

## SOME VOLITIONAL PATTERNS REVEALED BY THE WILL-PROFILE

BY JUNE E. DOWNEY

*University of Wyoming*

### I

Descriptive psychology has familiarized us with various classifications of temperament and of character-types. The four traditional temperaments have been interpreted and re-interpreted in attempts to fit them into various structural systems. At times, the predisposition to experience a certain *quality* of emotion has been chosen as the basal factor in making the division; at other times, the *strength* and *persistency* of the emotional reaction has been considered fundamental and its quality subsidiary. Again, readiness and vigor of motor response; or, rapidity and smoothness of thought is made the principle of division. That is, in the discussion of temperamental and character types we find a varying emphasis upon emotional, intellectual, and motor factors, with more or less insistence upon somatic conditions. Probably physiological experimentation will in the future furnish us with material for a basal interpretation from this latter standpoint.

The net outcome from reading upon this topic is a feeling that there exists some psychological justification for broad outlines of characteristic patterns; the refinement of these patterns has, however, proceeded largely on a logical basis, which in such a classification as that of Ribot's<sup>1</sup> leads to so great an overlapping of divisions as to raise the question of the existence of any real types. Ribot himself concludes that the majority of men are amorphous (plastic to excess), a character-brand determined wholly by environment; or else partial characters or types, that is, patterned along some one line of professional interest only.

<sup>1</sup> 'Psychology of the Emotions,' p. 380 f.

My purpose in the present paper is to present an experimental approach to the problem. Specifically, I wish to discuss certain volitional patterns which have been revealed through employment of a series of tests designed for a volitional analysis of the make-up of an individual in supplementation of his intelligence rating. The emphasis is distinctly on degree of readiness, vigor, suppleness, and accuracy of motor reaction, and on smoothness, confidence and rapidity of thought reaction. If the tests reveal emotional predispositions they do so indirectly, in connection with a specific combination of volitional traits.

The volitional patterns are given in the form of graphs plotted in terms of the scores on a percentile basis received on the following traits: Speed of movement (measured by speed of normal writing); freedom from load or inertia (measured by the ratio of time of speeded to time of normal writing); flexibility (measured by expertness in disguise of one's habitual hand and in imitation of another's handwriting); speed of decision (measured by time taken to decide which one of a series of paired character traits one possesses); motor impulsion (measured by amount of increase or decrease in size and speed of writing when attention is distracted); assurance (measured by reaction to contraction); resistance (measured by blocked writing); motor inhibition (measured by the length of time one can retard his writing of a phrase); care for detail (measured by accuracy of imitation and by difference in time between a rapid and a slow imitation); coördination of impulses (measured by success in writing a given phrase on a short line in speeded time); perseverance (measured by length of time one employs in preliminary practice and final writing of a disguised hand); revision (measured by amount of time taken in rechecking one's first set of judgments on character traits). Discussion of the individual tests in the series, directions for giving them, and norms for scoring are presented in another connection.<sup>1</sup> Plate I. gives a sample profile.

<sup>1</sup> 'The Will-Profile,' University of Wyoming, Department of Psychology, Bulletin No. 3, 1919.

The vital question in estimating the value of the graph is this: Does it have any general characterological significance? Or is its meaning specific, limited to exhibiting an individual's reaction to a particular material? Of the twelve tests, eight, it will be noticed, utilize handwriting in some form. The series includes speeded, retarded, disguised, blocked, and automatic handwriting, slow and rapid imitation of script and speeded writing in a restricted space. In many cases the reaction from this set of tests is somewhat definitely patterned. A relatively high score on the first four tests indicates a quick flexible reaction; on the second four traits, it suggests an aggressive reaction; on the last four, a deliberate, methodical, careful reaction. Study of actual graphs reveals eight possibilities in the way of pattern; three one-peaked patterns, emphasizing any one of the three possible groups of four traits each; three two-peaked patterns emphasizing any two groups of traits; a balanced reaction maintaining about the same level throughout the graph; and, lastly, a zigzag pattern which rises and falls without any definite plan so far as the adopted arrangement of traits is concerned. A pattern may run its course at several different levels. We may now rephrase our question to read: Do these types of reaction reveal anything more than the subject's organization of graphic (writing) habits?

It may seem that the proper answer to this question should be sought in a checking up of the significance of each test by correlation of the results it gives with those obtained by a different sort of test of the same trait. Or the order of merit method might be utilized; a ranking should be obtained for a group of subjects on each character trait, and this ranking correlated with the rank received on basis of a given test. So far as is possible, I hope eventually to check some of the individual tests by these methods. Something has already been done. For many of the character traits there are, however, no tests yet available for correlation. Nor is the method of relative position wholly satisfactory because the persons to whom I must appeal for judgments are unpracticed in passing such judgments, reluctant in attempting

them, and, usually, unequally acquainted with the individuals in the group.

These difficulties in the way of checking the significance of specific tests have induced me to try utilizing the graph itself in a rough determination of the extent to which the tests have general characterological significance or the validity of the pattern as actually a volitional pattern. The results of the investigation now to be recorded are not only positive enough to be highly encouraging but the method has given me material that can be utilized in further revision of the tests, and it has suggested possibilities in the way of working out tests of expertness in character analysis.

At this point I would like to emphasize the statement that both the tests and the scoring of them are still in process of revision. For the normal adult between the ages of eighteen and fifty years, the norms established are fairly satisfactory except for one detail. Where sex and age differences exist to any degree the norms are vitiated by the fact that nearly two thirds of my subjects have been women and in age under thirty-five. It appears from separate tabulation of records that in the case of motor inhibition the central tendency for men is much higher than that for women so that with an equal sex distribution of subjects my norms for this trait would be somewhat different. Furthermore, after a long series of repeated trials on a given group, I have concluded that the third trial of retarded writing is more significant than the first and in the revised scale I shall advise giving three trials of retarded writing, except in cases of excessive retardation. This will necessitate the establishment of new norms. I am also revising instructions so as to rule out, if possible, an automatic reaction to this test.

Other details will be handled in revision. I am checking out, for example, a second method of scoring freedom from inertia. The present scoring does an injustice to very rapid workers who are capable of very intensive spurting.

## II

At present, however, I propose to pass over such details and to turn at once to the experiment in question. My

procedure was, at first, as follows: I chose three groups of graphs,<sup>1</sup> twelve obtained from college men, twelve from college women, and twelve from university instructors. A group of twelve was submitted to a chosen reagent with a list of names. His task was to fit each profile with the proper name. The instructions given him are reproduced verbatim.

#### INSTRUCTIONS

You are to identify, if possible, the Will-Profile that fits each person on the list of names given you.

The profiles are graphs which represent the score attained by a given individual on a number of given traits. The method of scoring is as follows:

A score of 10 is the highest given. It would be received by the upper ten per cent. in a group of 100.

1 would be the score received by the lowest ten per cent. in a group of 100.

The other scores grade between 10 and 1 by equal intervals. The traits scored may be defined as follows:

1. Speed of Movement: Speed of movement relative to size of person, and age.
2. Freedom from Inertia or Load: Tendency to work at one's highest speed without external pressure; little tendency to relax speed; quickness in warming up to a task.
3. Flexibility: Ease and success in readjustment; capacity to modify one's routine reactions.
4. Speed of decision: Quickness in reaching a decision or conclusion. A slow reaction here may be due to caution or conservatism in weighing the elements involved in a situation or be caused by one's being side-tracked by irrelevant matters or by a rambling procedure.
5. Motor Impulsion: This trait refers both to impetuosity and energy of reaction. Consider the ease with which brakes or inhibitions are removed and also the tendency to an explosive reaction when the brakes are actually off.
6. Assurance: This refers to the degree of confidence with which one maintains his opinion against contradiction. A 9 or 10 reaction signifies an aggressive reaction—the burden of proof is thrown on the person who does the contradicting; 7 and 8 are confident reactions but reasons are cited for one's confidence and the burden of proof is accepted; 5 and 6 are tactful reactions; below 5 there is a grading down to complete failure to assert one's own opinion.
7. Resistance: The vigor with which one reacts immediately to a blocking of one's purpose. It grades from a strenuous reaction, to complete passivity in the face of opposition.
8. Motor Inhibition: Capacity to keep in mind a set purpose and achieve it *slowly*. It involves power of motor control, imperturbability, and patience.
9. Care for Detail: Attention to details. This trait is not equivalent to accuracy which usually carries an implication of power of keen analysis. One may possess great capacity for detail and yet lack penetration in the selection of details. Care for detail is more evident in execution of a plan than in cleverness in making a plan.

<sup>1</sup> These graphs were plotted for only ten traits. At the time satisfactory norms for Perseverance and Revision were not available.

10. *Coördination of Impulses*: Capacity to execute a double task without a preliminary trial; capacity to handle a complex situation successfully without forgetting either factor involved. This trait is probably allied to keeping one's head in a confusing situation.

In studying the profiles, give some attention to the general pattern as well as to the scoring on specific traits. In the case of a quick-reacting person the graph runs high at the beginning of the profile; it will run low at the beginning in the case of the leisurely deliberate type of person who carries considerable load. The central part of the profile runs high for the aggressive person. There is an emphasis of the latter part of the curve for the careful deliberate type.

One may find one-peaked patterns, two-peaked patterns, and balanced patterns *at any level of scoring*. Remember 5 and 6 represent a median score. A zigzag pattern demands particular study as it may represent a modification of the natural reaction by training.

*Caution*: Do not attempt to identify the profile of some one whom you know only by reputation or of whom you have only a general impression. Some specific acquaintance with an individual is necessary.

If you are in doubt as to the meaning of any point in the instructions, question the experimenter about it.

Actual experiment in connection with the attempted identification of profiles showed that the task required considerable effort of attention and power of analysis. Several of the traits measured, freedom from inertia, for example, were new concepts to the judges. In order to give a satisfactory judgment, the reagent felt the need of much more than a casual acquaintance with the persons whose profiles were being exhibited. Not many observers were intimately enough acquainted with each individual in a group of twelve to make satisfactory inter-comparisons. I obtained, however, one series of twelve judgments from each of twelve reagents,—four reagents for each of my three groups of profiles. Correct identification of profiles ran from zero to five, or from total failure to identify any profile (one reagent) to forty-one per cent. of successful identifications (two reagents). The per cent. of successes for the total of one hundred forty-four judgments (twelve judgments by each of twelve reagents) was twenty-two per cent., where chance success would be less than one per cent.

Much more valuable than these summarizing figures was the unmistakable evidence given by the experiment of several important facts:

1. The more intimately an observer knew an individual, the greater chance there was of his correctly identifying the latter's profile. Such a result not only evidences the general value of the profile in character study, but suggests that frequently it might be used by acquaintances in extension of their everyday knowledge of a person.

2. Even in case of incorrect identifications, the judgments, except for one or two very inexperienced reagents, were not dictated by chance. There is often considerable agreement as to the *type* of profile chosen for a subject though the specific identification be incorrect. Such confusions are due to general similarity of pattern in the make-up of certain individuals.

3. Individuals vary greatly in their interest in, and capacity to estimate character traits. With a selected group of judges, successes on the will-profile would run fairly high. In this preliminary experiment, the best records were made by the Dean of the College of Agriculture, whose administrative duties enforce a practical interest in character analysis—and by a student of psychology, who undoubtedly has native capacity in this line.

In modification of the method of procedure in such a way as to be able to utilize the judgments of observers who might know intimately only a few individuals whose profiles had been plotted, and yet to insure a simple method of estimating chance versus actual successes, I decided to submit the profiles in groups of three, requesting the observer to choose which profile belonged to a given individual. Chance success of thirty-three and one third per cent. could be anticipated. In order to isolate certain factors for study, I arranged my material in two series. In Series *A*, I presented a given profile with two others like it in general pattern. This series is obviously a difficult one to pass judgment on. In Series *B*, I presented the same profiles but with contrasting patterns. Series *B* is relatively an easy one to handle. It was possible to enlarge my separate groups to any extent I desired, but the combinations in which any particular profile was presented were, of course, kept constant for all

observers; furthermore, the profiles of men students were compared only with those of other male students; women students compared with other women students; university instructors with university instructors. This latter condition probably rendered the experiment slightly more difficult than if profiles had been taken indiscriminately from any of the groups.

The instructions used in the preliminary experiment were used again, except that the observer was told that after picking the one profile of the three that seemed most satisfactory, he might criticize it with respect to any score he chose. By this means I obtained some valuable suggestions as to possible defects in the tests. A majority of the observers had themselves taken the test some months before, and, occasionally, tried to think what a given individual would do under specific conditions. They had, however, no way of knowing how I had utilized the tests in getting a majority of the scores, and were, in addition, instructed to pass judgment on the general character of the subject. Some of the best series of judgments were given by persons who were wholly ignorant of the nature of the tests.

TABLE I  
PER CENT. SUCCESSFUL IDENTIFICATION OF PROFILES

Profiles	Series A				Series B			
	Number of Judgments	% R. Whole Group	Highest % R. Any Judge	Lowest % R. Any Judge	Number of Judgments	% R. Whole Group	Highest % R. Any Judge	Lowest % R. Any Judge
Faculty.....	69	33.3	55.5	0	75	78.7	100	0 <sup>2</sup>
Men Students.....	54	44.4	60.0	0	57	71.9	100	0 <sup>2</sup>
Women Students.....	37	51.3	100.00 <sup>1</sup>	0	31	58.6	100	0 <sup>2</sup>
Total.....	160	41.3	100.00 <sup>1</sup>	0	163	72.3	100	0 <sup>2</sup>

The results of this test are given in Table I. Using the total series of judgments it is evident that identification of a profile occurs slightly more frequently than chance would lead us to expect even when the profile is submitted with

<sup>1</sup> Only one judgment given, next highest 75 per cent., (3 R. judgments out of a total of four).

<sup>2</sup> Only one judgment given.



others like it in general pattern; while when the same profile is compared with contrasting profiles, the probability that the correct profile will be selected is fairly high. Still more convincing of the value of the profile in analysis of one's temperamental pattern are the successes achieved by the best judges. Thus under the definitely difficult conditions of series *A*, a judge has been able to identify correctly in one group 6 of 11 profiles (55 per cent.) or in another group, 3 out of 4 (75 per cent.). In series *B*, there are a number of judges who make 100 per cent. of correct identifications.

Study of the table reveals an interesting possibility which an inspection of the graphs confirms. In the judgments on the profiles of University Instructors, the per cent. of successes is, in Series *A*, the lowest of the three; in Series *B*, highest. Such figures would suggest the possibility of this group of profiles being more highly patterned than those obtained from the younger subjects, and hence more easily confused when submitted for identification with similar patterns but for the same reason more easily identified in connection with contrasting patterns.

There can be no question of the fact that certain individuals present a much more highly patterned reaction to the test than do others, and that these patterned profiles are under certain circumstances more easily identified than zigzag patterns. The profile of the methodical, careful, deliberate type is, apparently, more easily identified than that of the quick flexible type, particularly if the latter combine aggressive traits with his quickness of reaction, in which case there is, I believe, a tendency to overestimate the probable score on all other traits. This type is, on the whole, also overestimated for intelligence when a judgment is based by the observer on general impression.

In Table II., I have tabulated the number of right and wrong judgments on a number of individual profiles, choosing those in which there was a number of right judgments even in Series *A*; and, secondly, those in which there was a number of wrong judgments in Series *B*. One other case is included.

First, a word of comment concerning those Profiles which

are correctly chosen even in the difficult series. VI. and *H* are identified by the fact that they maintain a high level throughout the graph; VII. and 15 identified by the low level at which the pattern runs. *F* and 4 represent a very definite type of deliberate, consistent, stable personality, one of the easiest types to identify.

TABLE II  
DISTRIBUTION RIGHT AND WRONG JUDGMENTS CHOSEN PROFILES

Profile	Series A		Series B	
	Right	Wrong	Right	Wrong
VI.....	8	2	9	1
VII.....	3	1	4	0
<i>F</i> .....	5	1	5	0
<i>H</i> .....	4	1	4	1
4.....	4	1	3	1
15.....	3	0	3	0
<i>A</i> .....	4	3	4	3
<i>D</i> .....	1	2	2	1
<i>P</i> .....	1	3	1	3
1.....	1	3	2	3
5.....	0	3	0	3
XII.....	0	9	8	1

The second group of profiles, which are not successfully identified even when presented with contrasting patterns, affords much material for study. Several possibilities demand comment.

1. The general appearance of an individual is sometimes deceptive. Age or physique masks the true nature except for very discriminating observers. Casual observation in classroom or faculty-meetings does not serve for adequate understanding of such a character. Profiles XII., *D*, and *P* may be used in illustration.

*Profile XII.*—The general impression received from the original is that of vivacity, alertness, quickness, and decisiveness. Subject is small, youthful, buoyant. This exterior masks very great care and deliberateness in forming a judgment and extreme sensitiveness to detail. Close observation reveals some inertia in her make-up.

In Series *A*, her profile is not once chosen correctly. But

there is a curious difference in the profile selected respectively by faculty and by student judges. Her faculty colleagues chose a profile emphasizing quickness and flexibility of reaction. They look for a pattern in which the outstanding feature is speed of every sort. Students, on the other hand, look for aggressiveness of reaction and great care for detail. The correct profile runs high on speed of movement, flexibility, assurance, coördination of impulses and care for detail. It dips at speed of decision, freedom from inertia, and resistance to opposition. The original pronounces it an excellent representation, with a reservation concerning the score for coördination of impulses.

An interesting sidelight on this case comes in the choice of profile made by XII.'s housemate who knows her intimately. She overestimates the qualities of deliberateness and detail and chooses a pattern characteristic of a definitely slow methodical individual of much inertia. This reversal of emphasis in choice of pattern is due in part to the bias created by the judge's own very rapidly reacting, inertialess temperament.

*Profile P.*—This case is a similar one. I do not know the subject personally; the effect he gives to a casual observer is that of a quick, lively, energetic individual. His profile suggests a very stable, careful and methodical person. That he really is of the latter type is asserted by one of his intimate friends. I should suspect it from the fact that his scholastic record runs much higher than his ranking in the freshman tests would lead one to anticipate, a situation which leads one to expect a high record on the traits in the will-profile that emphasize industry and carefulness.

*Profile D* represents the contrasting case. Here a quick-reacting careless individual is chosen as deliberate and careful. There are two traits that do indeed suggest such a pattern; *D* runs low on motor impulsiveness and there is some evidence of inertia. Physically, he gives the impression of being slow-moving, phlegmatic and deliberate. As a matter of fact, as I have determined by many timed reactions throughout a year, his speed of decision is excessively rapid and his care for detail distressingly inadequate. He is not slow in movement but there are no excess movements.

His most intimate friend identifies his profile with no difficulty and pronounces it an excellent likeness; as I should, after a year and a half careful observation. But besides the judgments tabulated in the table, there were five failures to identify this profile in the preliminary series with, usually, choice of a highly contrasted pattern.

2. Occasionally, one finds a profile that is unsatisfactory to all or many reagents, but not for the reason just cited. Possibly, we may find a group of reagents of an unstable type whose pattern might fluctuate considerably with repetition of the test. The wavering reactions of observers on profiles *A* and *I* suggest such an explanation, as, in fact, do the personalities in question. They, as personalities, are in definite contrast to *F* and *4*, mentioned above; they are much more complex individuals but also much less reliable. Repetition of the test should show much more pronounced shifts in scores for the latter group than for the former.

3. Some errors in identification arise from a strong tendency on the part of many judges to overestimate the possession by others of certain traits. For example, I found one reagent who insisted that every individual whose profile she was seeking to identify should score 10 for assurance. Students were definitely given to overestimation of scores for faculty profiles. One profile, that of an individual of really exceptional volitional make-up, is chosen in Series *A* in almost every instance in which it is submitted as one of a group of three.

4. That the bias of one's own temperament may lead one to overestimate the contrasting traits in others is evident from my records. I have already given an example of this in commenting upon Profile XII., and in mention of the reagent who overestimated the assurance of the individuals whose profiles she handled. I should expect such temperamental bias to operate particularly in estimating the ranking on care for detail. One who would score 10 would probably underestimate the carefulness of others.

5. As might have been anticipated, unfamiliarity with the terms used in analysis caused some difficulty in passing

judgment on a profile. Motor Impulsion, for example, means very little to a reagent. There is also failure to discriminate with reference to traits. The average observer, for example, fails to discriminate between excess movement and rapidity of movement. Smooth, well-coördinated movements are more rapid than those involving effort or excess of nervous activity but they attract much less attention than the latter.

6. That the profile itself needs correction in several details apart from those mentioned earlier in the paper, is also evidenced by the present investigation. The scores most frequently criticized in the detailed inspection were those for Assurance, and for Coördination of Impulses as a test of keeping one's head. It is possible that the test on which Assurance is scored really measures one's susceptibility to suggestion rather than one's self-confidence. The number of double-checks given in passing judgment upon one's own traits may serve as a better indication of the latter trait. This possibility I shall check out.

The significance of the test on Coördination of Impulses would seem open to criticism, not only on the basis of the present returns but also from indications given by the correlational diagrams, to be reported in the third part of the paper.

In a few cases the use of writing as the test material evidently accounts for inaccuracy in scoring on speed of movement and freedom from inertia. Reagents exceptionally practiced in writing may for this reason give an accelerated reaction; while others may show a specialized retardation of speed due to such inhibitions as writing with the right hand instead of the left hand, in the case of a left-handed person.

In concluding this part of the report, I wish to say a word or two concerning the varying value of different judges. A judgment is obviously inadequate when contradicted by the observer's own reaction when conditions are slightly shifted, as in Series *A* and Series *B*. One may also appeal to the judgment of the group or to that of the best qualified judge in checking over the conspicuous successes or failures

of individual reagents. A number of the most successful reagents are of the slow deliberate type of reaction which in my experience is more often associated with a visual than with a verbal preoccupation. They had in this test the advantage of dealing with a visual scheme—the graph,—and some of them very definitely reacted to the patterns as patterns. One of my verbal-minded judges complained of the presentation of character traits in a visual form that meant nothing to him.

The judges who run low on motor impulsion appear more accurate in their identifications of character than the explosive type does, although, possibly, the latter set the social reaction more frequently. There is, apparently, an obsession on the part of the former group with character analysis, a beautiful confirmation of the suggestion that individuals with a temperament on the defensive are better judges of character than those who temperamentally take the offensive.

### III

The general pattern that results from plotting the graph obtained by means of the volitional tests and the statement of the total score do not exhaust the usefulness of the profile in analysis of temperament. We have already encountered the zigzag or non-patterned profile, which leads to the problem of other possible organizations of traits, or of natural or acquired inconsistencies of reaction. This, in turn, involves the question of intercorrelation between tests employed in the Will-Profile. An intensive treatment of the data would, no doubt, make it possible to determine to how great an extent a given factor, such as speed of movement, operated in the various tests, and it might well suggest lines of possible revision so as to introduce either greater variety in the way of material or greater accuracy in details of the scoring.

As it will be impossible to handle the problem exhaustively in the present paper, I shall limit myself to a brief summary of the conclusions of relationship I have drawn from inspection of diagrams obtained by so plotting the distribution of scores

as to show the relationship between any two pairs of measures. The diagrams not only reveal the presence or absence of any gross correlation but also make possible a detailed study of each particular score. When such scores stand for a qualitative reaction, such study may be particularly enlightening. One hundred records, equally distributed in the ten groups scoring from 1 to 10, were utilized for each test. A graph was then made to show the relationship between this test and each of the other eleven. The correlation or lack of it was studied, it will be seen, from two angles, since a selection of one hundred records was made twice for each test.

TABLE III  
CORRELATION OF TESTS

	Speed Movement	Freedom Load	Flexibility	Speed De- cision	Motor Impulsion	Assurance	Resistance	Motor In- hibition	Care Detail	Coordination Impulses	Perse- verance	Revision
Speed of movement ..		+ <sup>1</sup>	+	+ <sup>2</sup>		+			-	+	-	
Freedom from load .....	+ <sup>1</sup>			+					-(1, 2)			
Flexibility ....	+			+ <sup>2</sup>	+			+	+ <sup>1</sup>	+		
Speed of decision .....	+ <sup>2</sup>	+	+ <sup>2</sup>				+				-	-
Motor impul- sion .....			+			+ <sup>2</sup>	?			?		
Assurance .....	+				+ <sup>2</sup>		+	+	+		+	
Resistance ..				+		+	+	+				
Motor inhibi- tion .....			+		?	+	+		+ <sup>1</sup>	+		
Care for de- tail .....	-(9, 10)	-(9, 10)	+ <sup>1</sup>		-(10)	+		+ <sup>1</sup>		+	+	+
Coördination impulses ....	+	+	+		?		+	+	+			
Perseverance ..	-			-		+			+			+ <sup>1</sup>
Revision .....				-					+		+ <sup>1</sup>	

Table III. summarizes my conclusions. Positive correlation is indicated by a plus sign; negative, by a minus; absence of correlation by a blank space. In a few instances correlation, or lack of it, is evident only for certain groups as indicated by figures in parentheses. The question-mark is used where the relationship is obscure. In the case of

<sup>1</sup> High correlation.

<sup>2</sup> Low correlation.

motor impulsion and motor inhibition, this fact will serve to introduce a somewhat detailed discussion of the interrelationship.

TABLE IV

Own Judgment	Groups					Total
	I	II	III	IV	V	
Impulsive.....	12(4)	8(5)	15(11)	8(2)	10(4)	53(26)
Deliberate.....	5(3)	12(0)	5(0)	11(3)	8(3)	41(9)
Qualified.....	3	0	0	1	2(0)	6
Cheerful.....	17	18(12)	15(5)	13(6)	19(11)	82
Gloomy.....	1	2	1	4	0	8
Variable.....	1	0	4	3	1	9
In Between.....	1	0	0	0	0	1

A few points in the table deserve particular notice. Where traits in the same group have been scored on reactions differing on the surface completely from one another, the correlation points to a common mental attitude influencing both tests and so far confirms the value of the profile in character-analysis. The striking instances of this sort are as follows: Speed of Movement and Speed of Decision (correlation low); Motor Inhibition and Assurance (low correlation); Assurance and Resistance (high correlation); Motor Inhibition and Assurance; Motor Inhibition and Resistance; Perseverance and Revision (high correlation).

But there are interesting cases of correlation between traits not grouped together in the profile. Thus Flexibility is found to be positively correlated with Motor Impulsion, Motor Inhibition, Care for Detail and Coördination of Impulses. Care for Detail is correlated not only with Flexibility but also with Assurance and with Motor Inhibition. Other interesting examples involve the correlation of Speed of Movement with Assurance and Coördination of Impulses; and the positive relationship between Speed of Decision and Resistance, and between Assurance and Perseverance.

Negative correlations are found for Speed of Movement and Perseverance; Speed of Decision and both Perseverance and Revision. These statements suggest a few comments.

The proper grouping of Flexibility and of Coördination



of Impulses is problematic. The relationship found to exist between these two traits was quite unexpected although suggested by certain profiles I had plotted. Both appear to involve somewhat the same combination of motor control and speed of reaction. Whether or not such a combination of traits is akin to capacity to keep one's head is probably very questionable—a conclusion reached on other grounds in the second part of the paper. But that the test for Flexibility does actually measure capacity for general adaptability seems fairly conclusive, although an effort should be made to distinguish in the case of the disguised hand between a dramatic and a studied disguise, at which point my method of scoring is inadequate. That individuals who are notably inflexible fail conspicuously in this test is guaranteed by a number of interesting records.

The positive relationship found to exist between Speed of Decision and Resistance was also unexpected. I do not think, however, that the reason for it is obscure. Obviously, one factor in a quick counter to opposition is a speedy recognition of just what the situation is. I have noted in another connection that members of one of my groups showed very great force in resistance as soon as they had adjusted themselves to the situation. At first they were confused, "fussed"; they are slow-reacting, somewhat inhibited, assured individuals, but just the people whom we know to be excessively obstinate when once they are "set." Just how to revise the scoring so as to do them justice in this particular I do not see as yet.

The positive correlation between Assurance and Perseverance is I think accounted for by the fact that, in part, one's confidence is based on care in noting details with respect either to one's reasons for choice or to objective circumstances.

The most interesting negative correlation is that found to exist between Speed of Decision and Revision. It appears that those individuals who take the longest time to make their decisions in the first place, also spend most time in revising those decisions when given a second chance.

Let us now consider in detail the curious complications of

motor impulsion and motor inhibition, since such an analysis may serve to indicate the sort of scrutiny necessary in estimating the significance of different combinations of traits.

The diagrams give no certain indication of either positive or negative correlation of these two traits. But study of individual groups indicates that subjects scoring 9 or 10 for inhibition rarely score over 5 for motor impulsion. The reverse is not true; a low score on inhibition does not suggest a high score on impulsion. There are, actually, four possibilities of combination. A subject may score high on both traits; low on both; or high on one and low on the other. These subsidiary patterns are, I believe, of great significance. A low score on both traits characterizes a rather definitely relaxed and unresistant individual; a high score for impulsion with a low one for inhibition, the explosive or impetuous person; a high score for inhibition and a low one for impulsion, the deliberate, or, even, the obstructed type; a high score on both, the vigorous forceful personality. But in this latter group, I find, again, two divisions, as revealed by the type of writing produced under instructions to retard movement to the greatest possible degree. For some, this writing shows signs of great tension; for others, not.

Signs of tension include decrease in graphic size, increased pressure, falling alignment, pronounced tremor, and increased conventionality. In the groups scoring over 7 for retarded writing there is some tendency to increase the size of the inhibited writing. This is due largely to the fact that increase in size is a natural outcome of any throwing of attention upon the production of individual letters. But in a few cases such increase in amplitude, with a noticeable absence of any signs of tension, is due to the fact that the reagent is having recourse to *automatic* writing. The tendency of some subjects to shift to an automatic control even in production of retarded writing was noticed in my early tests, with a consequent warning against it. Conversation during retarded writing was not permitted and penmen were urged to keep to their normal size. Inspection of the graphic product shows, however, that a small group of subjects

executed the instructions with no signs of tension; quite the contrary; they produced a large, light hand characteristically automatic. This group of subjects proved to be those scoring exceptionally high on motor impulsion. A list of them gave me a number of individuals of a colorful dramatic type of personality. By some shift in control—whose mechanism we cannot now go into—it is evident that these subjects solved the problem of retardation by an automatic holding of a mental or motor set so that they achieved success with no signs of the tension so noticeably present in other reagents. Possibly restraint of movement by employment of narrow parallel lines might serve to rule out such a reaction, but I am not confident that it would do so.

I believe that to a very considerable extent it is possible to discover these four types of reaction in characteristics of the normal hand. This possibility gives experimental confirmation to a conjecture of mine,—made elsewhere<sup>1</sup>—that the concepts of motor impulsion and motor inhibition offer us our best tools for graphological analysis of writing.

Plate II. gives us a sample of handwriting characteristic of each of the four classes.<sup>2</sup> I. The hand of the individual high both in control and impulsion is a highly individualized but rapid hand. II. The hand produced by a penman low on impulsion, high on inhibition, gives evidence of tension in its excess of pressure, in its cramped or even crabbed forms, or in its small size. III. The hand high on impulsion but low in inhibition is rapid, light, fluent. IV. A penman deficient in both impulsion and inhibition writes a characterless relaxed hand.

It is instructive in this connection to tabulate from our records an individual's judgment upon himself as impulsive or deliberate. One has a right to expect a certain amount of

<sup>1</sup> 'Graphology and the Psychology of Handwriting,' p. 123f.

<sup>2</sup> Hands I. and II. were chosen for the scale (models for Imitation) as samples of the writing of individuals known to be explosive and deliberate respectively. At the time of choice neither individual had been given the Will-Profile Test. When, later, the record was taken my expectations were confirmed to the highest degree. Hand I. is, written by a penman who maintains an automatic set for retarded writing. Individuals of hyperkinetic make-up whose retarded writing shows tension write a much more highly controlled hand.

agreement between the outcome of the tests and an intelligent individual's rating of himself. One might anticipate that an individual high on impulsion and low on inhibition would check himself as impulsive; one high on inhibition and low on impulsion as deliberate; one's expectation concerning the other two groups (low on both traits, or high on both) would be less definite, so too in case of a balanced reaction.

Table IV. summarizes the judgments of one hundred individuals taken at random, twenty for each of five groups, namely I. High on both impulsion and inhibition; II. High on inhibition, low on impulsion; III. Low on inhibition, high on impulsion; IV. Low on both inhibition and impulsion; V. Medium on both traits. The numbers in parentheses give those who were willing to double-check their judgment because of their confidence in its correctness. I have also included in Table IV., the judgments passed by these individuals upon their cheerfulness or gloominess of outlook.

The table as a whole confirms to some degree the outcome of the tests. Group III., for example, shows a great preponderance of judgments in favor of impulsiveness, with many individuals double-checking this judgment. The case for Group II. is much less pronounced. Turning to my records, I find that of the twelve rating themselves impulsive in Group I., eight were individuals who produced an unmistakably *automatic retardation* of writing, to which reference has already been made; two others were doubtful cases. It is interesting to note that the qualified judgments appear in Groups I., IV., and V.

The most significant fact in the tabulation of Cheerful-Gloomy judgments, is—apart from the large preponderance of Cheerful judgments,—the variable group in III. and the number of those rating themselves as gloomy or variable in IV. Possibly the figures under IV. point to some sense of inadequacy on the part of a number of the group.

The agreement between the reagent's judgment of himself and the outcome of the test might, of course, be much more striking than it actually is. No doubt a certain amount of discrepancy is due to inaccuracy in the scoring for motor im-

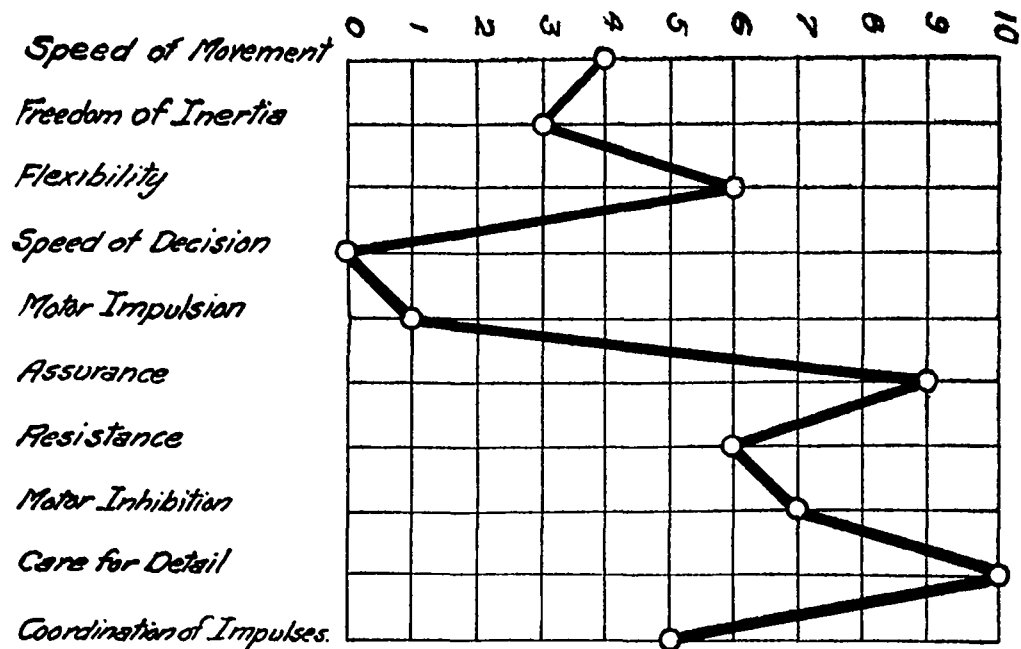


PLATE I.

Very characteristic profile of a scientist, X. Has been picked up from my desk with the exclamation, "That looks like Doctor X!" An intimate associate in the same department makes one comment apropos of his uncertainty concerning significance of score for coördination of impulses. "X," he asserts, "should run high on this trait if handling things; low, if handling people."

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PLATE II

- I. Written by an individual scoring high on both Motor Impulsion and Motor Inhibition.
- II. Written by an individual scoring high on Motor Inhibition, low on Motor Impulsion.
- III. The hand of a subject scoring high on Motor Impulsion, low on Motor Inhibition.
- IV. The hand of a subject scoring low on both Motor Impulsion and Motor Inhibition.

pulsion, an inaccuracy I hope to remedy by just the sort of analysis here presented, but in large measure the discrepancy is due to individual notions as to the meaning of the terms. One man, certainly far from impulsive in his make-up, who nevertheless so checked himself, explained when questioned that he understood 'impulsive' as equivalent to 'enthusiastic.' He himself never acted without reasons, and in that sense was 'deliberate.' Until character-analysis has developed a technical vocabulary of definitely defined words, we must expect to find ourselves struggling with verbal misunderstandings.

#### SUMMARY

The outcome of the present investigation indicates that the Will-Profile has considerable general characterological significance and that it can be used to advantage not only in getting the general temperamental pattern of an individual but also in determining the specific combination of traits.

The answer to the question, Does the Will-Profile give you any new information about an individual? is certainly an assured affirmative in the case of a casual acquaintance, and also an affirmative in the case of intimates since it serves the purposes of detailed analysis, just as does an intelligence test. In conjunction with the latter, it certainly affords in many situations, a basis for conservative prophesy.