GRAPHOLOGICAL ANALYSIS AND PSYCHIATRY:
AN EXPERIMENTAL STUDY

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I. INTRODUCTION

If the claims of graphologists to be able to diagnose temperamental and intellectual traits from a person’s handwriting have any justification, it is clear that the scientific study of this discipline must be of outstanding importance to abnormal as well as to experimental psychology. The possibility of obtaining an analysis free from conscious or unconscious falsification on the part of the subject or the patient; the possibility of studying the pre-neurotic, pre-psychotic, or pre-experimental personality of subject or patient from objective records, such as early writings of his; the possibility, lastly, of following the progress of the cure, or of the effects of the experiment, in the image of the patient’s or subject’s handwriting—these are advantages enjoyed by no other method of personality study.

It is not surprising, therefore, that many psychologists and psychiatrists have advocated the use of graphological analysis in their respective fields: Schorsch (36), Alten (2), Booth (4), Gross and Bauer-Chlumberg (11), Lewinsohn (25) and Theiss (40) are only a few of the more recent advocates in this respect. But the boundlessness of the graphologist’s faith, the enormity of his claims, must make the cautious scientist hesitate. Unger’s claim, for instance, to be able to set up graphological guides for the recognition of manic-depressive insanity, epilepsy, paranoia, paresis, schizophrenia, hysteria, neurasthenia, and alcoholism (41) is liable to repel, rather than attract, the psychiatrist; similarly, Vertesi’s claim to be able to diagnose liability to cancer from handwriting (44) will not impress the expert in cancer research, nor will Kroeber-Kenneth’s view that accident-proneness can be diagnosed graphologically appeal to the industrial psychologist (19).

Suggestive results have, however, been obtained by several workers who compared certain features in the handwritings of normal people with those found in the writings of schizophrenes and manic-depressives (23), or of dementia paralytica cases (30), or who compared the pre-psychotic writings of schizophrenes with their psychotic writings (35). Paskind & Brown (39), for instance, found various significant differences in height of letters, etc., between seventy-one deteriorated and forty non-deteriorated epileptics, and between these and various control groups.

Such group-differences, however, are of little help in individual analysis. Legrin (30) showed, for instance, that when the adolescent handwritings of a number of persons who later developed psychoses (mainly schizophrenia), and also of some seventy suicides, were analysed, none of the samples showed any abnormality, or even peculiarity, which was not also found in normal adolescents. Even an already developed psychosis, he found, did not always find expression in the handwriting.
While in these studies the validating criterion was usually a psychiatric rating, much work has been done in recent years by psychologists in which an attempt was made to validate graphological analysis against the results of experimental tests. The results have been very variable. Crider(8) found an average correlation of 0·15 and 0·27 between ratings on sixteen traits of eighteen young adults by two graphologists, and by objective tests; Super(38) found no agreement between the judgements of a graphologist and the results of psychological tests on twenty-four college students; Harvey(18) found that certain aspects of handwriting could be measured very reliably, but that their validity, when checked against various psycho-neurosis and other temperament scales, was very low (he used twenty-two measurable characteristics of the writings of his subjects). The validity could be improved, however, by pooling some of these characteristics, and by calculating multiple correlation coefficients.

Stackman(37) checked an objective record of “amount of activity” of 100 students against various features of their writing, without finding any significant differences. Cantril, Rand & Allport(6, 7) found significant correlations between graphological analyses and scores on the Allport-Vernon ‘Study of Values’. While this experiment may be thought to validate the ‘type’ theory held by Spranger, on whose views the ‘Study of Values’ was built, it is interesting to note that two other studies, those by Enke(9) and by Schade(34), also claim to validate by means of checking graphological indices against objective tests the respective typological theories which are held by these writers, viz. those of Kretschmer and of Pfahler.

Intelligence tests and ratings of intelligence have been used by Hartge(15, 16) and by Simon & Schöpfeld(38) as a check on graphological analysis. Hartge’s results show a certain amount of agreement between test results and graphological analysis. Simon & Schöpfeld report a correlation of 0·33 from their study. They also gave a seventy-four item questionnaire to their subjects, to be filled in during a personal interview, and found that the graphologically determined traits were verified in 45% of the cases, were doubtful in 21%, and were wrong in 9%. In 25% of the cases the absence or presence of the trait could not be objectively diagnosed.

The ability of laymen to analyse handwritings has been studied by Theiss(40), Broom & Basinger(5), and by Middleton(21, 25, 26). Both Middleton and Broom & Basinger found that these judgements of both intellectual and temperament functions had little reliability and hardly any validity; Theiss, on the other hand, claimed that the judgements of his subjects were considerably above chance.

Certain attempts have been made to improve the objectivity of various measurements and ratings in connexion with the analysis of handwriting. Wintz(45) has constructed an apparatus which allows of the measurement of pressure and speed in writing movements at the same time; Ruesch, Finesinger & Schwab(32) suggest methods for constructing an electromyogram of handwriting which may throw some light on problems of tension and relaxation; Lewinson & Zubin(22) have constructed elaborate scales which allow of the objective measurement of various aspects of a person’s handwriting; Mira(27) has shown how certain handwriting movements can be dissected and studied in isolation and at will.

Of great interest is a study by Krueger & Zietz, summarized by Bachmann(3), because it may throw some light on the vexed problem of just why in certain studies the results are so much more favourable to graphology than in others. The investigators laid before eighty people a ‘universal’ characterization, which was recognized by every one of their
subjects as appropriate for himself! A skilled writer, therefore, even without seeing the handwriting of a subject, should be able to write a character sketch which would be recognized by the subject as describing himself.

Also of some interest, from a methodological point of view, is a study by Ostermeyer & Sterzinger(28). These investigators studied changes in the writing of eleven subjects with increasing speed, with anger, and with dissimulation. This work would be well worth repeating on a larger sample.

The thirty papers mentioned in this brief review constitute what the writer considers the most important 10 % of the studies on graphology which have appeared since the Allport & Vernon Studies in Expressive Movement(1). Their conclusions, reached after a thorough review of the experimental evidence, have in the main been confirmed by later research. “Concerning the validity of graphological analyses of personality, there is evidence that controls which are stringent and at the same time permit reasonable exercise of the graphologist’s talents, may eventually settle the problem to the scientist’s satisfaction without necessarily overwhelming the graphologist with disaster”(11, p. 211).

Unfortunately, much of the evidence as reported in the various papers quoted cannot be regarded as more than suggestive. Too frequently the controls have not been sufficiently stringent, the number of handwritings used too small to give results free from serious sampling errors, and the criteria for validation themselves too much lacking in both reliability and validity to make comparisons fruitful. In the present investigation, an attempt was made to exclude errors from the sources mentioned as far as possible by (a) adopting the most stringent controls possible, (b) using a relatively large sample of handwritings, and (c) using criteria for validation which would be more acceptable than many in common use.

II. THE EXPERIMENT

The subjects of this investigation were fifty neurotic patients (male) at the Mill Hill Emergency Hospital. For each one of these patients, a case-history and the psychiatrist’s diagnosis and personality analysis were available; these data constitute the primary validation criterion. Each man was also made to fill in a personality questionnaire in consultation with the experimenter; this questionnaire was constructed specially for the purpose in such a way that it would cover the main personality traits discovered by Guilford(22, 13, 14), and be intelligible to our patients. Also available for each man was his score on a standard non-verbal test of intelligence, the Progressive Matrices(31).

None of the writers knew the object of our study. They were asked to copy the personality questionnaire on standard, unruled white paper with a standard pen, and to write their answers behind the questions in a space previously marked off. When they had finished, the answers were detached, and the copy of the questionnaire in the patient’s handwriting was then handed over to the graphologist. She was asked to fill in the answers to each of the questions in the questionnaire for each of the patients, to give intelligence ratings for the patients on a five-point scale, to write a character sketch of each, to be matched later by the psychiatrist against the man himself, and lastly to match the writings against the data supplied by the psychiatrist and by the patients’ own answers to the questionnaire. (This last request was only made after all the other tasks had been completed, of course.) A more detailed description of these various procedures is given below, together with the results.
In addition to the four experiments mentioned, one further experiment was carried out in which ten psychiatrists and psychologists without any knowledge of graphology tried to match some of the writings against character sketches.

The graphologist, the results of whose work are reported here, was Dr O. Marum, formerly assistant in the Department of Psychology at the University of Bonn. During the first World War she worked in a mental hospital, and was thus better qualified psychologically and psychiatrically for her task than most graphologists.

(1) Method One: Questionnaire. In order to get self-assessments of the fifty patients on the major temperamental traits, they were asked to fill in the questionnaire given in the Appendix. Each question contrasts two different attitudes, ways of feeling, ways of acting, or general preferences; the subject is asked to write ‘A’ behind the question if the first alternative is the one that more nearly applies to him, and ‘B’ if the second alternative does. The patients were encouraged to elaborate on their replies by writing a fuller answer if they felt that simply writing ‘A’ or ‘B’ did not give a true picture of their feeling on the point; over 85% availed themselves of this opportunity. They were also encouraged to ask the experimenter about any difficulties that arose in understanding the exact meaning of a phrase, or about the best way of answering the question.

The questionnaire was never done by more than two subjects at a time, so that individual attention could be given to each, to ensure as far as possible that they all understood the questions properly, and answered them correctly. The answers were then checked against the clinical case-notes of the patients, or gone over with the psychiatrist in charge of the case, and the general impression was that each patient had genuinely tried to give an honest picture of himself. Indeed, many patients elaborated greatly on their answers when talking to the experimenter, and emphasized their keenness to give the correct answers.

As pointed out above, the patients were made to copy the questionnaire in their own handwriting, apart from answering it; the answers were then detached, and the fifty questionnaires, in the various handwritings, handed over to the graphologist, who in turn attempted to answer the questions for each patient. Question 18 (‘Are you a bad sleeper . . . ’) the graphologist found impossible to answer, and it was therefore omitted from the following calculations. We then have altogether 1350 judgements by the graphologist, which can be checked against the judgements of the patients. In 152 cases, the graphologist was particularly sure of her judgement, and underlined the answers.

Scores were made up according to the following system: +2 points for each correct judgement underlined; +1 point for each correct judgement not underlined; 0 points for each judgement whose correctness was ambiguous (usually because the patient would not commit himself to saying either ‘A’ or ‘B’); −1 point for each incorrect judgement not underlined; and −2 points for each incorrect judgement underlined. The number of judgements in these various groups is given in Table 1.

Taking into account only ‘correct’ and ‘incorrect’ judgements, regardless of underlining, and omitting ambiguous cases, we find that 62% ± 1.4% s.e. of the graphologist’s judgements are correct; this is significantly above chance beyond any reasonable

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1 It will be noticed that the handwriting specimens were obtained by copying, not by free writing. This was done to prevent judgements based on the writer’s method of expression, choice of words, etc. from influencing the graphologist; in free writing it is impossible to control this factor adequately. It is possible that copying produces a different kind of writing, but this has never been satisfactorily proved.
doubt. Taking into account only those cases in which the graphologist was particularly certain of the accuracy of her judgement, the percentage of correct judgements rises to 68 % ± 3.5 % s.e. Using plus and minus points, as shown in Table 1, the over-all percentage of correct judgements is 63 % ± 1.0 % s.e. These values leave little doubt that something other than chance has played a part in the graphologist's success.

We can calculate the number of points scored by the graphologist on each of the twenty-seven questions, and on each of the fifty patients. The number of points scored by the graphologist for each of the questions is given with the question (cf. Appendix). On the whole, there are 352 points above chance, or an average for each question of 13. The highest number of points for any one question is 39; the lowest −18 (‘easily startled’ and ‘ponders over past’ respectively).

The average number of points above chance scored by the graphologist on each patient is 7.04; the individual values vary from +26 to −10. Fig. 1 shows the distribution of scores for fifty persons and for twenty-seven questions respectively. It will be seen that both curves resemble a normal distribution curve, and that both extend into the region of minus scores. It seems reasonable to conclude (a) that persons vary with regard to the ease with which their handwriting may be diagnosed, and (b) that traits differ with regard to the ease with which their presence or absence may be detected from handwritings. Further evidence regarding these propositions will be presented later on.
Method Two: Intelligence test. The Matrices Test of intelligence is given as a routine test to incoming patients, and the scores were available for checking against the graphologist's estimate of the patients' intelligence. (She was told the type of test her estimates would be validated against.) The test grades subjects into five groups, from Grade I (the very bright) to Grade V (the very dull). The graphologist followed this practice by giving each of the patients an intelligence Grade from I to V, based solely on his handwriting. Table 2 shows the average Matrix Test grades of patients classified by the graphologist in Grades I–V.

<table>
<thead>
<tr>
<th>Graphologist's grade</th>
<th>Average matrix grade</th>
<th>No. of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>2.4</td>
<td>5</td>
</tr>
<tr>
<td>II</td>
<td>2.8</td>
<td>14</td>
</tr>
<tr>
<td>III</td>
<td>3.1</td>
<td>22</td>
</tr>
<tr>
<td>IV</td>
<td>2.4</td>
<td>7</td>
</tr>
<tr>
<td>V</td>
<td>3.0</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>50</td>
</tr>
</tbody>
</table>

This table shows clearly that the graphologist's opinion does not coincide with the results of the test, except in the case of patients in Grade I. Of four patients who were in that grade, the graphologist picked out three; this is definitely statistically significant ($p < 0.01$). The two patients placed by her in Grade V, however, were actually both Grade III; similarly, of those she placed in Grade IV, none was actually graded as low as that.

It appears possible that what the graphologist attempted to diagnose was not 'ability to reason in abstract terms', or to 'educate relations and correlates', but what Babcock has called 'mental efficiency'. I have discussed the problem of this distinction between 'level' and 'efficiency' of mental functioning elsewhere (10), in connexion with an analysis of the test scores of some 3000 neurotics, and believe that when graphologists talk about 'intelligence', it is the 'efficiency' aspect they deal with, rather than the 'level' aspect. (Actually, it might be more accurate to say that they combine these two aspects in proportions depending on the individual graphologist.) If this hypothesis be accepted, the lack of success of the graphologist receives an explanation which may serve to make later analyses more accurate and successful.

One point is of interest here which relates to the difference in 'ease of interpretation' of people's handwriting. In forty-one cases the graphologist was correct or one grade out in her estimation of the patients' intelligence; in nine cases she was out two or more grades. When we average the number of points the graphologist scored on these two groups of patients for the questionnaire test, the difference is very marked: the average number of points on the forty-one whose intelligence was guessed more or less correctly is 8.2, while the average number of points on the nine whose intelligence was misjudged completely is only 0.9! Thus those whose intelligence is misjudged completely are also those whose temperamental traits are judged hardly better than chance, and those whose intelligence is judged with a certain amount of success are also those whose temperamental traits are judged considerably better than chance.

Method Three: Graphologist's matchings. For each of the fifty subjects of this study were available: (a) his clinical notes, containing a personality sketch as well as an account of his illness and neurotic history, (b) his answers on the temperamental questionnaire,
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and (c) his scores on the intelligence test. The notes, answers, and scores belonging to each subject were put together and made identifiable by two code letters; names and every other means of identification were, of course, omitted. These various items of information regarding each patient will be referred to as his 'write-up'.

Ten chance samples of five write-ups each were then drawn, and the graphologist required to match, within each group, the five write-ups against the handwritings of the five patients concerned. Thus we have ten five-by-five matching problems. The results of this experiment are set out in Table 3. It will be seen that on the average 2.4 matchings were correct, as compared with a chance value of only 1. These results leave no doubt that the matchings are better than chance. The average coefficient of contingency\(^1\) is 0.46; five out of the ten coefficients are more than three times as large as their standard errors, or more than five times as large as their probable errors.

<table>
<thead>
<tr>
<th>Group</th>
<th>No. of matchings correct</th>
<th>Coefficient of contingency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>3</td>
<td>0.71</td>
</tr>
<tr>
<td>Group 2</td>
<td>1</td>
<td>0.00</td>
</tr>
<tr>
<td>Group 3</td>
<td>1</td>
<td>0.00</td>
</tr>
<tr>
<td>Group 4</td>
<td>2</td>
<td>0.45</td>
</tr>
<tr>
<td>Group 5</td>
<td>5</td>
<td>0.90</td>
</tr>
<tr>
<td>Group 6</td>
<td>1</td>
<td>0.00</td>
</tr>
<tr>
<td>Group 7</td>
<td>3</td>
<td>0.71</td>
</tr>
<tr>
<td>Group 8</td>
<td>2</td>
<td>0.45</td>
</tr>
<tr>
<td>Group 9</td>
<td>3</td>
<td>0.71</td>
</tr>
<tr>
<td>Group 10</td>
<td>3</td>
<td>0.71</td>
</tr>
<tr>
<td>Average</td>
<td>2.4</td>
<td>0.45</td>
</tr>
</tbody>
</table>

(4) Method Four: Psychiatrists' matchings. The graphologist was asked to provide a short, one-page character sketch of each of the fifty subjects. These sketches were then to be matched by the psychiatrists in charge of the various cases against the personalities of the patients. As the number of patients who had been treated by the same psychiatrist varied considerably, it was impossible to keep the numbers of cases matched by each of them the same. The matchings were not \(t:t\), as in the previous method, but \(t:t'\); in other words, one sketch was introduced into the number of sketches the psychiatrist was required to match against his patients which did not apply to any of them. Thus the psychiatrist had to match, for instance, five sketches against four patients, throwing out the one sketch which did not apply to any of his patients. This procedure, of course, makes his task considerably more difficult.

<table>
<thead>
<tr>
<th>Psychiatrist</th>
<th>Type of matching</th>
<th>No. of correct matchings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ch.</td>
<td>4 by 5</td>
<td>0</td>
</tr>
<tr>
<td>Re.</td>
<td>5 by 6</td>
<td>0</td>
</tr>
<tr>
<td>Gr.</td>
<td>4 by 5</td>
<td>1</td>
</tr>
<tr>
<td>Gr.</td>
<td>3 by 4</td>
<td>1</td>
</tr>
<tr>
<td>Gr.</td>
<td>4 by 5</td>
<td>2</td>
</tr>
<tr>
<td>Ep.</td>
<td>3 by 4</td>
<td>2</td>
</tr>
<tr>
<td>Ep.</td>
<td>4 by 5</td>
<td>2</td>
</tr>
<tr>
<td>La.</td>
<td>4 by 5</td>
<td>1</td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td>1.1</td>
</tr>
</tbody>
</table>

\(^1\) The formulae for calculating this coefficient and its f.e. are given by Vernon (42, 43). The coefficient is analogous to a correlation coefficient, and roughly identical with it except towards the upper limits.
The results of this experiment are given in Table 4. It will be seen that the matchings were less successful than those carried out by the graphologist, and are not significantly better than chance. By chance we should expect an average of 1 correct matching, as compared with an experimental average of 1.1. The reason for this difference between the results of the two experiments, apart from the greater difficulty of the t:t' procedure, is probably to be found in the fact that the cases in each particular doctor’s ward tend to show much the same syndromatic picture; consequently the differences between them are probably less pronounced than they would be in a random sample, such as was used in method three. Such homogeneity in the sample tends to lower correlations considerably in this type of experiment.

(5) Method Five: Non-graphologists’ matchings. Ten personality sketches were prepared by psychiatrists in charge of the patients in question, and divided into two groups of five each. The sketches in the two groups, called A and B, were given to ten psychiatrists and psychologists entirely (or almost entirely) ignorant of graphological principles, to be matched by them against the handwritings of the patients in the two groups. Thus we have altogether ten times two five-by-five matching problems. The results of the experiment are set out in Table 5.

<table>
<thead>
<tr>
<th>Judge</th>
<th>No. correct in</th>
<th>Set A</th>
<th>Set B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Han.</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Mar.</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Lew.</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Hal.</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Sen.</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Jon.</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Rav.</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Cha.</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Sti.</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Sto.</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td>0.5</td>
<td>0.9</td>
<td></td>
</tr>
</tbody>
</table>

On the average, the number of correct matchings given by non-graphological judges is well below chance; in Set B, the average number of correct matchings is 0.9, while in Set A it is 0.5. By chance, we would expect an average of 1 correct matching in each set. These results should be compared with the average of 2.4 correct matchings by the graphologist, in a matching problem which for practical purposes was equal in difficulty to the one presented to our non-graphological judges. Out of a possible 50 correct matchings, the graphologist obtained 24; out of a possible 100, the non-graphologists obtained 14. It must be remembered, of course, that the graphologist had more material to aid her in her matchings than did the non-graphologists (sketches, questionnaires, and intelligence rating), but it is very doubtful if the additional material was really of any great help to the graphologist, who relied mainly on the personality sketch.

On the whole, the results reported in this paper seem to point to the conclusion that it is possible for a skilled graphologist to diagnose personality traits from handwriting with better-than-chance success. It seems also probable that the handwriting of some people presents less difficulty for such an analysis than does that of others, and that some traits are diagnosed with greater success than are others. This latter conclusion seems important because of the nature of the traits which graphologists sometimes claim to be able to
diagnose, although there may be little psychological evidence for the existence of a unitary trait of that kind; compare, for instance, Saudek’s claim to be able to diagnose ‘dishonesty’ from handwriting (133, p. 376) with the results of Hartshorne & May’s experimental studies of honesty and deceit (17). Clearly, if we accept the demonstration of these authors that dishonest behaviour is largely the outcome of a specific situation, and not of a generalized trait, then any attempt to diagnose such a generalized trait from handwriting or in any other way must be doomed to failure.

Altogether, it may be said that closer collaboration of graphologists and psychologists is desirable if we are to make any real advance in this particularly obscure and difficult field of personality assessment and ‘expressive movement’.

III. SUMMARY AND CONCLUSIONS

The handwritings of fifty neurotic male Service patients at Mill Hill Emergency Hospital were analysed by a graphologist, and checked in a variety of ways against various personality indices. These included a personality analysis and diagnosis by the psychiatrist in charge of the case, a history of the neurotic illness of the patient, the patient’s answers on a personality inventory administered personally, and the results of an intelligence test. The following results were arrived at, and the following conclusions drawn:

1. Out of 1350 judgements by the graphologist, concerning certain points of the patients’ temperament and personality, 63 % ± 1.4 % s.e. were correct, as checked against the patients’ own answers. (Chance expectation = 50 %.)

2. Out of 152 judgements by the graphologist on which she felt particularly confident, 68 % ± 3.5 % s.e. were correct. (Chance expectation = 50 %.)

3. The graphologist did not succeed in predicting the intelligence gradings of the patients, with the exception of those with very superior intelligence.

4. Persons tend to differ consistently with regard to the ease with which their handwriting can be diagnosed.

5. Traits differ with regard to the ease with which their presence or absence may be detected from handwritings.

6. The graphologist succeeded in matching character sketches of the patients, and other material, against their handwritings, the average coefficient of contingency being 0.46 for ten five-by-five matchings.

7. Psychiatrists did not match character sketches written by the graphologist on the basis of the patients’ handwriting with the actual personalities of the patients with better-than-chance success.

8. Ten psychologists and psychiatrists with no, or very little, knowledge of graphology matched character sketches and handwritings with rather less-than-chance success.

9. Taken together, these results seem to show fairly conclusively that it is possible for a skilled graphologist to diagnose personality traits from handwriting with better-than-chance success.

10. Further progress in this field seems to depend largely on the close collaboration of graphologists and psychologists.

This investigation was carried out with the help of a Rockefeller grant. I am indebted to the Superintendent of Mill Hill Emergency Hospital for his permission to use the clinical material at the hospital. Lastly, it is a pleasure to record my gratitude to those
psychologists and psychiatrists whose kind assistance made the successful completion of this study possible.

REFERENCES

APPENDIX

Points

8  1. Are you more interested in sports or in intellectual things?
  2. Do you particularly dislike being "bossed", or do you generally do as you are told,
     without feeling rebellious?
  3. Do you usually "kick up hell" when you are not getting a square deal, or do you usually
     just shrug your shoulders and say: "Oh, it doesn't matter"?
  4. Do you enjoy being in a position where you can give orders, or do you dislike having such
     responsibility?

10  5. Do you consider yourself a happy-go-lucky individual, or are you inclined to worry over
    possible misfortunes?
  6. Are you inclined to stop and think things over before acting, or do you often act on
     impulse?

18  7. Are you inclined to ponder over your past, or do you rather "live for the day"?
  8. Are you rather over-conscientious in your work, or do you tend to be a bit "slap-dash"?
  9. Are you inclined to try and watch your own mind at work and analyse your motives for
     doing things, or do you consider that sort of thing rather morbid?

30  10. Do you enjoy thinking out complicated problems, such as crossword puzzles, etc., or
    do you consider such things "highbrow"?
  11. Do you adapt yourself easily to new conditions, or do you take quite some time to settle
     down?
  12. Do you get rattled easily in exciting situations (examinations or manoeuvres, for in-
      stance), or do you usually remain "calm, cool and collected"?
  13. Do you often have feelings of inferiority, or do you usually feel self-confident?
  14. Are you often troubled by feelings of self-consciousness, or do you go along happily
     without bothering much about what others will think of you?
  26  15. When you are working, are you easily distracted by things that are happening around you,
     or do you usually concentrate whole-heartedly on your work?

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16. When you are sitting or lying down, can you usually relax easily, or do you remain tense for a long time?

17. When something unexpected happens, are you easily startled, or do you remain quite unaffected?

18. Do you often sleep badly, or would you call yourself a fairly sound sleeper?

19. Would you consider yourself quick and agile in your actions, or are you rather "slow but sure"?

20. Do you often rush from one activity to another without pausing for a rest, or do you prefer having a bit of a rest before starting out on something new?

21. Do you like to talk a lot, or do you rather let the others do the talking?

22. Do you like meeting new people, or does the prospect of doing so rather upset you?

23. When you and your friends are doing something, do you usually take the lead, or do you rather fall in with other people's wishes?

24. Do you have frequent ups and downs in mood, or do you go along "on an even keel"?

25. Are your feelings easily hurt, or do you tend to remain unruffled in general?

26. Do you tend to express such emotions as delight, sorrow, anger, etc., readily, or do you feel that it would never do to exhibit your emotions publicly?

27. When you are out with friends, do you enter into the fun whole-heartedly, or do you tend to be rather quiet and withdrawn?

28. Would you like to go through thrilling experiences and adventures yourself, or do you prefer reading about them, or seeing them at the pictures?

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