

A COMPARATIVE STUDY OF THE GROUP RORSCHACH AND
THE Z-TEST WITH INSTITUTIONALIZED EPILEPTICS

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CURRICULUM STUDIORUM

The writer, Robert C. Schon, was born on the 28th of November, 1908 in Berlin, Germany. He received his B. A. degree in 1954 from Carleton College, Ottawa.

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INTRODUCTION

Both Zulliger's Z-Test¹ and Harrower's Group Rorschach² were devised during the second world war as screening devices for soldiers. In their accompanying textbooks neither of the authors mentions epileptics, although it has long been known to clinicians that epileptics are often 'negative malingerers', a term designating persons who hide a defect in order to get into positions for which they are unfit. In view of this lack of information it seemed challenging to compare the diagnostic efficacy of these tests with epileptic subjects in a study designed to test their clinical equivalence. Since the Z-Test is by far the shorter of the two - it consists of three inkblots and is supposed to take fifteen minutes to administer, against the Group Rorschach's ten inkblots and forty-five minutes testing time - proof of clinical equivalence would tend to make it the screening instrument of choice.

After the above presentation of the problem, this thesis will, in its first chapter, reformulate the problem in other

¹ Hans Zulliger, Der Z-Test, Bern, Hans Huber, 1945, 72p.

² M. R. Harrower and M. E. Steiner, Large Scale Rorschach Techniques, Springfield, Illinois, Charles Thomas, 1951, XX, 353 p.

terms, describe the two tests - one of which is relatively new and unknown -, review the literature, and formulate a hypothesis. During the review of literature the various ways in which clinicians define epilepsy will be given; also observed forms of replies in which epileptics may be expected to express their peculiar reactions to the tests will be mentioned with a view to arriving at scoring criteria.

In the chapter on experimental design all the population and sampling data pertinent to this study will be given and discussed, the scoring criteria chosen and defined, and the statistical methods - used to evaluate the scores as well as to test the hypothesis - will be presented.

Next will come a description of the experimental procedure, with subdivisions on tools, technical preparation, and the administration of the tests.

The final chapter will serve to tabulate, inter-compare, and compute the test scores by means of statistical techniques, in order to arrive at a decision whether the hypothesis will be accepted or rejected. A discussion of that decision and of corollary findings will conclude the chapter.

In the summary and conclusions the inferences arrived at by the experimental findings will be presented and discussed. Recommendations for further research will be made.

CHAPTER I

PRESENTATION OF THE PROBLEM

The purpose of this chapter is to outline the problem, to describe the tests to be used, and to give the reasons for so doing. Next the literature will be reviewed, diagnostic categories listed and, finally, the hypothesis stated.

1. The Problem

Time economy is important in psychological diagnostic testing and it can be achieved in two ways: First, by giving a short test; second, by administering a test to a group. The purpose of this study is to use both these principles of economy simultaneously, by attempting to determine, whether the Z-Test, which consists of three ink blots, and the Group Rorschach, which consists of ten ink blots, are equally effective in helping to diagnose hospitalized symptomatic and idiopathic epileptics.

2. Description of the Tests

The Z-Test is relatively new and comparatively unknown on the North American Continent. It should therefore

be briefly described, in close conformity with the description its author gave it. Z-Test is the abbreviated name for Zulliger Test. Hans Zulliger, of Bern, Switzerland, originated this test for the Swiss Army during the 1939-45 war for testing groups of from twelve to sixty people. Its purpose was selection and screening; it enabled the psychologist to determine which persons are suitable for certain purposes, both from the point of view of character and intellect, which ones should be tested further, and which ones should be eliminated. The Z-Test apparatus consists of three ink blots, in the form of lantern slides. They were chosen as follows:

Out of six hundred ink blots, at first four were selected. They fulfilled certain conditions.

They were tried on a large sample and then compared with the corresponding individual tests (Rorschach or Behn test) of each person in the sample. Certain deficiencies became apparent in this series of four ink blots. Therefore, two further ink blots were chosen from a new series of 400 ink blots, because they stimulated the subject to kinesthetic responses. Next, this series of six was again tried on a considerable number of subjects, and proved useful.

The attempt was made to reduce it to three ink blots and practical application showed that this series was useful as well.

The final testing apparatus today consists of three ink blots; they have been standardized alongside with the Rorschach and the Behn series by means of a large sample, (800 subjects) and they have shown to be reliable.¹

Apparently the Z-Test proved to be of value when employed in a battery of tests by the Swiss Army. Subsequently Zulliger and his co-worker used the Z-Test extensively for aptitude work and clinical diagnosis.

Zulliger claims:

The Z-Test is an instrument for the rough and speedy evaluation of the degree of intelligence, the character silhouette and possible gross pathological character deviations of subjects within a group.²

Later, upon the instigation of Heiss,³ Zulliger made a Z-Plate-Test with the same three ink blots, to be used for testing individuals. Scoring of both Z-Test and Z-Plate-Test are similar to the original Rorschach scoring method, the difference being (translated into Klopfer's notations) that Fk and cF are scored with additional F, and K with additional

¹Hans Zulliger, The Z-Test, Bern, Hans Huber, 1945 p. 11-12. (translation by R.C.S.).

²-----, Op. Cit., p.6.

³Institute for Psychology & Characterology at the University of Freiburg, Germany, Director: Robert Heiss.

F-minus in order to make the 'Form' determinant come out properly.⁴

Zulliger describes the stimulus value of these three plates as follows:

Plate I.

The first plate is held in black-white tones. It provokes a whole interpretation (W) and elicits a shading shock in certain subjects ... The plate facilitates obstructive and kinesthetic concepts. It easily evokes one reply which 33 out of 100 subjects gave and which we call a popular reply similar to the popular replies of the Rorschach and Behn tests.

Plate II.

This plate is chromatic. A double red spot in the centre is very prominent and should normally evoke the first interpretation, a kinesthetic one... or equally frequently a color interpretation... the two green spots on the outside are often seen as plants... the two brown spots are easily seen as animals... inside the red is a very distinct white space form (S). Experience has shown that if the subject gives this S as his first interpretation to Plate II, this corresponds to a color shock... Most subjects do not find it easy to give a whole (W) interpretation to Plate II. In case such a response is given, it is indicative of urge towards abstraction and combination and may at times show a talent for abstraction and combination... Usually Plate II is interpreted as discrete areas, (D).

⁴Hans Zulliger, Op. Cit., p. 22 and 67.

Plate III.

This plate is held in red and black. It can be interpreted as whole (W) more easily than Plate II, but with greater difficulty than Plate I. Depending upon the reply, subject's talent for combination which may have been hypothesized, as a result of answers to Plate II, may either be emphasized or reduced... In this way, the three Plates control each other.

The stimulus value of Plate III easily provokes kinesthesia. If subject is capable of seeing the black spots as humans, we may interpret kinesthesia in analogy to Rorschach Plate II⁵

Like the Rorschach ink blots, those used by Zulliger are "Zufallsbilder" (chance pictures). They were not drawn or painted. They are genuine ink blots, without touch up.

Harrower⁶ adapted the Rorschach to two different group tests at about the same time that the Z-Test was made.

⁵Hans Zulliger, Op. Cit., p. 14-15.

⁶M. R. Harrower and M. E. Steiner, Large Scale Rorschach Techniques, Springfield, Illinois, Charles Thomas, 1951, XX, 353 p.

She made lantern slides from the ten original Rorschach plates; but while in one version (called Group Rorschach), the testee had to write his replies on paper, the other version (called Multiple Choice Rorschach) made use of printed series of answers, from which the testee chose the ones he found most fitting. In this study Harrower's Group Rorschach was chosen because it is more similar to the Z-Test than the Multiple Choice Rorschach.

3. Rationale for Using Group Ink Blot Tests for Diagnosing Hospitalized Epileptics.

There is a noteworthy difference between the manner of creative approach used by the two authors: Zulliger originally designed his Z-Test for groups⁷ and later adapted it for individuals;⁸ the reverse holds true for Harrower's Group Rorschachs. Hence the Z-Test may be more sensitive than the Group Rorschach, and this study may throw some light on this assumption. As an increasing amount of experimental work about typical Rorschach responses by epileptics is being pub-

⁷Hans Zulliger, Op. Cit.

⁸-----, Der Tafeln - Z-Test (The Z Plate Test).
Bern, Hans Huber, 1954, 259 p.

lished, any diagnostic precision allegedly reached therein should show up in such relatively crude devices as group tests, and most markedly in the most sensitive ones.

Zulliger states that it takes about forty-five minutes to administer the Group Rorschach and about fifteen minutes to give the Z-Test.⁸ Furthermore he seems to have found that because of their high stimulus value his three inkblots elicit proportionally more replies from normal subjects than Rorschach's ten.⁹ It seems doubtful that his latter assertion will be confirmed when institutionalized epileptics, who are likely to give impoverished protocols, are used. But if this experiment showed that the two tests give equivalent and proportional results, the saving in time alone would militate in favour of the Z-Test, - and the investigation of Zulliger's claim that his test is more sensitive than the Rorschach could be left to another experiment.

The Group Rorschach has been criticised by some authors, notably Ainsworth on the grounds that the "Interpretative

⁸Hans Zulliger, Op. Cit., p.6.

⁹-----, "Die Empfindlichkeit des Z-Tests (The Sensitivity of the Z-Test)", in Studien zur Diagnostischen Psychologie, No. 2, Untersuchungen zum Z-Test, Biel (Switzerland), Institut fur Psycho-Hygiene, 1953, p. 5-10.

hypotheses formulated on the basis of individual administration cannot be assumed to be applicable automatically to Group methods.¹⁰ This means that if a diagnostic pattern for epilepsy has been established by means of the Rorschach, it does not necessarily hold for the Group Rorschach. Whether the same is true for the Z-Test remains to be seen. Zulliger, who may be assumed to be aware of the problem makes no reference to it in either of his text books. It may or may not be significant that in his text book on the Z-Test¹¹ he does not mention an epileptic pattern, while in that for the Z-Plate-Test¹² he cites two cases of epilepsy which he successfully diagnosed. In other words, there may be some doubt in Zulliger's mind about the diagnostic accuracy of the Z-Test for detecting epileptics within a group, but he does seem confident that the Z-Plate-Test will show them up. For the purpose of this study it means that this field has not yet been investigated.

¹⁰~~Harry D. Answorth~~, Bruno Klopfer et al., Developments in the Rorschach Technique, Volume 1, Yonkers, N.Y. World Book Company, 1954, p. 465.

¹¹Hans Zulliger, Op. Cit.

¹²-----, Der Tafeln-Z-Test, (The X-Plate-Test), Bern, Hans Huber, 1954, p. 259.

4. Review of Literature.

Literature on epileptics diagnosed by means of either the Z-Test (group) or the Z-Plate-Test (individual) is scant. Zulliger, as mentioned before, cites two individual cases of true epilepsy and one of pseudo (hystero) - epilepsy.¹³ In a letter to Zulliger by the experimenter¹⁴ information about identical or similar studies, either in progress or already published, was requested. His reply¹⁵ which was accompanied by a bibliographical list and several reprints, indicated that the only comparative study between the Z-Test and the Rorschach Test has been carried out by Spitznagel,¹⁶ who applied it to senile dementia. Although the latter did not use group tests but individual tests, his methods of comparison have had a stimulating effect upon the experimental design of this study.

At the time of inception of the Group Rorschach, Harrower was a member of a research team, headed by Penfield, at the Montreal Neurological Institute who investigated the problem of

¹³Hans Zulliger, Der Tafeln-Z-Test, (The Z-Plate Test) Bern, Hans Huber, 1954 p. 214-218.

¹⁴Appendix 1.

¹⁵Appendix 2.

¹⁶Albert Spitznagel, "Senile Demenz im Z-Test (Senile Dementia in the Z-Test)", in Studien zur Diagnostischen Psychologie, No. 2, Untersuchungen zum Z-Test, Biel (Switzerland), Institut für Psycho-Hygiene, 1953, p. 41-75.

focal epilepsy and published a manual thereon,¹⁷ Harrower writing chapter XX thereof, wherein the Rorschach plays a major role. It could therefore be expected that when experimenting simultaneously with her Group Rorschach tests she would devote some space to Group Rorschach studies of epileptics in her publications. In their manual for the Group Rorschach and for the Multiple Choice Test, however, Harrower and Steiner¹⁸ mentioned epileptic patterns only for the latter method, which was not used in this study. Therefore they have limited significance only for this case, because they pertain to a choice of ready made answers and leave no room for individual formulations. This limitation is further enhanced by the following quotation:

In summary, it can be said that organics and convulsives of various types are poorly differentiated from each other in the "Multiple Choice Test, but that the degree of abnormality shown by them on the test sets them apart for further attention and evaluation.¹⁹

The authors' lumping together of organic and convulsive states is largely due to the fact that the majority of epileptics coming to the Montreal Neurological Institute were candidates for neuro-surgery, i.e. showed definitely localized cortical pathology. Such cases form only a fraction of the epileptic

¹⁷Wilder Penfield and Theodore C. Erickson, Epilepsy and Cerebral Localization, Springfield, Illinois, Charles C. Thomas, 1941, X, p.623.

¹⁸M.R. Harrower and M.E. Steiner, Op. Cit.

¹⁹~~Sidem~~ Op. Cit., p.199.

population, as this review of literature and the diagnostic stratification of the sample under investigation should show. A reply pattern given by a minority need not be typical for the population.

Literature dealing with characteristic Rorschach responses of epileptics is comparatively abundant, but a survey shows, as it does so often in psychological diagnostic testing, that there is only scant agreement among workers as to what is an unequivocal combination. There is a wide diversity of opinion, which mostly revolves around the question of diagnostic categories; a lively argument goes on between the typological school of thought which tends to postulate a constitutional epileptic personality and the neuro-physiological camp, which favors organic and environmental factors as causes of epilepsy. Bovet, Stauder and Minkowska, whose work will be mentioned presently in more detail, are typical exponents of the former; Harrower, as a pupil of Penfield, represents the latter line of argument.

The literature on the Rorschach pattern for epileptics has been reviewed by Delay et al.²⁰ They published three papers: I. The Epileptic Personality; II. Review of Literature; III. Personal Researches.

²⁰Delay J., Pichot P., Lempérière T., Perse J., "Le Test Rorschach dans l'Epilepsie (The Rorschach Test in Epilepsy)", in L'Encephale, Vol. 43, No. 4 and No 6 (No months) 1954 p.347 - 378 and 535-562; also Vol. 44, No.1(No month), 1955 p. 46-56.

At the end of their first paper they arrived at a synthesis between the two theoretical opponents by stating that all authors agreed on the following personality traits of epileptics: explosive impulsivity, viscous affectivity, egocentricity, and the reviewers concluded to the possibility of a Rorschach pattern which they hoped to uncover.

In their second paper, under sub-section A, Delay et al. reviewed seventy-one pertinent publications, which they reduced to thirty-eight because of various methodological defects. In sub-section B they gave a methodological critique of these remaining thirty-eight articles, and brought their selection down to twenty-three. Sub-section C was an attempt at synthesis and the reviewers asked themselves a number of questions:

1. Does the adult epileptic of normal intelligence give a normal Rorschach protocol? Their answer was no because of a lowered creative level, an unfavourable ratio between aptitude and ambition, impoverished inner life, emotional instability (egocentricity and impulsiveness), and lack of conformity with social norms.

2. Can these results be fully explained by the adult epileptic's reaction to his illness? Again the answer was no, because Linsanky's²¹ comparative study of the emotional reac-

²¹E.S. Lisanky "Convulsive Disorders and Personality", in Journal of Abnormal and Social Psychology, Vol. 43, No 1, issue of Jan. 1948, p. 29-37.

tion pattern of ten diabetics and ten epileptics gave no statistically significant results.

3. Is a differential Rorschach diagnosis possible between epileptics and neurotics? The reviewers concluded that research had not produced convincing evidence.

4. Are the adult epileptic's personality changes due to organicity? Research published by the neurophysiological school of Penfield, Erickson, Jasper, Harrower^{22,23} and others seemed to answer this question in the affirmative.²⁴

5. Are the personality changes of the adult epileptic partially linked to hereditary factors? The publications of two protagonists of this school of thought, Bovet²⁵ and Stauder,²⁶ show poor experimental design and bring no statist-

²²Wilder Penfield and Theodore C. Erickson, Op. Cit.

²³----- and Herbert Jasper, Epilepsy and the Functional Anatomy of the Human Brain, Boston, Little Brown & Co., 1954, XV, 896 p.

²⁴This question may still be considered open since these authors studied only a limited sector of the epileptic population, i.e. those showing cortical foci.

²⁵T. Bovet, "Der Rorschachversuch bei verschiedenen Formen der Epilepsie, (The Rorschach Test in Different Forms of Epilepsy)", in Schweizerisches Archiv für Neurologie und Psychiatrie, Vol 37, No. 1, (no month) 1956, p. 156-157.

²⁶K.H. Stauder, Konstitution und Wesendänderung der Epileptiker, (Constitution and Personality Changes of the Epileptics), Leipzig, G. Thieme, 1938, X, 196 p.

ically significant evidence. The reviewers conclude that their fifth question must remain open until more convincing experimental evidence has been produced.

6. Do the personality changes of the adult epileptic fall into a pattern? Two independent investigators, Brunn and Brunn²⁷, and Massignan,²⁸ seem to have found two types of epileptics; the one type was described as a 'dilated personality' and socially maladjusted, the other as 'coarctated' and socially fairly well adjusted. The experimentation of the reviewers appears to confirm the existence of these two types.

7. Are the personality changes of the adult epileptic linked to etiological and clinical categories? On the one hand, according to Zimmermann et al.²⁹ the intellectual level of adult epileptics decreases with the presence of the following symptoms: Grand Mal (idiopathic), Petit Mal (idiopathic),

²⁷R.V. Brunn and W.-L.V. Brunn, "Die Epilepsie im Rorschach Formdeutversuch, (Epilepsy in the Rorschach Test)", Archiv für Psychiatrie und Zeitschrift für Neurologie, Vol 184, (no number, no month) 1950, p. 545-578.

²⁸L. Massignan, "Epilessia e Rorschach, (Epilepsy and Rorschach)", in Rivista di Patologia Nervosa e Mentale, Vol 74, No. 1, (no month) 1953, p. 17-83.

²⁹F.T. Zimmerman, B.B. Burgemerster, and T.J. Putnam, "Intellectual and Emotional Makeup of the Epileptic," in Archives of Neurology and Psychiatry, Vol 65, No 5, issue of May, 1951, p. 545-556.

Grand Mal and Petit Mal (idiopathic), traumatic epilepsy and symptomatic epilepsy. These authors also conclude that the lower the original level of intelligence the more abnormal the personality becomes as a result of epilepsy. - On the other hand, a number of experimenters, too numerous to quote in this study, but which the reviewers examined in detail, claim that persons afflicted with psychomotor epilepsy show more marked personality deviations than idiopathics. The reviewers have culled a list of Rorschach signs typical for psychomotor epileptics, namely perseveration, long time per reply, either coarctated or explosive, (with color naming), remarks about the symmetry of each plate, personal asides, and lowered F plus percent.

8. What roles do psychosis, dementia and ologophrenia play in the personality deviations of adult epileptics? The reviewers find no conclusive answer to this question to date.

In their third paper Delay et al. attempt to demonstrate that in their sample of fifty epileptics, with mean supranormal intelligence, twenty-three of which were classified as 'organics', thirteen as 'essentials' and fourteen as of unknown etiology, the Rorschach protocols could be grouped in two categories, independent of each other, but related in different ways to the clinical criteria. They found a link

between intelligence and the first category, characterized by the presence of Piotrowski's³⁰ Rorschach signs for organics and epileptics; but the intellectual level appeared unrelated to the second category, characterized by the criteria 'experience type' and Minkowska's³¹ 'link' sign. Character disorders were closely related to the second and unrelated to the first category. In their summary the authors say that, first, Piotrowski's signs permit the positive diagnosis of epilepsy: sixty-eight percent of their subjects showed five or more of these signs, which was more than the average found in neurotics. Since the diagnostic value of these signs was maintained in all types of epilepsy, irrespective of diagnostic category and of intellectual level - (in fact, Delay et al. claim that the Piotrowski signs became more prominent with progressing mental

³⁰Z.A. Piotrowski and D.M. Kelley, "Application of the Rorschach Method in an Epileptic Case with Psychoneurotic Manifestations", in Journal of Nervous and Mental Disease, Vol. 92, No 6, issue of Dec., 1940, p. 743-751.

³¹F. Minkowska, "L'épilepsie essentielle, sa psychopathologie et le test Rorschach, (Essential Epilepsy, Its Psycho-pathology and the Rorschach Test)", in Annales Médico-Psychologiques, Vol. 2, No. 4, issue of Nov. 1946, p. 321 - 355.

deterioration) - this finding became crucial in the present study, where relatively stable criteria of comparison were essential and where the intellectual level of the sample was bound to be below average.

Second, aside from the organic component of the epileptic personality, there exists a second dimension, by means of which two poles can be opposed, two types of personality, both abnormal, but in a different sense.

At the first pole cluster the coarctated subjects, at the opposite pole the extratensive ones. Minkowska's 'link' sign is characteristic of the latter."³²

After having read the original papers of Brunn and Brunn,³³ and of Massignan,³⁴ there can be no doubt but that Delay's two categories or poles are identical with the two types of the above authors, although Delay et al. never mention this.

Clinically this category corresponds to the subjects with behaviour problems of the impulsive-explosive variety. While the coarctated subjects are socially well adapted and show no character disorders, the extratensives show poor social adaptation and explosive impulsivity.

³²Jean Delay et al., Op. Cit., p. 54 (translation R.C.S.)

³³R.v.Brunn and W.L.v. Brunn, Op. Cit.

³⁴L. Massignan, Op. Cit.

While the organic signs permit positive diagnosis of epilepsy, the signs sum C greater than two and 'link' permit the diagnosis of character disorders. Among our patients the two poles correspond to different clinical and etiological categories. Idiopathic epileptics are generally coarctated, traumatic epileptics generally extensive.³⁵

Although the present study deals with the comparison of two tests Delay's work is important for two reasons; First, he establishes a good rationale for the use of certain Rorschach signs as criteria of comparison for the two types of test protocols which this experiment produced. An example may clarify this statement: If both the Rorschach and the z protocol of a given patient shows the sign 'perseveration', both tests may be deemed of equal diagnostic value because they made the examiner consider epilepsy a possible diagnosis. Second, it tends to confirm the accepted diagnostic categories of idiopathic and symptomatic epilepsy, which were therefore chosen as sampling criteria in this study. Third, various statements of these authors influenced this experimental design.

³⁵Jean Delay et al., Op. Cit., p. 55-56,
(translation R.C.S.).

5. The Hypothesis.

On the strength of this investigation into the primary research sources of the problem at hand the following hypothesis was made: The Group Rorschach and the Z-Test are equal diagnostic screening devices for epilepsy because, when administered to a stratified sample of institutionalized epileptics, some characteristic types of replies will appear with similar frequency, and the proportion of the mean number of replies will be as ten to greater than three. - The design of an experiment to test this hypothesis will be described in the next chapter.

CHAPTER II

EXPERIMENTAL DESIGN

In this chapter the population and the sample will be described and discussed and some of the sampling data tabulated. Next, scoring, scoring criteria and statistical evaluation of test results will be explained.

1. The Population and the Sample

The population consisted of 641 epileptic patients in custodial care at the Ontario Hospital, Woodstock, from which fifty males and fifty females were chosen according to the following criteria: a. physical and mental ability to take part in a group test; b. diagnosis; c. age; d. intelligence quotient; e. amount of anticonvulsant sedation.

After the crippled, maimed, violent and deteriorated subjects, as well as those who could not express themselves in either English, French or German had been eliminated through physical inspection and through discussion with staff members, the choice of the sample became a laborious process inasmuch as E.E.G. records did not always corroborate clinical data. In some instances the case histories compiled from clinical data

were incomplete or inaccurate, thus necessitating a meticulous search through all available files for supplementation or correction. In other cases the E.E.G. records were ambiguously worded. This was especially true of the first thousand E.E.G. records made at this hospital. Once these two sources of error had been recognized, a time consuming process of collation and counter checking was set up with the help of both the medical and E.E.G. departments. A total of one hundred and forty-eight cases was thus reviewed in order to make sure that one hundred would remain after eliminating the doubtful ones. Of the one hundred and forty-eight, twelve dropped out for such reasons as acute sickness, probation, or discharge. Only one hundred and thirty-six patients took the test. Twelve test protocols could not be used because some patients had seizures during the session; others refused or were unable to answer (complete or partial "rejection" of various types). In order to reduce the one hundred and twenty-four "good" protocols to one hundred, twenty-four protocols of patients with the lowest I.Q. were omitted. Table I shows the distribution of patients according to age and sex in the various diagnostic categories.

Table I. - Range, Mean and Standard Deviation (S.D.) of Age of Epileptic Subjects, Distributed According to Diagnosis and to Sex.

| Diagnostic Categories | | | |
|-----------------------|-------|-------------|------------|
| Statistic | All | Symptomatic | Idiopathic |
| Total n | 100 | 50 | 50 |
| Age range | 17-74 | 18-61 | 17-74 |
| Age mean | 37.9 | 38.2 | 37.6 |
| Age S.D. | 14.1 | 13.4 | 14.8 |
| Male n | 50 | 25 | 25 |
| Age range | 18-68 | 18-61 | 19-68 |
| Age mean | 40.9 | 41.7 | 40.1 |
| Age S.D. | 13.6 | 14.3 | 12.9 |
| Female n | 50 | 25 | 25 |
| Age range | 17-74 | 20-57 | 17-74 |
| Age mean | 34.9 | 35.3 | 34.5 |
| Age S.D. | 15.0 | 13.0 | 17.0 |

Of the fifty symptomatic cases, thirty-five had clinically established brain damage while fifteen showed focal abnormality in their E.E.G. records as well as clinical data suggesting cerebral pathology. Among the fifty idiopathics only twenty-three showed the classical syndrome, which the French call 'essential epilepsy', corroborated by E.E.G. records of three per second spike and wave patterns. The remaining twenty-seven belonged to the borderline group with some E.E.G. evidence of focal discharge but no clinical evidence of brain pathology, which the physiological school of thought one day hopes to prove identical with the symptomatic-organic group. This additional stratification was done in order to avoid experimenting with an amorphous sample; for, too many Rorschach studies of epileptics have presented divergent interpretations, because their authors failed to take into consideration the many factors which determine the diverse clinical modalities of epilepsy, thus basing their doubtful conclusions on a heterogenous sample.

Although the intention was to keep the level of intelligence of the sample as high as possible, it turned out to have a mean I.Q. of only eighty-four, with a standard deviation of 13.8. A breakdown is given in Table II. The fact that hospit-

alized epileptics generally show a depressed intellectual level has handicapped the study of the epileptic psyche. For instance Harrower¹ claims that mental deficiency becomes so overwhelming a factor in the psychology of the epileptic that no clear picture can be obtained as to what factor is responsible for what reaction. This opinion, which was criticised before, need not materially affect the outcome of this study where the problem of epilepsy is secondary to that of comparing two group tests. Had students of the epileptic personality discovered definite Rorschach response patterns for epileptics with normal or higher intelligence and been able to show conclusively that this pattern is lost in all epileptics with sub-normal intelligence, little diagnostic value could henceforth be expected from ink blot test replies of hospitalized epileptics, whose average intelligence is known to be sub-normal. But such evidence does not appear to exist.

¹M. R. Harrower and M. E. Steiner, Large Scale Rorschach Techniques, Springfield, Illinois, Charles Thomas, 1951, p. 198-199.

Table II. - Range, Mean and Standard Deviation (S.D.) of Intelligence Quotients of Epileptic Subjects, Distributed According to Diagnosis and to Sex.

| Statistic | Diagnostic Categories | | |
|------------|-----------------------|-------------|------------|
| | All | Symptomatic | Idiopathic |
| Total n | 100 | 50 | 50 |
| I.Q. range | 36-114 | 36-101 | 50-114 |
| I.Q. mean | 84 | 78 | 90 |
| I.Q. S.D. | 13.8 | 13.8 | 13.8 |
| Male n | 50 | 25 | 25 |
| I.Q. range | 54-113 | 54-100 | 68-113 |
| I.Q. mean | 88 | 82 | 94 |
| I.Q. S.D. | 12.6 | 11.4 | 13.2 |
| Female n | 50 | 25 | 25 |
| I.Q. range | 36-114 | 36-101 | 50-114 |
| I.Q. mean | 80 | 75 | 85 |
| I.Q. S.D. | 15.0 | 16.2 | 13.8 |

Table III. - t - Testing Statistical Significance
Between Mean I.Q.'s ($\bar{I.Q.}$) of Stratified Sample.

| Statistic | Stratified Sample | | | |
|-------------------|-------------------|-------------|------------|------------|
| | All Males | All Females | All Sympt. | All Idiop. |
| <u>n</u> | 50 | 50 | 50 | 50 |
| I.Q. | 88 | 80 | 78 | 90 |
| S.D. | 12.6 | 15.0 | 13.8 | 13.8 |
| S.E.M. | 1.8 | 2.1 | 1.97 | 1.97 |
| S.E. Diff. | | 2.8 | | 2.78 |
| t | | 2.86 | | 4.3 |
| t _{0.01} | | | 2.63 | |

Tables II and III show that the mean I.Q. of the males is 88, while that of the females is 80. This difference is statistically significant at the ninety-nine percent level of confidence and seems to confirm a trend already found in Angers'² research on the intelligence of this hospital's population. The idiopathics showed significantly higher intelligence than the symptomatics in this sample as well as in Angers', which is probably due to the fact that since there are fewer symptomatics than idiopathics in the whole³ as well as in this hospital's population, there were more idiopathics with a high I.Q. to chose from.

The amount of anticonvulsant sedation which epileptics have to take as a daily routine, similarly to diabetics taking insulin, influences their mental acumen and may, therefore, affect the test results. The answers of a sleepy individual may differ both quantitatively and qualitatively from those of an alert person. Table IV shows not only the anticonvulsant sedation

²William P. Angers, A Psychometric Study of Institutionalized Epileptics on the Wechsler-Bellevue, Unpublished Doctoral Thesis at the Institute of Psychology, The University of Ottawa, 1955, p. 52.

³The Merck Manual of Diagnosis and Therapy, Rahway, N.J., Merck & Co., Inc., 1950, on page 949 states that the proportion is 1:3.

rate of the stratified sample, but the mean I.Q. of the various subgroups were juxtaposed for comparison. Incidentally, the sedation rate of the sample, distributed according to a three point rating scale was set up with the help of the medical director of this hospital: anything below three grains of phenobarbital and/or mesantoin per day per patient was considered light sedation, anything between three and six grains was called medium sedation and anything above six grains, maximum $10\frac{1}{2}$ grains, was termed heavy sedation.

Table IV. - Anticonvulsant Sedation Rating Scale of Epileptic Subjects, Distributed According to Diagnosis and to Sex, Compared to Their Mean Intelligence Quotient.

| Anticonv. Sedation Sample size | All Sample size | Diagnostic Categories | | | | |
|--------------------------------------|--------------------|-----------------------|-----------------------------|----------------------------|--------------|------|
| | | Mean I.Q. | Symptomatic Mean I.Q. | Idiopathic Mean I.Q. | Mean I.Q. | |
| Total n | 100 | | 50 | | 50 | |
| Light ¹ | 28 | 83.8 | 13 | 75.8 | 15 | 91.9 |
| Medium | 51 | 83.8 | 28 | 72.6 | 23 | 94.5 |
| Heavy | 21 | 84.5 | 9 | 84.9 | 12 | 84.1 |
| Male n | 50 | | 25 | | 25 | |
| Light | 18 | 90.9 | 9 | 86.5 | 9 | 95.4 |
| Medium | 23 | 83.6 | 12 | 77.8 | 11 | 89.3 |
| Heavy | 9 | 86.8 | 4 | 81.0 | 5 | 92.5 |
| Female n | 50 | | 25 | | 25 | |
| Light | 10 | 76.7 | 4 | 65.0 | 6 | 88.4 |
| Medium | 28 | 77.7 | 16 | 67.4 | 12 | 88.0 |
| Heavy | 12 | 82.3 | 5 | 88.8 | 7 | 75.7 |

¹Light: less than 3 grains of sedation per patient.
 - Medium: between 3 and 6 grains of sedation per patient per day.
 - Heavy: more than 6 grains of sedation per patient per day.

The fact that sedation of males was lighter than that of females suggests the existence of a link between sedation rate and I.Q., because the mean I.Q. of the males in this sample was found to be significantly higher than that of the females. A second look at Table III shows, however, that no consistent pattern of decreasing I.Q. with increasing sedation seemed to emerge. A positive correlation probably exists between the quantity of epileptogenic brain tissue and the amount of anticonvulsant medication needed to control seizures; but there appears to be no connection between anticonvulsant sedation rate and I.Q., because someone with low I.Q. may have little epileptogenic brain tissue, thus needing low medication, while another person with high I.Q. may need a heavy dose because of extensive brain pathology. Deterioration, or the difference between an individual's intelligence and his present level of mental functioning, has only a tenuous connection with the problem of this study and tends to distract from the main issue.

2. The Method

The description of the method used in this experimental design will come under a number of subheadings: - Testing

Sessions, Method of Scoring, Testing the Hypothesis, and Statistical Method.

a. Testing Sessions

These were arranged so as to eliminate practice effects between the two tests. Table V shows how the sessions were scheduled.

Table V. - Arranging Testing Sessions of Epileptic Patients to Eliminate Practice Effects and to Ensure Segregation of Sexes.

| Testing Sessions | Idiopathics | Symptomatics |
|-------------------|-------------|------------------|
| Total Patients | 68 | 68 |
| First | | |
| Number of ps. | 17 | 17 |
| Sex of ps. | | male |
| Sequence of tests | | Ro followed by Z |
| Second | | |
| Number of ps. | 17 | 17 |
| Sex of ps. | | male |
| Sequence of tests | | Z followed by Ro |
| Third | | |
| Number of ps. | 17 | 17 |
| Sex of ps. | | female |
| Sequence of tests | | Ro followed by Z |
| Fourth | | |
| Number of ps. | 17 | 17 |
| Sex of ps. | | female |
| Sequence of tests | | Z followed by Ro |

Thus half of the sample was given the Group Rorschach followed by the Z-Test; for the other half the order was reversed. Segregation of the sexes was adhered to in conformity with hospital rules.

b. Method of Scoring

(1) Coding the Protocols

All protocols were coded by a staff member other than the experimenter to insure the latter's blind interpretation of protocols. Rorschach and Z protocols, which were kept separate, had each a different series of code numbers.

(ii) Choosing Scoring Criteria

This study is a comparison of two screening devices which should be essentially short to administer, to score and to interpret. The individual Rorschach is notoriously time consuming in these three respects when exploited to its maximum diagnostic potential. However, if an expert is asked to make an on-the-spot interpretation of an unscored Rorschach protocol he may attempt a content analysis. Content analysis, then, seems the method of choice in evaluating a screening protocol.

With these considerations in mind, which, then, of the 'content' responses mentioned in the Rorschach literature as

typical of epileptics should be chosen as criteria for this study? Not only is there no clear-cut answer to be found in the literature, but use of group technique restricted the choice to such signs as would be clearly brought out in the subject's written answers. This eliminated 'Reaction Time', and 'Asides', and 'Constant Need for Reassurance', because in a group setting the experimenter cannot record them. 'Total Number of Replies', as part of the hypothesis, must needs become a criterium. 'Perseveration' which, together with 'Hostility', got a tacit majority vote by the Rorschach experts, were accepted because they would probably show up in the subject's written formulations.⁴ Less popular with the experts was Minkowska's⁵ 'Link' sign, but since Delay⁶ makes frequent and successful use of it and because it would likely be detected in a written statement, it was included. Excluded was 'Con-

⁴Jean Delay et al. "Le test Rorschach dans l'épilepsie, (The Rorschach Test in Epilepsy)", in *L'Encephale*, Vol. 43, No. 4, (no month) 1954, p. 375.

⁵F. Minkowska, "L'épilepsie essentielle, sa psychopathologie et le test Rorschach, (Essential Epilepsy, Its Psychopathology and the Rorschach Test)", in *Annales Medico-Psychologiques*, Vol. 2, No. 4, issue of November 1946, p. 321-355.

⁶Jean Delay et al., *op.cit.*, Vol. 44, No. 1, (no month), 1955, p. 46-56.

fabulation', because this sample contains no patients with a tendency to psychotic episodes.

This may be the place to explain what the chosen criteria imply. 'Perseveration' denotes an individual's propensity to respond to a variety of successive stimuli in a repetitive and stereotyped manner. In the present case the projected image of a certain inkblot would seem to linger longer than normal in the percipient's mind and his response to it would tend to be carried over into subsequently shown inkblots. Such an individual is probably mentally so rigid that he is unable to break free from one chain of associative thoughts and to form another when a new stimulus occurs.⁷

In this study perseveration will probably appear in the following variations: writing superfluous introductory phrases such as "I would say it looks like..." or "slide number..." in every reply; repeated epithets like "a bunch of..." or repeated adjectives like "little". Repetition of content from plate to plate, with or without variation, e.g. seeing a bat in every blot; or going from "bat" via "flying squirrel" and "butterfly" to "vampire". Giving closely related alternatives to one blot, e.g. "coat of arms, flag, monogram, escutcheon, shield" which

⁷H. Meyerhoff, "Das Syndrom der traumatischen Hirnleistungsschwäche im Rorschachtest (The Syndrome of Traumatic Brain Dysfunction in the Rorschach Test)," in Zeitschrift für Psychiatrische, Neurologische und Psychologische Medizin, Vol. 2, No. 3, issue of March, 1950, p. 176-182.

all have "emblem" as common denominator. This is not a complete list but gives an idea of what may be expected.

Epileptics are known to be irritable and hostile.⁸

Here, then, are some probable ways in which these traits may show up in the protocols of this study. Hostility, in any projective test, can be expressed explosively, actively or passively. If someone perceives an explosion in an inkblot this is taken to show the percipient's uncontrolled affect.⁹

"Two men fighting" is deemed to be an expression of active hostility, i.e. the percipient is probably impulsive.¹⁰ "A crab's pincer coming at you" may be hypothesised to express the testee's hope that the object of his anger will somehow come to grief. Brutality, another form of hostility, may be considered to find its expression in crude colour replies; while intellectual opposition is assumed to show itself in a propensity to figure-

⁸L. Massignan, "Tipi di aggressivita epilettica studio Rorschach (Types of Epileptic Aggressiveness Studied by the Rorschach)", in Rassegna di Neuropsichiatria, Vol 7, No. 5, issue of September, October, 1953, p. 329-332.

⁹Bruno Klopfer, et al., Developments in the Rorschach Technique, New York, World Book Company, 1954, p. 399.

¹⁰David Rapaport, Diagnostic Psychological Testing, Vol II., Chicago, The Year Book Publishers, Inc., 1946, p. 363.

ground-reversal answers.^{11,12}

By 'Linking' is meant a tendency to link the actors in a movement reply to one another (Rorschach card II: "Two people holding hands and dancing"), or to their surrounding (e.g. "Fish in water"); or the frequent use of such words as "with, between, upon" in non-movement replies (e.g. "Two buffalo with a birdhouse in the background").

c. Testing the Hypothesis.

The two tests may be likened to two biased coins, hypothesised to be alike, each of which was tossed 100 times and their respective number of heads (or tails) recorded. From these results a comparison of the difference in frequency with which a certain event occurred in the two tests was made.

The coin analogy no longer holds when the coincidence of the same sign in the same subject in both tests is considered. For, in comparing the diagnostic equality of two tests in a sample, it is important to know not only the frequency with which a given sign occurs, but also whether the majority of the subjects who show that sign in one of the tests will also show it in the other.

¹¹Bruno Klopfer et al., op. cit., p. 309.

¹²R. Canestrari and M. Bosinelli, "L'inversione figura-sfondo nei soggetti normali et negli epilettici, (Figure-Ground Inversion in Normal and Epileptic Subjects)", in Archivio di Psicologia, Neurologica e Psichiatrica, Vol. 14, No. 1-2, issue of January, -March 1953, p. 191-193.

d. Statistical Method

The same statistical reasoning can be applied to both modes of hypothesis testing: the null hypothesis that a certain scoring category (event) occurs equally often in both the Group Rorschach and in the Z-Test protocols was tested by constructing the confidence interval for proportions

$$p_1 - p_2 \pm Z_{\alpha} \sqrt{\frac{p_1(1-p_1) + p_2(1-p_2)}{n}}$$

which should include zero if the hypothesis is accepted. Confidence limit was chosen as $\alpha = 0.01$. - When comparing the mean I.Q.'s and the mean number of replies of both tests this formula was modified to

$$\bar{X}_1 - \bar{X}_2 \pm Z_{\alpha} \sqrt{\frac{s_1^2 + s_2^2}{n}}$$

where \bar{X}_1 and \bar{X}_2 are the means and s_1 and s_2 the standard deviations.

No other methods of equal economy were found for testing the hypothesis and thus the chapter on experimental design is ended. It will be followed by a description of the testing procedure.

CHAPTER III

EXPERIMENTAL PROCEDURE

Now an account will be given of how the experiment was carried out, by describing the tools, the technical preparations and the administration of the tests. Technical minutiae, such as changes in electrical wiring to accommodate a projector, to permit control of room and projector lighting from a fixed position, etc., will be left out.

1. The Tools

They consisted of two separate sets of lantern slides; one set being a replica of the ten Rorschach plates; the other Zulliger's originals. Care was taken to keep these slides clean, so as to permit maximum translucence.

Neither Harrower's Group Rorschach forms¹ nor Zulliger's Swiss Army form² were used in this study but plain sheets of white paper, stapled into bundles of ten and three respectively, the reason being that since 'location' was not a scoring criterium in this study it would not influence the

¹ obtainable from the Psychological Corporation, 502 Fifth Avenue, N.Y. 18.

² Hans Zulliger, Der Z-Test, Bern, Hans Huber, 1945, p. 17 and 18.

results. For, both the official forms were created mainly in order to let the examiner know in what location of the inkblot the testee perceived the impression which he reported. Harrower's form contains the replica of each blot on each left hand page of the booklet, while Zulliger asks his candidates to mark the location on an imaginary clock, subdivided into twelve sectors and the centre. This discrepancy between the two official forms was another reason for unifying and simplifying the reply forms; for, after all, this sample contained several individuals who functioned at a low level of intelligence, and who would probably become confused by detailed instructions on the proper use of two different forms.

2. Technical Preparation.

The testing locale was the hospital's lecture room, located in the basement of the female infirmary. Its dimensions were approximately twenty feet by fifty-five feet. Lighting was good, seats consisted of lecture room chairs with arm tables. Ventilation was poor.

The projector, a standard Bausch and Lomb, and the screen, with a maximum picture size of six feet by six feet, were both the property of the hospital. Lighting intensity at the screen without slide was measured at eye level with a Weston Master II, universal exposure meter, and the pointer read 1.67.

The coding of the papers was done by the hospital's supervisor of nurses who devised the following scheme, which was revealed to the experimenter only after he had scored and recorded all protocols. For the Rorschach test protocols the patient's case book number was reversed and preceded by another digit, according to the number of the session. For the Zullinger test a "2" was inserted after the first digit of the patient's case book number. The protocol pads were prepared by her in advance, and they were held in readiness for each testing session, thus avoiding unrest among patients before the test got under way. This was deemed important, because institutionalized epileptic patients of below average intelligence are known to the staff to become difficult to manage if kept waiting.

3. Administration of the Tests

The presence of two key hospital matrons, the supervisor of nurses and the nurse-instructress, was considered necessary and proved helpful in maintaining a modicum of discipline. Besides they assumed the responsibility of getting the patients assembled and settled, with paper and pencil. But even so, many of the men became openly sarcastic,

lewd and abusive during the test; while the women vied for the experimenter's personal attention and kept up a constant but subdued chatter, interlarded with obscene allusions.

The experimenter, having taken his stand at the lit projector, switched off the room lights, and gave the following instructions:

"This is a very simple experiment. I hope you will enjoy it. I'll show you a series of lantern slides and you are to write down what the pictures remind you of. These pictures represent nothing in particular. They are just ink blots.

Here is the first picture. What does it remind you of? What could this picture be? What does it look like to you?

All your answers are correct, there are no right or wrong replies, because the pictures represent nothing specific. You may use the whole blot or parts of it. When the light goes on, write down as many different answers as possible.

Use one sheet for each slide. You will find them numbered one to ten (or one to three, depending on the test)."

Subsequently, the room lights were kept off for half a minute; whereafter dim room illumination, sufficient for writing, was given for three minutes, with the slide maintained on the screen. The patients were forewarned of the impending next slide, and after a brief pause, as the room lights went out, the change of slides was effected. This

timing resulted in the group Rorschach taking forty-five minutes, the Zulliger test fifteen minutes, according to Zulliger's instructions.³ No pause was made between the tests, first because exchange of ideas among patients for future replies was thus kept minimal; second, because one hour was thought to be the maximal attention span for these patients.

As the patients filed out of the room at the end of the session, the assistants gathered the protocols, which they separated into Rorschach and Zulliger piles; one of the piles was then reshuffled to change the sequence, before both were handed to the experimenter for scoring.

Brief though this description of the testing procedure may be, it is considered sufficient to permit repetition of the experiment, the results of which are to be discussed in the next chapter.

³ Hans Zulliger, Der Z-Test, Bern, Hans Huber, 1945, p. 6.

CHAPTER IV

EVALUATION OF RESULTS

This chapter, after dealing with the scoring principle, will consist of several tables, the contents of which shall be discussed in the light of the hypothesis. A number of conclusions will be drawn; the decision made whether to accept or reject the hypothesis, and a discussion of the inferences shall follow.

1. Scoring the Protocols

Evaluation of results of projective technique begins with scoring, which, in this case, was done according to the four criteria, - number of replies (R), sign 'Perseveration' (P), sign 'Hostility' (H), sign 'Link' (L). The counting of the number of replies per protocol was quite straight forward; it should be pointed out, however, that the signs (P, H, L) were scored merely for their presence. For example, one protocol may have contained several 'hostile' replies, while another showed only one; yet, sign H was scored in both, irrespective of frequency of occurrence. This seemed justified because these signs are by their nature qualitative rather than quantitative. In other words, one forceful expression of hostility may be dlin-

ically more weighty than several weakly formulated ones.

The scored protocols were then decoded and the results tabulated in the manner of a frequency distribution, according to diagnosis and sex. Then came the construction of Tables VI to XIV, here reproduced on the following pages.

2. The Tables

Tables VI to IX deal with the mean number of replies (\bar{R}) and form one unit of comparison, while Tables X to XII contain an analogous juxtaposition of diagnostic sign scores (P, H, L) in the two tests. Table XIII summarizes all four scoring criteria according to confidence limits and to trends; and Table XIV shows the coincidence of the same sign given by the same patient in both tests.

Table VIII indicates that the grand total number of replies in the Z-Test is significantly higher than in the Group Rorschach. The same applies to the males while for the other sampling criteria there is merely a trend in the same direction. On the strength of these results the second part of the hypothesis was accepted, - in spite of doubts expressed in Chapter I, p. 7, - namely that the proportion of the mean number of replies will be as ten to greater than three.

Table VI. - Range, Mean and Standard Deviation (S.D.) of Number of Replies (R) in the Group Rorschach by Male and Female Epileptics of Different Diagnostic Categories.

| Sex | Statistic | Total | Diagnostic Categories | |
|--------|-----------|-------|-----------------------|------------|
| | | | Symptomatic | Idiopathic |
| Both | n | 100 | 50 | 50 |
| | R range | 5-34 | 5-31 | 5-34 |
| | R mean | 13.43 | 12.5 | 14.38 |
| | R S.D. | 4.49 | 3.87 | 5.05 |
| Male | n | 50 | 25 | 25 |
| | R range | 5-19 | 5-19 | 6-15 |
| | R mean | 11.23 | 10.6 | 11.85 |
| | R S.D. | 2.93 | 3.32 | 2.54 |
| Female | n | 50 | 25 | 25 |
| | R range | 5-34 | 6-31 | 5-34 |
| | R mean | 15.63 | 14.35 | 16.9 |
| | R S.D. | 6.04 | 4.42 | 7.66 |

Table VII. - Range, Mean and Standard Deviation (S.D.) of Number of Replies (R₃)¹ in the Z-Test by Male and Female Epileptics of Different Diagnostic Categories.

| Sex | Statistic | Diagnostic Categories | | |
|----------------------|-----------|-----------------------|-------------|------------|
| | | Total | Symptomatic | Idiopathic |
| Both n | | 100 | 50 | 50 |
| R ₃ range | | 3-43 | 3-43 | 7-43 |
| R ₃ mean | | 16.15 | 14.89 | 17.41 |
| R ₃ S.D. | | 7.09 | 7.18 | 7.0 |
| Male n | | 50 | 25 | 25 |
| R ₃ range | | 3-33 | 3-33 | 10-30 |
| R ₃ mean | | 14.51 | 13.6 | 15.43 |
| R ₃ S.D. | | 6.37 | 7.43 | 5.3 |
| Female n | | 50 | 25 | 25 |
| R range | | 7-43 | 7-43 | 7-43 |
| R mean | | 17.78 | 16.17 | 19.4 |
| R S.D. | | 7.81 | 6.93 | 8.69 |

¹To make the number of replies to the Z-Test, which uses three slides, comparable to those in the Group Rorschach, which uses ten, the Z-Test replies were multiplied by 3.33.

Table VIII. - Confidence Limits for Testing Statistical Significance between Mean Number of Replies (\bar{R}) in the Two Tests Distributed According to Sampling Criteria.

| Sampling Criteria Statistic | Group Rorschach | Tests | Z-Test |
|--------------------------------|--------------------|--------------------|--------|
| Grand Total (n = 100) | | | |
| \bar{R} | 13.43 | | 16.15 |
| S.D. | 4.50 | | 7.10 |
| Confid. Limits | | 4.88 | |
| Result | | 0.56 ¹ | |
| All Males (n = 50) | | | |
| \bar{R} | 11.23 | | 14.51 |
| S.D. | 2.93 | | 6.37 |
| Confid. Limits | | 5.81 | |
| Result | | 0.75 ² | |
| All Females | | | |
| \bar{R} | 15.63 | | 17.78 |
| S.D. | 6.04 | | 7.81 |
| Confid. Limits | | 5.75 | |
| Result | | -1.45 ² | |
| All Sympt. | | | |
| \bar{R} | 12.50 | | 14.89 |
| S.D. | 3.87 | | 7.18 |
| Confid. Limits | | 5.55 | |
| Result | | -0.77 | |
| All Idiop. | | | |
| \bar{R} | 14.38 | | 17.41 |
| S.D. | 5.05 | | 7.0 |
| Confid. Limits | | 6.17 | |
| Results | | -0.11 | |
| | | Z/Ro | |

¹Z means: Significantly more replies were given to the Z-Test than to the Group Rorschach.

²Z/Ro means: More replies were given to the Z-Test than to the Group Rorschach, but not significantly so.

Table IX. - Confidence Limits for Testing Statistical Significance of Difference between Mean Number of Replies (\bar{R}) between Sampling Criteria in Both Tests.

| Test | Statistic | Males n = 50 | Females n = 50 | Sympt. n = 50 | Idiop. n = 50 |
|----------|----------------|-----------------|-------------------|------------------|--------------------|
| Group Ro | | | | | |
| | \bar{R} | 11.23 | 15.63 | 12.5 | 14.38 |
| | S.D. | 2.93 | 6.04 | 3.87 | 5.05 |
| | Confid. Limits | | 6.8 | | 4.2 |
| | Result | | 2.0 ¹ | | -0.4 ³ |
| | | | | | Id/Sy ³ |
| Z-Test | | | | | |
| | \bar{R} | 14.51 | 17.78 | 14.89 | 17.41 |
| | S.D. | 6.37 | 7.81 | 7.18 | 7.0 |
| | Confid. Limits | | 6.9 | | 6.2 |
| | Result | | -0.4 ² | | -1.1 |
| | | | F/M ² | | Id/Sy |

¹F means: Females gave significantly more replies than males.

²F/M means: Females gave more replies than males, but not significantly so.

³Id/Sy means: Idiopathics gave more replies than Symptomatics, but not significantly so.

Note in Table IX that the females (who were shown, in Table III, to have a significantly lower I.Q. than the males) gave significantly more replies in the Group Rorschach than the males. In the Z-Test the same trend was apparent, but without reaching statistical significance.

As might be expected, this propensity extended to the diagnostic signs as well, since their appearance is to a certain extent dependent on the number of replies. (At the extreme, if no reply were given, no sign could show up.) - This finding may be interpreted to mean that the females of the sample appear to be less inhibited and more spontaneous and verbose than the males. In comparing the two tests this was important because the Z-Test seemed to possess slightly less stimulus value for female epileptics than for males. This hypothesis would appear to be corroborated by the third column in Table XIII, where the females show a trend to produce the greatest frequency of all three signs in the Group Rorschach. The assumption of lower stimulus value of the Z-Test for females might form the basis of further investigation.

Tables X to XII merely list the frequencies with which the various diagnostic signs occurred in each of the two tests; Tables XIII and XIV give the ensuing statistical computations, the mechanics of which will be explained after presenting these Tables.

Table X. - Comparing Frequency of Sign 'Perseveration' (P) in Group Rorschach (P Ro) and Z-Test (PZ) for Various Sampling Criteria.

| Sampling Criteria Test | Sampling Criteria | | |
|------------------------------|-------------------|-------------|------------|
| | Both | Symptomatic | Idiopathic |
| Both n | 100 | 50 | 50 |
| P Ro | 82 | 40 | 42 |
| PZ | 60 | 29 | 31 |
| Male n | 50 | 25 | 25 |
| P Ro | 38 | 18 | 20 |
| PZ | 27 | 11 | 16 |
| Female n | 50 | 25 | 25 |
| P Ro | 44 | 22 | 22 |
| PZ | 33 | 18 | 15 |

Table XI. - Comparing Frequency of Sign 'Hostility' (H) in Group Rorschach (H-Ro) and Z-Test (HZ) for Various Sampling Criteria.

| Sampling Criteria Test | Sampling Criteria. | | |
|------------------------------|--------------------|-------------|------------|
| | Both | Symptomatic | Idiopathic |
| Both n | 100 | 50 | 50 |
| H Ro | 61 | 26 | 34 |
| HZ | 64 | 30 | 35 |
| Male n | 50 | 25 | 25 |
| H Ro | 28 | 14 | 13 |
| HZ | 36 | 17 | 20 |
| Female n | 50 | 25 | 25 |
| H Ro | 33 | 12 | 21 |
| HZ | 28 | 13 | 15 |

Table XII. - Comparing Frequency of Sign 'Link' (L) in Group Rorschach(L Ro) and Z-Test (LZ) for Various Sampling Criteria.

| Sampling Criteria Test | Sampling Criteria | | |
|------------------------------|-------------------|-------------|------------|
| | Both | Symptomatic | Idiopathic |
| Both n | 100 | 50 | 50 |
| L Ro | 48 | 22 | 26 |
| LZ | 41 | 13 | 28 |
| Male n | 50 | 25 | 25 |
| L Ro | 18 | 9 | 9 |
| LZ | 18 | 6 | 12 |
| Female n | 50 | 25 | 25 |
| L Ro | 30 | 13 | 17 |
| LZ | 23 | 7 | 16 |

Table XIII. - Statistical Evaluation of Comparative Sensitivity of Two Tests, Distributed According to Scoring and Sampling Criteria.

| Scoring Criteria Statistic | Grand Total | Sampling Criteria | | | |
|----------------------------------|--------------------|--------------------|----------------|---------------|---------------|
| | | All Males | All Females | All Sympt. | All Idiop. |
| n | 100 | 50 | 50 | 50 | 50 |
| Mean No. of Replies | | | | | |
| Confid. | 4.9 | 5.8 | 5.8 | 5.4 | 6.2 |
| Limits | 0.6 ¹ | 0.8 | -1.5 | -0.6 | -0.1 |
| Comp. Sens. | Z ¹ | Z | Z/Ro | Z/Ro | Z/Ro |
| Persev. | | | | | |
| Confid. | 38.0 | 20.6 | 22.05 | 22.6 | 21.8 |
| Limits | 6.0 | -0.6 | -0.05 | -0.6 | 0.2 |
| Comp. Sens. | Ro ² | Ro/Z | Ro/Z | Ro/Z | Ro/Z |
| Hostil. | | | | | |
| Confid. | 20.6 | 20.2 | 17.5 | 16.7 | 12.8 |
| Limits | -14.6 ³ | -4.2 | -7.5 | -8.7 | -10.8 |
| Comp. Sens. | Z/Ro ³ | Z/Ro | Ro/Z | Z/Ro | Z/Ro |
| Link | | | | | |
| Confid. | 14.6 ⁴ | 12.2 | 19.7 | 20.7 | 14.7 |
| Limits | -0.9 ⁴ | -12.2 ⁵ | -5.7 | -2.7 | -10.7 |
| Comp. Sens. | Ro/Z ⁴ | Ro=Z ⁵ | Ro/Z | Ro/Z | Z/Ro |

¹Z means: Z-Test is significantly more sensitive than Group Rorschach.

²Ro means: Group Rorschach is significantly more sensitive than Z-Test.

³Z/Ro means: Z-Test is insignificantly more sensitive than Group Rorschach.

⁴Ro/Z means: Group Rorschach is insignificantly more sensitive than Z-Test.

⁵Ro=Z means: Group Rorschach and Z-Test appear equally sensitive.

Table XIV. - Percentage and Confidence Limits for Coincidence of Same Diagnostic Sign in Same Patient in Both Tests, Distributed According to Sampling Criteria.

| Diagn. Sign Sampling Criteria | Sampling Criteria | | | | | |
|-------------------------------------|--------------------------|--------|-----------|--------|-------------|--------|
| | Both % | Result | Male % | Result | Female % | Result |
| 'Persev.' | | | | | | |
| Sy. & Id. | <u>77.8</u> ¹ | - | 65.5 | - | 88.4 | + |
| Sy. | <u>69.5</u> | - | (50.0) | - | (85.0) | + |
| Id. | 86.0 | - | (80.0) | - | (92.0) | + |
| 'Hostil.' | | | | | | |
| Sy. & Id. | <u>80.6</u> | - | 76.2 | - | 85.1 | - |
| Sy. | <u>71.5</u> | - | (71.0) | - | (72.1) | - |
| Id. | 88.4 | + | (81.4) | + | (94.5) | + |
| 'Link' | | | | | | |
| Sy. & Id. | <u>69.5</u> | - | 61.0 | - | 75.5 | - |
| Sy. | <u>63.0</u> | - | (66.7) | - | (60.0) | - |
| Id. | 74.0 | - | (57.0) | - | (84.9) | + |

¹ Underlined Figures refer to n = 100
 Normal figures refer to n = 50
 Bracketed figures refer to n = 25.

First, take as an example the data listed in Table IX under 'Symptomatics, both male and female', which shows that forty out of fifty patients had sign 'Perseveration' in their Rorschach protocol, while twenty-nine showed it in the Z-Test. When these figures were inserted into the formula

$$p_1 - p_2 \pm z_{\alpha} \sqrt{\frac{p_1(1-p_1) + p_2(1-p_2)}{n}}$$

it became

$$40 - 29 \pm 2.576 \sqrt{\frac{40(50-40) + 29(50-29)}{50}}$$

which resolved to the two answers $11 + 11.55 = +22.55$
and $11 - 11.55 = -0.55$

Since the interval included Zero, the null hypothesis that both have occurred with equal frequency was accepted; or, in other words, Group Rorschach and Z-Test yielded statistically equivalent results, so far as 'Perseveration' replies of all symptomatics in the sample were concerned. Before returning to this inference, which is not complete, a further word of explanation about the symbols used in the formula: p_1 and p_2 stand for 'proportion'; $(1-p_1)$ and $(1-p_2)$ stand for the difference between theoretical maximum and actual proportion. In this case fifty patients gave fifty protocols, but only in

forty of the latter was the sign 'Perseveration' found, while theoretically it might have occurred fifty times. Hence, the 'proportion' was forty and the symbol '1' was fifty in this case.

Second, an explanation of the rationale for using symbols rather than numerical confidence limits in Table XIV should be given. The symbols were, of course, based upon the confidence limits established by means of the given formula, but actually it was not necessary to calculate every one of them separately. By reducing the formula to

$$(100 - p) \pm Z_{\alpha} \sqrt{\frac{p(100 - p)}{n}}$$

and by solving the equation

$$(100 - p) - Z_{\alpha} \sqrt{\frac{p(100 - p)}{n}} = 0$$

for p , the crucial point between statistical significance or non-significance can be established. This point varies with n ; for $n = 100$ the crucial $p = p! = 94.5$; for $n = 50$, $p! = 88.3$; and for $n = 25$, $p! = 79.0$. Hence, any percentages below the crucial one in Table XIV got the negative symbol and those above, the positive one.

Now to come back to the question of diagnostic signs, which was partially explained in the before-last paragraph: if only the confidence limits were given in Table XIII the conclusion might be drawn that, since they all include zero with the exception of 'Perseveration' - Grand Total, the two tests gave practically equivalent results throughout. But this would be superficial; for, in looking at the trends, tabulated in Table XIII under 'comparative sensitiveness', it was seen that the significantly greater sensitiveness of the Group Rorschach to the sign 'Perseveration' was the cumulative result of a consistent trend throughout all sampling criteria; while for the other two signs no such trend pattern emerged. Doubt was thereby thrown on the diagnostic equivalence of the two tests; and this doubt increased upon interpreting Table XIV, because it evidenced that the percentage of cases where the same patient showed the same diagnostic sign in both tests out of the total number of patients who showed the sign in either test, was not high enough to give it statistical significance for the majority of the sampling criteria (i.e. those with one hundred or fifty subjects). The two exceptions out of fifteen were, first, that equally many females showed 'Perseveration';

and, second, that equally many idiopathics showed 'Hostility' in both tests.

With regard to the first part of the hypothesis this meant that this was rejected. In other words, the Group Rorschach and the Z-Test were not found to be equal diagnostic screening devices for institutionalized epileptics, because they showed marked divergence in the incidence of the chosen diagnostic signs in two out of three statistical comparisons.

3. Discussion

Rejecting the main part of the hypothesis does not mean that the Z-Test is either inferior or superior to the Group Rorschach; each test merely appears to tap different personality strata. Little more can be said about their respective merits and shortcomings without a cross-validation study using both epileptics and non-epileptic control groups. This would be a suggestion for further research.

Table XIII might be criticised for not containing a breakdown of idiopathics and symptomatics according to sex, with twenty-five subjects per subgroup. The answer is that statistical investigation of these subgroups yielded no deviating results; in other words, if they had been tabulated in Table XIII each subgroup would have borne the prevalent symbol of the main group.

After the complicated sampling procedure with its stratification of symptomatics and idiopathics not only according to sex, but further subdivisions based on electroencephalographic records, the results of this study may be regarded as overly simple, in that they throw away information, and thus leave little room for discussion. It should be borne in mind, however, that in a comparison of two tests uniformity of results is a good indicator of their equivalence. With scant uniformity found, no amount of 'slicing thin' the sampling criteria was likely to alter the overall results.

Has this study revealed a reply pattern which might differentiate between symptomatics and idiopathics? In scanning the confidence intervals in Table XIII nothing but equivalence of the two tests appeared for all four scoring criteria with regard to the above sampling criteria. In looking at the trends, 'Mean Number of Replies' appeared to favour the Z-Test, while in the three clinical signs the symptomatics seemed to show preference for the Group Rorschach and the idiopathics for the Z-Test, - both in the proportion two to one. A glance at Table XIV, however, made these conclusions illusory because the same sign did not occur significantly often enough in the same patient in both tests. The above question was, therefore, answered in the negative, and explained by the fact that, in

spite of painstaking sampling, these diagnostic categories have not been sufficiently well defined to exclude contaminating clinical errors; a suspicion shared by the medical director of this hospital.

What explanations might be offered for the findings that equally many females showed the sign 'Perseveration', and equally many idiopathics the sign 'Hostility' in both tests? First, since 'Perseveration' is considered a sign of mental rigidity and the females were shown to have significantly lower I.Q.'s than the males, the reason could be more marked cerebral dysfunction on the part of the females. The second result, taken in conjunction with what was said about the absence of a pattern that distinguishes between symptomatics and idiopathics, would appear to strengthen the criticism that this sample was heterogenous. For, Delay et al¹ explained the social maladjustment of their symptomatics largely because of their explosive temperament, while they found their idiopathics to react with comparative emotional moderation.

Finally, a brief comparison of the three qualitative scoring criteria, 'Perseveration,' 'Hostility', and 'Link': Tables X to XII show that they appear with decreasing frequency in their order of enumeration. This was indicative of their

¹J. Delay et al, "Le Test Rorschach dans l'épilepsie", in L'Encephale, Vol. 44, No. 1, (no month), 1955, p. 55.

'trend'; while statistical computation revealed that the difference of frequency between 'Perseveration' and 'Hostility' was insignificant, but that 'Link' appeared significantly less often than either of the others. The explanation may be that their occurrence as typical epileptic reactions runs in the same order in the total epileptic population; a mechanism which, though corroborated by the pertinent Rorschach literature, does not appear to be too well understood and might be formulated into a separate research hypothesis.

SUMMARY AND CONCLUSIONS

Time economy is important in psychological diagnostic testing and it can be achieved in two ways: First, by giving a short test; second, by administering a test to a group. The purpose of this study is to use both these principles simultaneously, by testing the hypothesis that the Z-Test, which consists of three inkblots, and the Group Rorschach, which consists of ten, are equal diagnostic screening devices for epileptics when administered to a stratified sample of institutionalized epileptics, who will give some characteristic types of replies with similar frequency; while the proportion of their mean number of replies will be as ten to greater than three. Epileptics were chosen because clinicians know that they are often 'negative malingerers', a term designating persons who hide a defect in order to get into positions for which they are unfit. If the two tests could be proven clinically equivalent, the relatively short Z-Test might become the screening instrument of choice for such organizations as the army, which rejects epileptics on principle.

After describing the two tests, a review of literature disclosed that this problem appears not to have been investigated before, and provided many ideas for the experimental

design, which was outlined in the second chapter.

The population consisted of 641 epileptics, in custodial care at Ontario Hospital, Woodstock, from which fifty males and fifty females were chosen according to the following criteria: physical and mental ability to take part in a group test; diagnosis; age; intelligence quotient; and amount of anticonvulsant medication.

The testing sessions were arranged so as to eliminate practice effects between the two tests, by giving half the sample the Group Rorschach followed by the Z-Test, and by reversing this order for the other half. All protocols were coded by a staff member other than the experimenter to ensure the latter's blind interpretation.

The following scoring criteria were chosen: Mean number of replies, as the only quantitative one; and three qualitative diagnostic signs, 'Perseveration', 'Hostility', and 'Link'. The rationale for this choice was analysed, and the statistical method employed for testing the hypothesis given.

Chapter III was devoted to the description of the experimental procedure, mentioning the tools employed, as well as the rationale for not using the standard response forms of the two tests. Technical and behaviour problems which

arose before and during the sessions were pointed out and discussed.

The fourth chapter was given over to the evaluation and discussion of results. To begin with the scoring principles were explained. This was followed by various tabulations of data and their statistical computation. On the strength of these, the first part of the hypothesis was rejected; in other words, the Group Rorschach and the Z-Test were not found to be equal diagnostic screening devices, because they showed marked divergence in the incidence of the chosen diagnostic signs in two out of three statistical comparisons. The second part of the hypothesis was accepted, namely that the proportion of the mean number of replies was as ten to greater than three.

No reply pattern was found to differentiate between idiopathic and symptomatic epileptics. This was blamed on the fact that, in spite of painstaking sampling, the diagnostic categories have not been sufficiently well defined, to exclude contaminatory errors.

A number of subsidiary results were noted: 1. - The females gave significantly more replies to the Group Rorschach than the males, with a similar trend in the Z-Test, the inference being that the females were less inhibited and more verbose

and spontaneous than the males. 2. - The Z-Test appeared to have slightly more stimulus value for the males than for the females, as evidenced by a tendency to give proportionately ~~more~~ replies to the former than to the latter. This is interesting because the Z-Test was created for army use. 3. - Females consistently showed the sign 'Perseveration' in both tests, and the same analogously applied to the idiopathics with regard to sign 'Hostility'; which was interpreted to mean that the females, whose mean I.Q. was significantly lower than that of the males, showed greater brain dysfunction, and that the idiopathics were more hostile as a group than any of the others. 4. - The diagnostic signs 'Perseveration', 'Hostility', and 'Link' appeared in that order of frequency, which seemed to confirm the findings of other workers. - Further studies may help to elucidate and amplify these four corollary findings.

Rejecting the main part of the hypothesis does not mean that the Z-Test is either inferior or superior to the Group Rorschach; each test merely appeared to tap different personality strata. Little more could be said about their respective merits and shortcomings without a cross-validation study using both epileptics and non-epileptic control groups. This would be a last suggestion for further research.

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Three papers, entitled I. The Epileptic Personality, II. Review of Literature, and III. Personal Researches, critically reviewed the problem at hand and offered many ideas for the design of this study.

Harrower, M. R., and Steiner, M. E., Large Scale Rorschach Techniques, Springfield, Ill., Charles C. Thomas, 1945, XI, 419 p.

Manual for the Group Rorschach technique, used extensively in the experimental design of this study.

Massignan, L., "Tipi di aggressività epilettica studio Rorschach (Types of Epileptic Aggressiveness Studied by the Rorschach)", in Rassegna di Neuropsichiatria, Vol. 7, No. 5, issue of September/October 1953, p. 329-332.

Analysed the aggressivity pattern of seventy-eight Rorschach protocols of epileptic subjects and thereby helped to choose and define one of the scoring criteria used in this study.

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Serial examination of 200 brain damaged persons with the Rorschach, sixty-seven of which had become epileptic as a result of trauma. Used to establish the rationale for another scoring criterium of this study.

Minkowska, F., "L'Epilepsie Essentielle, Sa Psychopathologie et le Test Rorschach (Essential Epilepsy, its Psychopathology and the Rorschach Test)", Annales Médico-Psychologiques, Vol. 2, No. 4, issue of November 1946, p. 321-355.

Contains the original description of a third scoring criterium used in this study.

Piotrowski, Zygmunt A., "The Personality of Epileptics", in P. H. Hoch and R. P. Knight, Epilepsy, London, Heinemann, 1948, p. 89-108.

Contains Rorschach response pattern for epileptics.

Spitznagel, Albert, "Senile Demenz im Z-Test (Senile Dementia in the Z-Test)", in Studien zur Diagnostischen Psychologie, No. 2, Untersuchungen zum Z-Test, Biel (Switzerland), Institut für Psycho-Hygiene, 1953, p. 41-75.

Contains a comparison of Z-Test results with Rorschach results, and thereby offered useful ideas for the experimental design of this study.

Zulliger, Hans, Der Z-Test, Bern, Hans Huber, 1945, 72 p. Manual for the Z-Test, used as a major source book in this study.

APPENDIX 1

(Copy and Translation)

Ontario
The Ontario Hospital

Woodstock, Ontario,
Canada.
August 31st, 1955.

Dr. Hans Zulliger,
Itigen-Bern,
Switzerland.

Dear Dr. Zulliger:

May I approach you with a request concerning your Z-Test?

I am working as a psychologist at the above provincial hospital which consists of two divisions. One houses about 900 epileptics, the other about 1,000 tuberculous psychotics. With the superintendent's approval I have set myself the task of a comparative study between your Z-Test and the Group Rorschach (according to M. H. Harrower, with written replies) using epileptics.

My sample will consist of 50 symptomatics and 50 idiopathics, evenly distributed between males and females. The main aim of my study will be to find out whether Z and Ro are equivalent. A secondary problem is to try to distinguish between idiopathics and symptomatics, i.e. to establish a diagnostic pattern.

I intend to submit this study to the University of Ottawa as a master thesis. In order to satisfy the requirements I have to review the literature for existing works on the Z-Test with epileptics. Dr. Stephan Neiger, formerly of the University of Innsbruck, who now works at the Toronto Psychiatric Hospital, loaned me several pertinent publications, among them your "Ueber die Verwendbarkeit des Z-Tests, (On the Applicability of the Z-Test)", in Psychologische Rundschau, Vol. III, No 4, 1952. Besides I own your textbooks, Der Z-Test, and Der Tafeln Z-Test, as well as the lantern slides and plates, and have accumulated eighteen references on your Rorschach publications. Should you be able to loan me reprints of your own and associated papers, I would be very grateful. May I mention that I shall, of course, re-imburse you for any costs you may incur in this connection; besides I promise to return to you any loans without fail.

Yours faithfully,

R. C. Schon (signed)

APPENDIX 2

(Copy and Translation)

Dr. phil. h.c.
Hans Zulliger
Itigan-Bern,
Switzerland.

September 5th, 1955.

Dear Mr. Schon:

Enclosed a few references. I will send you
some reprints by separate mail.

Yours faithfully,

Hans Zulliger (signed)

V. Bacci:

Ueber die Anwendung des Dia-Z-Tests. Rivista italiana di Psicologia, Nr. 2/3 Jahrgang 1949, Florenz

Italienische Statistiken über den Dia-Z-Test. Rivista di Psicologia Nr. 1, Florenz 1950

Beiträge über den Dia-Z-Test. Akten des IX. Kongresses der italienischen Psychologen. Rom, 1951

Im Manuskript:

Vergleich zwischen 800 Dia-X-Test-Protokollen. Wird demnächst veröffentlicht.

Die Bedeutung des Dia-Z-Test. Akten der X. Versammlung der italienischen Psychologen. Chianciano 1954.

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Erfahrungen mit dem Dia-Z-Test. Ztschr. f. diagnostische Psychologie und Personlichkeitsforschung, Bd. II, Nr. 1, Bern 1954

Le Test Z-collectif en filmologie. Rapport du congres international de Filmologie, Februar 1955, Paris

W. Trankle:

Herz- und Kreislaufkranke im Dia-Z-Test. Vortrag auf der 21. Tagung der Mittelrheinischen Studiengesellschaft für Balneologie und Klimatologie in Bad Soden, 1954 (im Druck).

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H. Zulliger:

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APPENDIX 3

ABSTRACT OF

A Comparative Study of the Group Rorschach and the Z-Test with Institutionalized Epileptics.¹

Time economy is important in psychological diagnostic testing and it can be achieved in two ways: First, by giving a short test; second, by administering a test to a group. The purpose of this study is to use both these principles of economy simultaneously, by testing the hypothesis that the Z-Test, which consists of three ink blots, and the Group Rorschach, which consists of ten ink blots, are equal diagnostic screening devices when administered to a stratified sample of institutionalized symptomatic and idiopathic epileptics, who will give some characteristic types of replies with equal frequency; while the proportion of their mean number of replies will be as ten to greater than three. - A review of literature disclosed that this problem appears not to have been investigated before.

The population consisted of 641 epileptic patients in custodial care at Ontario Hospital, Woodstock, from which fifty males and fifty females were chosen according to the following criteria: physical and mental ability to take part

¹Unpublished Masters Thesis presented by Robert C. Schon, in 1956, to the Faculty of Arts of the University of Ottawa. 73 pages.

in a group test; diagnosis; age; I.Q.; and amount of anti-convulsant medication. Testing sessions were arranged so as to eliminate practice effects between the two tests. All protocols were coded by a staff member other than the experimenter to ensure the latter's blind interpretation of protocols. The following scoring criteria were used: Mean number of replies; and the three diagnostic signs 'Perseveration', 'Hostility', and 'Link'.

The first part of the hypothesis was rejected. In other words, the Group Rorschach and the Z-Test were not found to be equal diagnostic screening devices for institutionalized epileptics, because they showed marked divergence in the incidence of the chosen diagnostic signs in two out of three statistical comparisons. The second part of the hypothesis was accepted, because the proportion of the total replies per protocol was found to be as ten to greater than three. These results, as well as several corollary findings, were discussed, and suggestions for future research made.