------------------

Trait 4. Excitability.

(Median)

Very excitable and highly strung	Easily Stirred	Usually cool and self-contained	Always cool-headed and collected
----------------------------------	----------------	---------------------------------	----------------------------------

Trait 5. Submissiveness

(Median)

Very submissive	Usually gives in to others	Asserts himself frequently.	Very aggressive & insistent.
-----------------	----------------------------	-----------------------------	------------------------------

Trait 6. Carefulness.

(Median)

Very exact and painstaking	Careful	Usually accurate and reliable	Careless	Inexact and negligent.
----------------------------	---------	-------------------------------	----------	------------------------

Trait 7. Self-consciousness.

(Median)

Always at ease	Seldom flustered by actions or remarks with reference to himself	Self conscious on occasions	Frequently embarrassed	Painfully self-conscious and ill at ease very often
----------------	--	-----------------------------	------------------------	---

## No.12 (Continued).

Trait 8. Impulsiveness

( Median )

Always acts on the spur of the moment	Impulsive always makes prompt decisions	Shows moderate deliberation	Cautious deliberate and considerate	Extremely wary & hesitant. Acts only after careful consideration
---------------------------------------	---	-----------------------------	-------------------------------------	--

Trait 9. Physique.

( Median )

Looked down on.	Unimpressive physique and bearing	Noticeable for good physique & bearing	Excites admiration very impressive.
-----------------	-----------------------------------	--	-------------------------------------

Trait 10. Self-Confidence.

( Median )

Judges himself capable of anything	Exaggerates his abilities.	Knows just what he is capable of	Underestimates his own abilities	Considers himself incapable of much success
------------------------------------	----------------------------	----------------------------------	----------------------------------	---

Trait 11. Evenness of Temper.

( Median )

Often has extreme ups or downs in mood. Shows elation or depression	Has ups or downs at times without apparent reason.	Shows change of feelings when conditions warrant	Usually even tempered	Eventempered maintains the same mood in spite of cause for changing.
---	--	--	-----------------------	--

Trait 12. Criticism.

( Median )

Never speaks depreciatingly of others	Rarely criticizes others	Comments on outstanding weaknesses or faults of others	Criticizes others	Extremely critical of others.
---------------------------------------	--------------------------	--	-------------------	-------------------------------

Trait 13. Adaptability.

( Median )

Hidebound Runs in a rut	Slow to take up new ideas	Progressive tendencies	Quick to pick up new ways & habits	Is always adapting himself & taking up new ideas.
----------------------------	---------------------------	------------------------	------------------------------------	---

Trait 14. Rapidity of Making Friends.

( Median )

Makes friends quickly and easily; very popular.	Has quite a number of friends	More interested in ideas than in persons	Lives almost entirely by himself
---	-------------------------------	--	----------------------------------

No.12 (Continued).

Trait 15. Open-heartedness.  
(Median)

Often confesses his thoughts and feelings to friends and acquaintances	At times unburdens spontaneously to friends.	Will occasionally unburden when questioned.	Never unburdens - Rarely talks about himself.
--	--	---	---

Trait 16. Conduct re opposite sex.  
(Median)

Avoids companionship of women.	Associates with women infrequently.	Shows a normal whole-some interest in feminine society.	Gives much time to ladies.	Associates more with women than with men. A lady's man.
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Trait 17. Intrepidity.  
(Median)

Daredevil shows great "nerve".	Will take every reasonable chance.	Gets "cold-feet".	Risks nothing. Takes no Chances.
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Trait 18. Talkativeness.  
(Median)

Talks seldom when questioned answers briefly.	Does not uphold his end of the conversation.	Moderately talkative.	More than upholds his end of the conversation.	Great talker always going.
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Trait 19. Taste  
(Median)

Shows no appreciation of Art. Taste runs to cheap and ugly.	Shows poor taste.	Shows some appreciation of artistic value.	Shows good artistic judgment.	Has excellent taste in art, music and literature.
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Trait 20. Speed at work.  
(Median)

Extremely quick. Rapid worker.	Fast worker.	Works just fast enough to get-by.	Slow worker barely moves.
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No.13 Marsh & Perrin (64).

LIST OF TRAITS

(a) Demonstrable:

1. Size of head.
2. Tendency to laugh.
3. Care and attention to hair, skin, lips, eyes, hands and nose.
4. Voice: distinctness of articulation.
5. Mobility of facial expression.
6. Physical attractiveness.
7. Poise and self-control.
8. Gracefulness.
9. Emotional attitude in the laboratory room.
10. Efficiency in card-sorting test.
11. Efficiency in aiming test.
12. General intelligence.

(b) Inferential - Ability in Leadership.



QUESTIONNAIREA. Can you be trusted to:

1. Keep a promise.
2. Respect authority.
3. Refrain from gossip.
4. Turn in articles found.
5. Be honest in scoring yourself.
6. Obey school rules unsupervised.
7. Work as faithfully alone as under supervision.
8. Take a test fairly if the pledge is not asked for.
9. Return borrowed property, even paper etc.
10. Do home study work independently when it is assumed to be yours.

B. Do you:

11. Have a sense of humour.
12. Use your leisure time profitably.
13. Take responsibility for your acts.
14. Have good habits of work and study.
15. Hand in your work exactly on time.
16. Make excuses for your faults and shortcomings.
17. Do unto others etc.
18. Admit that you are wrong when it is clear that you are.
19. Make unusual effort, if necessary, to be present and punctual in class attendance.
20. Come to class without paper and pencil and expect your neighbour to supply you.

C. Are you:

21. A snob.
22. A bluffer.
23. Extravagant.
24. A poor loser.
25. A user of slang.
26. Lacking in proper initiative.
27. A watcher of the clock during class periods.
28. Passive in your attitude and endeavour during Mondays.
29. One of those individuals who expects to get something for nothing.
30. Late for appointments other than class.

After each question were the words "always, usually, frequently, sometimes, never".

The correct word, in rater's opinion, was underlined.

No.15      Forrest A. Kingsbury      (51)

PRACTICAL CONSIDERATIONS IN THE ADAPTATION OF  
SCALES (FOR THE USE OF NON-EXPERT RATERS).

1. Whether or not each executive who makes ratings has had practice in thinking of individuals as distributed along a scale with reference to the amount of a given trait they manifest.
2. The terms which the rater habitually employs in thinking to himself or describing to others a superior, average, or inferior degree of performance.
3. Objective criteria used in judging degree of performances.
4. Traits to be rated, and the way in which they are defined.
5. Whether the rater has a knowledge of men outside his group to make more reliable his comparisons.
6. The adequacy of the programme and methods of training raters.
7. The number of executives who can rate the same individual.
8. The extent to which the satisfactory standard of a trait varies from department to department.
9. The use of the ratings.
10. Who is to use the ratings.

No.16      Porteous & Babcock      (81a).

SOCIAL RATING SCALE.

- |                              |  |
|------------------------------|--|
| 1. Lack of Planning Ability. | 1. Planning Capacity.                              |
| 2. Suggestibility.           | 2. Self Determination:<br>Resistance to suggestion |
| 3. Impulsiveness.            | 3. Prudence.                                       |
| 4. Irresolution.             | 4. Resolution.                                     |
| 5. Over-emotionality.        | 5. Self-control.                                   |
| 6. Instability of Interest.  | 6. Stability of Interest.                          |
| 7. Obtrusiveness.            | 7. Conciliatory Attitude:<br>Tact.                 |

HABIT SYSTEM CHART

1. Work Habit System.
  - (a) Job Habits.
  - (b) Study Habits.
2. Personal or Body Habit System.
3. Play or Recreation Habit System.
4. Moral Habit System.
  - (a) Family.
  - (b) Friends.
  - (c) Superiors.
  - (d) Inferiors.
5. Emotional or Temperamental Habit System.
  - (a) Family.
  - (b) Friends.
  - (c) Superiors.
  - (d) Inferiors.
6. Social Habit System.
  - (a) Family.
  - (b) Friends.
  - (c) Superiors.
  - (d) Inferiors.

Explanatory introduction for each system - ratings made on a seven-point scale.

GRAPHIC RATING SCALE

Name of Student.....

Judge the Student in each quality independently of all other qualities. Indicate your rating by placing an "X" on the line, at a point that approximately reports the student's standing.

1. Intelligence	Keen thorough thinker	Alert Good judgment	Fair Understanding: Common Sense	Learns Poorly Unsound thinker	Dull. Poor Judgment.
2. Industry	Exceptionally Industrious	Steady hard worker.	Fairly Industrious	Takes things easy	Lazy.
3. Accuracy	Extremely accurate & careful	High degree of accuracy.	Moderately accurate.	Inexact. Somewhat careless.	Slovenly.
4. Co-operation	Unusually willing co-operation	Good teaming worker	Fairly co-operative	Difficult to work with.	Trouble-maker. Antagonistic.
5. Initiative.	Creative Aggressive Original	Energetic Some Originality	Moderately Independent.	Lacks originality or aggressiveness	Routine Worker. Passive.
6. Moral Trustworthiness	Merits complete confidence	Recognised as trustworthy.	Fairly reliable.	Doubtful reliability	Untrustworthy.
7. Leadership Ability.	Capable forceful winning "Born Leader"	Leads well under most circumstances.	Fairly effective Leader.	Unable to lead Unimpressive.	Submissive Antagonising or Repellent.

No.19Yoakum & Manson(123)THREE LISTS OF TRAITS:-

Alert	Keen	Wideawake
Industrious	Persistent	Hardworking
Obstinate	Inflexible	Unyielding
Orderly	Methodical	Well-regulated
Careless	Heedless	Lax
Uncomplaining	Submissive	Forbearing
Enthusiastic	Eager	Intense
Wilful	Headstrong	Perverse

Rating on ~~seven~~<sup>Six</sup> point scales as in Wells (This Appendix No.2)

Revision B, May 9, 1929.  
American Council on Education,  
26 Jackson Place,  
WASHINGTON, D.C.

PERSONALITY REPORT

(The information on this sheet is confidential).

Name of student.....

Name of institution.....

Please return this sheet to.....

Selection and guidance of students are based on scholastic records of achievement, health and other factual records, Personality, difficult to evaluate, is of great importance. You will greatly assist in the education of the student named if you will rate him with respect to each question by placing a check mark in the square which represents your evaluation of the candidate.

If you have had no opportunity to observe the student with respect to a given characteristic, please place a check mark in the space at the extreme right of the line.

In the rectangle below each rating scale please describe briefly and concretely significant performances and attitudes which support your judgment and which you yourself have observed.

Let your statements answer specifically the questions of the rating scale by showing how the student manifested the qualities mentioned.

Do not be satisfied with the statement of an opinion concerning matters of fact, if the facts themselves can be presented.

Select those illustrations of conduct which are consistent with the personality of the student as you have observed and understood it.

Bear in mind that from as many observers as possible, the college desires to secure concrete descriptions of the student's personality as exhibited in many situations and that the purpose is an understanding of the student's personality as a whole so that he and all concerned with his education may guide his development to the highest.

The following items illustrate the way in which observers have reported evidence in support of their checking of the highest answer to the second question (B):

Of a college senior; "In my course in Elizabethan drama he voluntarily built to scale models of the Blackfriars Theatre and the Fortune Theater based on the work of Chambers, Albright and others and demonstrated Elizabethan methods of staging several of the plays read."

Of a college senior: "Independently collected and classified one hundred types specimens of fossils found in the neighbourhood of the college".

<sup>Of an 8th Grader boy.</sup>  
"At the age of eleven began collecting diatoms from local ponds and streams and studying their forms under his own microscope. Now possesses collection of microscope slides, including some presented to him by scientists in Department of Agriculture and Carnegie Institution, specimens collected by Shackleton, Scott and other expeditions."

How well do you know this student?.....

.....

Name of Student .....

<p>A. How are you and others affected by his appearance and manner?</p>	<p>( ) Sought by others                  ( ) Well liked by others                  ( ) Liked by others                  ( ) <del>Disliked by others</del>                  ( ) Avoided by others                  ( ) No opportunity to observe.</p>	<p>Please record here instances that support your judgment.</p>
<p>B. Does he need constant prodding or does he go ahead without being told?</p>	<p>( ) Seeks and sets for himself additional tasks                  ( ) Completes suggested supplementary work                  ( ) Does ordinary assignments of his own accord                  ( ) Needs occasional prodding.                  ( ) Needs much prodding in doing ordinary assignments.                  ( ) No opportunity to observe.</p>	<p>Do.</p>
<p>C. Does he get others to do what he wishes</p>	<p>( ) Displays marked ability to lead his fellows; makes things go.                  ( ) Sometimes leads in important affairs                  ( ) Sometimes leads in minor affairs                  ( ) Lets others take lead                  ( ) Probably unable to lead his fellows                  ( ) No opportunity to observe.</p>	<p>Do.</p>
<p>D. How does he control his emotions?</p>	<p>( ) Unusual balance of responsiveness &amp; control                  ( ) Well balanced                  ( ) Usually well balanced                  ( ) Tends to be unresponsive                  ( ) Tends to be over emotional                  ( ) Unresponsive apathetic                  ( ) Too easily moved to fits of anger or depression                  ( ) No opportunity to observe</p>	<p>Do.</p>
<p>E. Has he a program with definite purposes in terms of which he distributes his time and energy?</p>	<p>( ) Engrossed in realizing well formulated objectives.                  ( ) Directs energies effectively with fairly definite program.                  ( ) Has vaguely formed objectives.                  ( ) Aims just to "get by"                  ( ) Aimless trifler                  ( ) No opportunity to observe.</p>	<p>Do.</p>

No. 21.

TENTATIVE GRAPHIC SCALE FOR THIS INVESTIGATION.RATING SCALE FOR CHARACTER.  
(Preliminary outline).

CONSCIENTIOUSNESS: How faithfully does he carry out a task or commission in the absence of constant individual supervision?

Equally reliable with or without supervision	Trustworthy	Reasonably reliable	Requires watching	Cannot be depended upon unless under direct supervision.
--	-------------	---------------------	-------------------	--

How certain are you of your judgment?  
Very certain. Moderately certain. Uncertain.

---

SELF CONTROL: To what degree is control over such emotions as anger, fear, jealousy, grief or joy, retained, especially under stress of provocation?

Held completely in check	Well controlled	Sometimes displays emotion	Somewhat excitable	Very easily stirred to emotion.
--------------------------	-----------------	----------------------------	--------------------	---------------------------------

How certain are you of your judgment?  
Very certain. Moderately certain. Uncertain.

---

TEMPERANCE: Does the child show moderation and restraint from undue self-indulgence, in amusement and sport, eating and drinking, sweets &c.

Excessively indulgent & oversteps a reasonable amount.	Inclined to over-indulgence	Partakes in fair moderation	Abstemious and self-denying.
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How certain are you about your judgment?  
Very certain. Moderately certain. Uncertain.

---

PERSEVERANCE & INDUSTRY: How long does he continue a course of action requiring an appreciable time for completion?

Tends to persist to an end in spite of difficulties	Persists with fair steadiness and does not readily give in	Works for a time and then gives up.	Gives up in face of slight opposition	Abandons the task readily if a slight difficulty arises.
---	--	-------------------------------------	---------------------------------------	--

How certain are you about your judgment?  
Very certain. Moderately certain. Uncertain.

---



ENERGY & VIM. With what amount of vim and enthusiasm does he enter upon school-work, duties, hobbies and sports?

With very marked energy & enthusiasm	With noticeable vim & dash	Steadily but without marked enthusiasm	Somewhat lackadaisically	Without showing any interest in task or pastime.
--------------------------------------	----------------------------	--	--------------------------	--

How certain are you about your judgment?  
 Very certain.      Moderately certain.      Uncertain.

---

TRACTABILITY: When he has formed an opinion, or decided on a line of action, how does he react to suggestions or persuasions?

Persistently obstinate	Will not change as a rule unless for a strong reason	Changes readily when reasonably approached	Offers very little resistance to suggestion or persuasion	Looks to & accepts opinions & decisions of others in place of his own
------------------------	--	--	---	---

How certain are you about your judgment?  
 Very certain.      Moderately certain.      Uncertain.

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TRUTHFULNESS: To what extent may his statements be relied upon, especially those made under stress of punishment?

Dependable without exception	Quite reliable	Dependable	Not altogether reliable	Untruthful
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How certain are you about your judgment?  
 Very certain.      Moderately certain.      Uncertain.

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HONESTY: To what extent may he be trusted with the money or property of others? (N.B. Cribbing, or copying at school, must be considered as evidence of dishonesty.)

Always to be trusted.	Only rarely unreliable	Generally trustworthy	Susceptible under temptation	Untrustworthy not reliable
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How certain are you of your judgments  
 Very certain.      Moderately certain.      Uncertain.

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LEADERSHIP: What place among his associates or equals does the child take in times or social life?

Invariably takes the lead.	Frequently a leader	Occasionally leads the group	Will accept leadership on strong persuasion	Shrinks entirely from leadership
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How certain are you of your judgment?  
Very certain. Moderately certain. Uncertain.

OBEDIENCE: How does he behave when given a command or task by some authorised person, and how does he conform to established rules and regulations?

Cheerfully & whole heartedly even when distasteful	Generally complies with energy & alacrity.	Fairly compliant	With occasional lapses from obedience	Inclined to disobedience and rebellion.
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How certain are you about your judgment?  
Very certain. Moderately certain. Uncertain.

SOCIABILITY & POPULARITY: How does he get on in his relationships with others and in making friends?

Invariably popular, makes friends very readily	Generally well-liked	Liked by his own circle of friends	Makes few friends	Keeps rather to himself.
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How certain are you about your judgment?  
Very certain. Moderately certain. Uncertain.

INITIATIVE & ORIGINALITY: How does he react, especially in a novel situation, in times of stress and difficulty?

Extremely original & adaptable.	Quick to adapt himself to situations	Can adapt himself moderately well	Slow to change methods	Tends to remain in a rut
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How certain are you about your judgment?  
Very certain. Moderately certain. Uncertain.

COURTESY, POLITENESS & GOOD MANNERS: How are these qualities displayed in his relations with other persons, especially elderly people.

Invariably courteous & chivalrous	Behaves courteously the majority of situations	Fairly well-mannered & polite	Occasionally bad mannered & discourteous	Uncouth and ill-mannered
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How certain are you about your judgment?  
Very certain. Moderately certain. Undertain.

SELF CONFIDENCE: What degree of self-assurance does he maintain in the presence of his fellows and superiors?

Self-assertive & dominating: assured as to his abilities	Moderately confident but aware of his limitations	Retiring & unobtrusive with a small idea of himself	Shy, bashful with a humble idea of himself	Timid & nervous
--	---	---	--	-----------------

How certain are you about your judgment?  
 Very certain.      Moderately certain.      Uncertain.

---

ACCURACY & EFFICIENCY: How thoroughly and exactly does he generally carry out duties and tasks.

Most thoroughly with a minimum of errors	With a high degree of accuracy & thoroughness	With a fair degree of efficiency	Only with sufficient thoroughness to get by.	Carelessly and inadequately.
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How certain are you about your judgment?  
 Very certain.      Moderately certain.      Uncertain

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ENTERPRISE: To what extent is he willing to take risks in order to improve his position in any sphere of life?

Daredevil, shows great nerve	Prefers to take risks	Will take every reasonable chance	Takes risks now and then	Risks nothing, takes no chances
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How certain are you about your judgment?  
 Very certain.      Moderately certain.      Uncertain.

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PUNCTUALITY & REGULARITY: What degree of punctuality and regularity is maintained by the child in regard to school attendance, regular duties and appointments?

Regular & punctual without exception	Seldom irregular or unpunctual	Fairly regular & punctual.	Somewhat unpunctual & irregular	Very frequent irregularity & unpunctuality.
--------------------------------------	--------------------------------	----------------------------	---------------------------------	---

How certain are you about your judgment?  
 Very certain.      Moderately certain.      Uncertain.

---

THRIFT: In the accumulation and expenditure of money for himself, or in the care which he displays regarding the money or property of others, how does he conduct himself?

So saving as to be niggardly.	Thrifty & saving	Saves Moderately	Generous rather than thrifty	Inclined to spend without thought
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How certain are you about your judgment?  
 Very certain.      Moderately certain.      Uncertain.

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LOYALTY: How closely does the child adhere to friends and connections, especially in the face of criticism and opposition of others?

Adherence never shaken, sticks at all costs.	Fairly strong in adherence	Generally loyal	Fickle, and unreliable as a friend.
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How certain are you about your judgment?

Very certain.      Moderately certain.      Uncertain.

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CAUTION: How rapidly does the child come to a decision which involves a reasonably careful consideration of possible consequences?

Decides immediately	Comes to a decision fairly rapidly	Is careful & deliberate about important matters	Inclined to take a long time and to weigh all the consequences	Markedly cautious and makes no hurried decisions, even in matters of slight importance.
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How certain are you about your judgment?

Very certain.      Moderately certain.      Uncertain.

---

CHEERFULNESS & OPTIMISM: How does the child respond to the ups and downs of life?

Never out of countenance	Of a sunny disposition and seldom worried	Of a generally happy nature but susceptible to misfortune	Cheerful rather when things go well.	Somewhat gloomy & fairly easily depressed.
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How certain are you about your judgment?

Very certain.      Moderately certain.      Uncertain.

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APPENDIX II

TABULATED RESULTS FROM PREVIOUS SIMILAR INVESTIGATIONS

No.1

J. V. Yarborough (122)Table of Inter-correlations of Ratings.

a. (Students)

	M.A.	A.& M.	Orig.	Lshp.	I. R.
Mental Alertness	---	.13	.41	.31	.55
Appearance & Manner	.13	---	.35	.54	.20
Originality	.41	.35	---	.60	.53
Leadership	.31	.54	.60	---	.30
Impersonal Reasoning	.55	.20	.53	.30	---
Average	.32	.28	.47	.46	.42

b. (Instructor)

	M.A.	A.& M.	Orig.	Lshp.	I. R.
Mental Alertness	---	.29	.85	.49	.80
Appearance & Manner	.29	---	.25	.48	.14
Originality	.85	.25	---	.70	.45
Leadership	.49	.48	.70	---	.43
Impersonal Reasoning	.80	.14	.45	.43	---
Average	.61	.29	.56	.52	.45

No.2

W. H. Hughes (46)Correlations coefficients of ratings (superior or inferior) on following traits and intelligence in a Junior and a Senior High School.

	Senior H.S.	Junior H.S.
Quickness of Thought	.42	.45
Memory	.38	.43
Force of Personality	.37	.38
Capacity for Leadership	.35	.41
Initiative - Aggressiveness	.34	.40
Control of Attention	.33	.37
Self-Confidence	.31	.35
Sense of Accuracy	.29	.36
Co-operativeness	.27	.28
Regularity - Persistency	.24	.30
Trustworthiness	.22	.17
Respect for Authority	.13	.23

No.3

Cleeton & Knight (15)

p.221. Table 3. Reliability of Ratings of Close Associates.  
(10 ratings against 10 chance order)

	Group W. 10 cases	P.E.	Group X. 9 cases	P.E.	Group Y 9 cases	P.E.	Average
Judgment	.92	.032	.97	.013	.96	.017	.950
Intelligence	.92	.032	.79	.084	.83	.070	.846
Frankness	.33	.190	.68	.120	.79	.084	.600
Will-Power	.83	.064	.78	.087	.96	.016	.856
Ability to make friends	.73	.095	.41	.186	.75	.098	.630
Leadership	.78	.084	.87	.054	.83	.070	.826
Originality	.81	.072	.71	.111	.80	.081	.773
Impulsiveness	.61	.133	.93	.030	.78	.087	.773

p.223. Average Intercorrelation of Traits.  
Ratings of close Associates.

A. Average Intercorrelation .85 to 1.00

1. Judgment and will power.
2. Judgment and Leadership.
3. Will Power and Leadership.

B. Average Intercorrelation .55 to .84

1. Judgment and Intelligence.
2. Judgment and Frankness.
3. Judgment and Ability to make friends.
4. Judgment and Originality.
5. Intelligence and Frankness.
6. Intelligence and Will-Power.
7. Intelligence and Ability to make friends.
8. Intelligence and Leadership.
9. Intelligence and Originality.
10. Frankness and Will-Power.
11. Frankness and Ability to make Friends.
12. Frankness and Leadership.
13. Frankness and Originality.
14. Will Power and Ability to make Friends.
15. Leadership and Originality.
16. Leadership and ability to make Friends.

C. Average Intercorrelation .35 to .54.

1. Will-power and Originality.
2. Ability to make friends and Originality.
3. Originality and Impulsiveness.

D. Average Intercorrelation below .35.

1. Judgment and Impulsiveness.
2. Intelligence and Impulsiveness.
3. Frankness and Impulsiveness.
4. Will power and Impulsiveness.
5. Ability to make Friends and Impulsiveness.
6. Leadership and Impulsiveness.

No. 4

C. W. Fleming (24)p. 84 - Traits ranked on basis of correlation with School Achievement.

Trait	Junior H.S.	Senior H.S.
1. Estimate of General Intelligence	.8006	.7045
2. School Aptitude	.7398	.4963
3. Will & Perseverance (Persistence)	.7214	.4093
4. Desire to excel.	.6975	.4958
5. Industry	.6896	.4990
6. Prudence (Caution) and Forethought	.6145	.3553
7. Conscientiousness	.5686	.3050
8. Capacity for Leadership	.5108	.3042
9. (Physical) Energy	.4509	.3408
10. Emotional Balance (Stability)	.4446	.3103
11. Estimate of (omitted) Health	.2124	.3550

Corrections in brackets show headings as they appeared in the Senior High School. Rankings above are on J.H.S. Coefficients.

No. 5

A.W. Kornhauser (56)Correlations between traits using the average of ratings on 68 Students

	Int.	Ind.	Acc.	Coop.	Init.	M.T.	L.A.	Av
Intelligence	---	.64	.78	.52	.83	.45	.61	.64
Industry	.64	---	.79	.81	.61	.78	.69	.72
Accuracy	.78	.79	---	.61	.71	.61	.57	.66
Co-operativeness	.52	.81	.61	---	.71	.81	.76	.73
Initiative	.83	.61	.71	.71	---	.57	.75	.70
Moral Trustworthiness	.45	.78	.61	.81	.57	---	.63	.64
Leadership Ability	.61	.69	.57	.76	.75	.63	---	.67

Order of Merit of Reliability of Ratings.Group A (above)

Industry  
Moral Trustworthiness  
Intelligence  
Co-operativeness  
Accuracy  
Leadership Ability  
Initiative.

Group B.

Intelligence.  
Industry.  
Accuracy.  
Leadership Ability.  
Initiative.  
Co-operativeness.  
Moral Trustworthiness.

