THE CONTRIBUTION OF THE RORSCHACH METHOD TO CLINICAL DIAGNOSIS.*

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THE Rorschach method is valuable in the study of personality and claims have been made for its application to clinical diagnosis. Clinicians would welcome any method which would help to distinguish " psychoneurotic " from " organic " disease.† There is a tendency, however, to demand from a new and unfamiliar method a complete diagnosis, rather than that the technique should provide standardized information which can be used towards a diagnosis *by the clinician* along with other methods. Psychologists using the Rorschach method have played into this expectation to some extent and have sought to present sets of signs and types of Rorschach records which could be considered as suggesting certain definite diagnoses. This paper is concerned with the study in a wide range of patients of some of the signs obtainable by the Rorschach technique‡ in an effort to determine what degree of specificity can be attributed to them, and what likelihood of success and failure is attached to their use.

Two studies bear most directly on this issue. Piotrowski (3, 4) selected ten signs which, if present to the extent of five or more, he considered as " pointing to the existence of an organic disease process which involves the brain." Miale and Harrower-Erickson (5) tentatively presented nine signs, the presence of five or more of which " suggests strongly the presence of a psychoneurosis." Both claims recognized cautiously that the signs were not to be used without taking into consideration the qualitative features of the record as a whole, and that the Rorschach method must only be used along with other diagnostic methods. However, both these studies showed striking

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† The term " organic " is used in quotation in recognition that it is medical slang based on the unwarranted assumption that there are two kinds of disease, "organic " and " functional." That there does not seem to be any sharp line in psychological characteristics between patients divided clinically in this way is illustrated by the results of study of the " organic signs," but the term " organic " is used throughout this paper because popular usage makes it a convenient way of designating disease with recognized structural basis.

‡ The technique of the Rorschach method is described for the general reader by Booth (1) and by Harrower-Erickson (2).

differences in the incidence of the signs *by themselves, in specific diagnostic groups* as compared with small control groups.

Harrower-Erickson's (2) description of changes in Rorschach records which often accompany cerebral tumours has also been helpful to the clinician. As Harrower-Erickson agrees, the demonstration of a typical deviation in records of cerebral tumour cases does not mean that such a deviation could not occur in other conditions with equivalent physical and psychological factors, or even as the result of psychological factors alone. Although the occurrence of such records in people without cerebral tumours is rare according to the normal standards which have been published, we do not know the actual statistical chance of the " tumour record " being given by a person without such a lesion. For the present we are concerned with checking the incidence of the signs described by Piotrowski and by Miale and Harrower-Erickson rather than with the psychographic method of illustrating changes used by Harrower-Erickson in her cerebral lesion work (2, 6).

Case Material.

The cases upon which this report is based are those individuals examined by the author* with the Rorschach method over a period of about six months who could be classified definitely on clinical grounds into groups which would provide a basis for the testing of these signs. These include patients of the Montreal Neurological Institute, the Royal Victoria Hospital and the Montreal General Hospital,† a group of privates in the Royal Canadian Army Medical Corps, and several individuals of university status. The patients are representative of those likely to be seen by a clinician called upon to make a diagnosis between " organic " disease and psychoneurosis. Those who could not be classified on the basis of a final clinical or pathological diagnosis into the groups which will be considered here have been dropped from the series as a probable source of error. For convenience in comparison with the previous studies on these signs the collection was stopped at a point where about the same number of cases had been obtained of the " organic " category of Piotrowski and of psychoneuroses as reported by Miale and Harrower-Erickson. The other patients of definite diagnosis seen in the same period of time are used for controls as well as the soldiers and the superior normals.

There are 236 individuals: 157 males and 79 females. The males predominate because of the soldier group and the chance occurrence of more males

* Harrower-Erickson also has a large collection of Rorschach records taken at this centre which have not yet been classified according to these criteria and analysed for these signs. When these have been considered from these aspects they should provide evidence in regard to the reliability of the use of the signs by different examiners, as well as further evidence on the degree of specificity which can be attached to them. The series of this author is being published at present to encourage comparable studies elsewhere.

† Appreciation is due to the Department of Medicine of McGill University and of these hospitals for the opportunity to study the patients under their care, and to the R.C.A.M.C. for the co-operation in the studies made on the soldiers.

than females in all groups with the exception of the primarily psychoneurotic patients. These relative preponderances would seem to agree with usual clinical experience. The age range is from 13 to 76, with most between 20 and 50. This can be seen to recur in each separate group. The groups were not selected with an equal number of each sex or with exactly matching ages, as these procedures would have contravened the intention to include all random cases except those of doubtful diagnosis. There are no appreciable sex or age differences in the control groups of the numbers of the signs under study.

The criteria for each group are as follows :

I. *Cerebral lesions.*

Piotrowski (7) agrees that a criterion based on the *presence of known lesions of the grey matter of the cerebral cortex and the subjacent white matter* marks off a group in an equivalent manner to his differentiation between " cortical-subcortical cases " and " non-cerebral organics." Piotrowski (4) criticized Rorschach's conclusions on the grounds that Rorschach " had not examined all types of organic nervous disorders, f.i. brain tumours, or brain concussions." Hence in collecting this group an attempt was made to get various types of cerebral lesions, as can be seen from the diagnoses in Table I. The extent of the process in the present series, drawn from acute diagnostic problems, is not directly comparable to that in Piotrowski's series, which included mostly chronic patients at the Montefiore Hospital with long-standing lesions.

II. *Non-" cortical-subcortical " cases.*

Ten patients with lesions of the central nervous system not clearly in Group I, as in Piotrowski's " non-cerebral organic " group. Some of these conditions are such that changes in the cerebral cortex may take place at a later stage (e. g. Huntington's chorea and multiple sclerosis), but patients with these diagnoses are included in Group II unless there is proof of a lesion of the grey matter of the cortex, or the subjacent white matter, as are patients with the Parkinsonian syndrome because of the variable pathology in this condition.

III. *Uncomplicated psychoneuroses.*

All cases which have been diagnosed as psychoneurotic on clinical grounds alone, in which there is no complicating factor of a somatic disease process, and in which there is no psychotic trend. Post-traumatic neuroses were not included, even when it was extremely likely that the symptoms were psychogenic, because of the uncertainty as to the effect of the trauma on the nervous system. This group of 42 cases is comparable with the group of 43 cases of Miale and Harrower-Erickson except that we do not know whether any of their series possessed complicating factors, nor do we know according to their

published statement whether they included all psychoneuroses seen by them over a definite period of time, i. e. that there was no selective factor other than clinical criteria.

IV. *Somatic illnesses with neurotic features.*

Patients with some of the characteristics of a psychoneurosis, but with a somatic disorder present which excludes them from the purely psychoneurotic group.

V. *Somatic illnesses free from neurotic features.*

Cases of essential hypertension, coronary occlusion, toxic goitre, gastric and duodenal ulcer, rheumatoid arthritis, acromegaly, myasthenia gravis and migraine. Some of these conditions are probably influenced by psychic factors, but no patients were included in this group who had any clinically recognizable features which could be described as " neurotic." Patients were encountered with these diagnoses who had neurotic features as well as the somatic disorder, but they were included in Group IV. Group V is the most significant single control group inasmuch as it consists of individuals equivalent to the " organic " and " neurotic " patients in being ill and in being in hospital environment, but differing from them in the essential factor of the presence of disease of the central nervous system or of psychoneurosis.

VI. *Psychoses of unknown etiology.*

Mostly schizophrenics and schizophreniform psychoses. It includes no manic-depressives because the only manic-depressives seen over the same period of time also possessed psychoneurotic characteristics which prejudiced their use as a control group. " Toxic " or " organic " psychoses were not included.

VII. *Epilepsies of undetermined cause.*

Clinically diagnosed epileptics in which no specific conclusion was reached as to the pathological basis. Any patients with convulsions who had a definitely proven focus such as a tumour or an area of cortical damage from trauma were included in Group II.

VIII. *Soldiers.*

Not a completely unselected cross-section of the army. Many were recent recruits to a unit which was drawing upon unemployed, and the individuals allocated for examination included many whose competence was in question by their officers and about whose potentialities the officers were desiring such information as the test might give. The group may have contained a large number of individuals of low intelligence, and possibly a large number of

potential neurotics, but they were all symptom-free and fit enough to pass the army physical examination. Hence they provide a control group of sub-standard rating, but without either manifest psychoneurosis or cerebral disease.

IX. *Superior normals.*

Acquaintances of the author who volunteered to take the test. All but the two youngest were either university graduates or undergraduates. The two youngest were still in school, and their academic standing was such as to place them in the same intelligence level as the university subjects.

These two groups of healthy individuals come from classes of different intellectual and economic status than that of the average hospital patient, number VIII being somewhat below the average, and number IX being above the average of the individuals represented by the other groups.

The "Organic Signs."

Piotrowski pointed out that rules more specific than those of Rorschach (8) and Oberholtzer (9) are needed in order to make the interpretation of the results more uniform. Anyone who has worked with the Rorschach method knows that there are ways in which the method can give information about the particular individuality of the personality under study which cannot be reduced to standardized rules because they owe their significance to their relationship to the rest of the personality *Gestalt*. But to make use of the method for diagnostic purposes which will have the same meaning in the hands of different examiners it is necessary to have accurate criteria for the signs which are used. The ten "organic signs" have been used in the present study as defined by Piotrowski (3, 4), but it is necessary to give consideration to the possibility of some difference in these when they are applied by another worker:

"R" and "T" are unequivocal. "M" might give some cause for confusion because of the standardized scoring of the Rorschach Institute of two types of movement response, "M" and "FM" (10). This author has followed Piotrowski's use of Rorschach's "M" which did not include animal movements, and is, hence, exclusive of "FM" (11). "Cn" is straightforward. With "F%" the danger arises in the necessity for the examiner to pass judgment on whether a form is poor according to Rorschach's description. "P%"* depends on a generally accepted set of popular answers which has not been published so far, and which might vary from district to district if based on the original frequency definition. The scoring in this study has been based on ten popular answers as used by Klopfer (13), the

* Just previous to the submission of this paper for publication Piotrowski has published the advice not to score "P%" if R is more than 25 (12). This had not been followed here as it was not included in the original description of the signs. However, a re-check of the cases in this series shows none with just five signs including "P%" who had more than 25 R, i. e. the application of this qualification would not alter the incidences reported here. The author agrees with Piotrowski's warning that "P%" is not an abnormal sign if the record contains more than 25 R. It has not been a practical issue because very few patients with over 25 R show five signs even including "P%." Piotrowski's warning not to score signs if doubtful is also a good safeguard.

director of the Rorschach Institute. " Rpt " and " A.P." are probably not mistakable, but " Imp " and " Plx " require the application of personal judgment on the part of the examiner. One other qualification must be added. When a patient gave a performance showing a complete perseveration of anatomical answers the test was repeated, asking the subject to give things other than parts of the body. The signs present in the second record were tabulated in this study. The full reasons for this have been given elsewhere by the author (14). The same device was employed with reference to the " neurotic signs."

Even to those unfamiliar with the meaning of the signs under discussion, it will be apparent that these signs are not fool-proof and automatic criteria independent of the examiner who uses them. No clinical or laboratory tests are, however, independent of the technician who uses them, and the reliability of the use of these signs can be checked by a comparison of the results obtained by different examiners, provided the material used by them is directly comparable.

The groups reported in Table I are not directly comparable to those in Piotrowski's series because of a probable difference in the extent of the process. Since publishing his group of " cortical-subcortical cases " in which 17 out of 18 cases showed five or more of the " organic signs," Piotrowski has come to the opinion that the signs indicate " marked personality changes of organic cerebral etiology," (7), and that " many organic cases show no organic signs in their Rorschach records." Harrower-Erickson (2) has also encountered cases which showed only two or three of the Piotrowski signs, although conforming to the characteristic graph of cerebral tumour records. The high number of patients with five or more signs in Piotrowski's original series is explicable by the fact that they were mostly longstanding lesions. Hence we cannot conclude anything about reliability by considering the significant difference between our findings of only 9 out of 18 cases, as shown by Table I with Piotrowski's 17 out of 18. Our series, however, being based on random diagnostic problems, should give information on the probable validity of these signs for diagnostic purposes in the hands of one examiner.

In Table II the percentage of cases with five or more signs shows a decreasing incidence in this order : (1) Cerebral lesions, (2) epileptics, (3) non-"cortical-subcortical " lesions, (4) psychotics, (5) psychoneurotics. Table III gives the figures for χ^2, which have been calculated from the number of cases with five or more signs in each of these five groups as compared with groups composed of all the other groups excepting the one being compared, and as compared with one group consisting of those groups other than the five being compared.* The column " P " gives the probability that by chance the value of χ^2 shall exceed the calculated value. On the basis of the standard that a chance value less than 5 per cent. renders it unlikely that the difference is due to chance, and one of less than 1 per cent. that it is highly unlikely, these

* The formula for the calculation of χ^2 and the table of probability values were used as given in Mainland, *The Treatment of Clinical and Laboratory Data* (15).

TABLE I.—*"Organic Patients." Incidence of "Organic Signs."*

I. *Cerebral Lesions.*

Subject.	Age.	Sex.	Diagnosis.	R.	T.	M.	Cn.	F.%.	P.%.	Rpt.	Imp.	Plx.	A.P.	Number of signs.
M. B—	35	F.	Tumour, cholesteatoma, 4th ventricle—hydrocephalus	1	1	1	1	1	1	1	1	1	1	10
M. B—	48	M.	Tumour, arteriovenous aneurysm	1	1	1	1	1	1	1	1	1	0	9
M. D—	40	M.	Tumour, meningeal fibroblastoma	1	0	1	0	0	0	1	0	0	0	3
H. S—	32	M.	,, ,, ,,	1	0	0	0	1	0	0	0	1	0	3
M. S—	45	M.	G.P.I.	1	1	1	1	1	1	0	0	0	1	7
F. F—	47	M.	,,	1	0	0	0	1	0	0	0	0	0	2
A. S—	38	M.	,,	1	1	0	0	0	0	1	1	1	1	6
E. T—	32	M.	Vascular, left parietal	1	1	1	0	0	0	0	0	1	0	4
W. P—	43	M.	Vascular, left temporal	1	1	1	0	0	0	0	1	1	0	5
P. J—	52	M.	Subdural haematoma	1	1	1	0	0	1	0	0	1	0	5
K. S—	21	M.	Hydrocephalus, inflammatory	1	1	0	0	1	0	0	0	1	0	4
A. V—	13	M.	Left frontal lobectomy	1	0	0	0	0	0	0	0	0	0	1
J. T—	32	M.	Post-traumatic epilepsy	1	0	1	0	1	0	1	0	1	0	5
D. A—	28	M.	Temporal lobe removal for post-traumatic epilepsy	1	1	1	0	1	0	1	0	1	0	6
E. B—	17	M.	Post-traumatic epilepsy	1	1	1	0	0	0	0	0	0	0	3
D. R—	22	M.	,, ,,	1	1	1	0	0	0	0	0	1	0	4
B. M—	20	M.	Post-traumatic confusion	1	0	0	0	1	1	1	0	1	0	5
M. M—	40	M.	,, ,,	1	1	1	1	1	1	1	1	1	1	10
N=18	13–52	17 M. 1 F		18	12	12	4	10	6	8	5	13	4	Av.=5·1
											No. with 5 or more = 10.			

II. *C.N.S. Lesions not clearly in Piotrowski's 'Cortical-subcortical" Group.*

F. S—	24	F.	Multiple sclerosis	1	0	1	0	0	1	1	0	0	0	4
B. M—	26	M.	,, ,,	0	0	0	0	0	0	0	0	0	0	0
T. B—	32	F.	,, ,,	0	0	0	0	0	0	1	0	0	0	1
M. H—	28	M.	,, ,,	1	1	1	0	0	1	0	0	1	1	6
H. K—	38	M.	Tabes dorsalis	0	0	0	0	0	0	0	0	0	0	0
R. B—	43	M.	Parkinsonism, post-vascular	1	0	1	0	0	0	0	0	1	0	3
E. C—	50	F.	,, ,,	0	1	1	0	1	1	1	1	1	0	7
J. L—	22	M.	,, post-encephalitic	1	0	1	0	1	1	1	0	0	0	5
M. H—	40	F.	Cord tumour	1	0	0	0	1	0	1	0	1	0	4
H. L—	58	F.	Huntington's chorea	0	0	0	0	0	1	1	1	0	0	3
N=10	22–58	5 M. 5 F.		5	2	5	0	3	5	6	2	4	1	Av.=3·3
											No. with 5 or more = 3.			

TABLE II.—*Incidence of "Organic Signs."*

Group.	Number of cases.	Ages.	Sex. dist.	R.	T.	M.	Cn.	F%.	P%.	Rpt.	Imp.	Plx.	A.P.	Average number.	Number with 5 or more signs.	% with 5 or more signs.
I. Cerebral lesions	18	13–52	17 M. 1 F.	18	11	12	4	10	6	8	5	13	4	5	10	55%
II. C.N.S. lesions non-"cortical-sub-cortical"	10	22–58	5 M. 5 F.	5	2	5	0	3	5	6	2	4	1	3·3	3	30%
III. Psychoneurotics	42	15–51	18 M. 24 F.	30	13	31	3	9	16	6	1	12	3	3	6	14%
IV. Somatic illnesses with neurotic features	26	21–63	15 M. 11 F.	13	12	11	0	4	11	0	0	7	1	2·3	0	0%
V. Somatic illnesses free from neurotic features	19	18–57	8 M. 11 F.	11	8	7	0	2	10	1	0	2	0	2·2	1	5%
VI. Psychotics	15	14–48	8 M. 7 F.	13	9	8	2	4	5	3	1	5	5	3·7	3	20%
VII. Epileptics	19	16–62	11 M. 8 F.	9	5	10	1	7	11	9	1	4	0	3	7	37%
VIII. Soldiers	53	19–45	53 M.	35	5	36	0	5	13	2	0	6	2	2	1	2%
IX. Superior normals	34	13–76	21 M. 13 F.	7	3	7	0	0	27	1	1	0	0	1·3	0	0%
Total	236		156 M. 80 F.												31	13%

TABLE III.—*The Values of χ^2 in Comparisons between Different Groups in Table II.*

	Comparison.	χ^2.	P.	Significance.
(1)	I *v.* all others	30·7	Less than ·01	Highly significant.
(2)	II *v.* all others	2·8	Between ·1 and ·05	Not significant.
(3)	III *v.* all others	1·1	Between ·5 and ·1	,,
(4)	VI *v.* all others	·74	Between ·5 and ·1	,,
(5)	VII *v.* all others	6·4	Between ·02 and ·01	Significant.
(6)	I *v.* IV + V + VIII + IX	54·4	Much less than ·01	Very highly significant.
(7)	II *v.* IV + V + VIII + IX	22·14	Less than ·01	Highly significant
(8)	III *v.* IV + V + VIII + IX	12·6	,, ,,	,, ,,
(9)	VI *v.* IV + V + VIII + IX	14·0	,, ,,	,, ,,
(10)	VII *v.* IV + V + VIII + IX	36·9	,, ,,	,, ,,
(11)	I + II + III + VI + VII *v.* IV + V + VIII + IX	41·1	Much less than ·01	Very highly significant.

comparisons are designated in the third column as significant or highly significant.

The signs occur highly significantly more often in the group with cerebral lesions (Table III (1)), and significantly more often in the epileptics (Table III (5)) than in all the other groups together. Since epileptics are patients with probable disease of the cerebral cortex, this would tend to bear out Piotrowski's designation of these signs as signs of cortical disease. However, although the signs do not occur significantly more often in any other group as compared against the rest of the entire series (Table III (2)–(4)), when they are compared against a group composed of those with somatic illness with and without neurotic features, soldiers, and superior normals, it is seen that the incidence of the signs in patients with disease of the nervous system elsewhere than the cerebral cortex, in the psychotics, and in the psychoneurotics, is *also* highly significant (Table III (7)–(9)). In fact when the incidence of these signs in all patients with some disturbance of the nervous system, both "organic" and "functional," is compared against the others (Table III (11)), the result is seen to be very highly significant, although admittedly not quite as significant as cortical lesions compared against those with no disturbance of the nervous system (Table III (6)).

It would seem, then, that, although five or more of these signs occur most often in patients with disease of the cerebral cortex and subcortical tissue, they are not specific for these lesions. They would seem to represent a deviation which is shown to a most marked degree when there is considerable involvement of the cerebral cortex, but which occurs to varying degrees with other disturbances of the nervous system, including the so-called "functional" disturbances. This is more in harmony with the idea of psychosomatic unity than is the tendency to differentiate sharply between "organic" and "functional" disorders.

Piotrowski (4) hinted at a general law of mental deviation which would imply quantitative differences between the "cortical-subcortical" and other groups, but he picked on "M," "Rpt," "T" and "F%" as the signs most frequently found which occur in decreasing frequency through these groups. In the cases reported in this study it appears that "R" and "P%" are more common than "Rpt" and "F%," and that the criterion of at least five out of the ten signs, which he considered as "pointing to the existence of an organic disease process which involves the brain," seems to act instead as an indicator of such quantitative deviations. Considering them in this light it is interesting to note that the case of general somatic illness who showed five signs was a case of toxic goitre in which the nervous system might be considered to be affected secondarily. The one healthy soldier was an individual of low intelligence and lacking in self-confidence, so that he exhibited "Plx" as well as "Rpt," "F%," "M" and "P%."

According to this series, if we made a diagnosis of cerebral lesion every time

we encountered at least five of these signs we would be wrong in 9·6 per cent. of cases, or in 6·7 per cent. of cases if we consider the epileptics as definite cerebral lesions. If we use this criterion as a basis for a diagnosis of " organic disease of the nervous system," even if we include psychoses of unknown etiology under this category, we are wrong in 5·1 per cent. of cases. Only if we take the critical number of signs to mean " some dysfunction of the nervous system " does our error become less than 5 per cent., namely 4·3 per cent. Furthermore, only 50 per cent. of cases with cerebral lesions are picked up by this method.

Of the 30 cases showing five or more of these signs 28·4 per cent. have a definitely discoverable lesion of the cortex, 25 per cent. are epileptic, 10 per cent. have disease of the nervous system elsewhere than the cortex, 10 per cent. are psychotic, 20 per cent. are psychoneurotic, and 6·6 per cent. have nothing primarily wrong with the nervous system. That is, 78·4 per cent. are either " organic," epileptic, or psychotic, rather than psychoneurotic. More of them are in the cerebral lesion group than any other single group, but not an imposing percentage—only 53·4 per cent. including epileptics.

This is not an indictment against the Rorschach method itself, nor even against the idea of diagnostic Rorschach signs, for another constellation of signs might prove more specific, although I think such knowledge as we possess of psychological deviations in disease is against the likelihood of a sharp specificity. Again, this illustration is based on the idea of making a diagnosis on the critical number of these signs *alone*. Piotrowski also described qualitative features in Rorschach records which enable the Rorschach expert to increase his reliability as a diagnostic aid. These are not amenable to statistical confirmation, and one can either accept or reject the claim that the diagnostic skill of the Rorschach expert is greater than that indicated by the diagnostic success of these signs. Benjamin and Ebaugh (16) have presented a series of 50 cases in which the correlation between clinical diagnosis and Rorschach diagnosis was 84·7 to 97·8 per cent., but they do not present standardized rules by which this can be duplicated. It must also be borne in mind when making demands on a new method that there are few single techniques which can be relied upon by themselves for 100% diagnostic satisfaction. It is usually necessary for the clinician to weigh the contributions of various tests according to their likelihood of success and failure, and we are indebted to Piotrowski for presenting a set of signs in the Rorschach which can be considered in regard to this likelihood.

The "Neurotic Signs."

The signs selected by Miale and Harrower-Erickson were presented tentatively, and have been published only in the Rorschach Research Exchange for the purpose of enabling other Rorschach workers to test their significance. The study on Rorschach findings in psychoneurotics is still in progress at this

centre, and the nine signs which were outlined at the start of this work do not represent a final conclusion. However, since it was proposed at the time of their publication that the presence of five or more of them " strongly suggests the presence of a psychoneurosis," they have been used by other workers as an indicator of such a condition, and have come to be known as " neurotic signs " although not named such by the original authors. It is fitting that we test these signs from the standpoint of their significance and usefulness, even though they may not represent the best contribution which the Rorschach technique can make to the study of the psychoneuroses.

These nine signs are straightforward criteria based on the standard scoring system used by the Rorschach Institute with the exception of two of them which lack exact definition. That there is not clear-cut agreement on the standards for these two is illustrated by the differing criteria for " colour shock " between the Miale and Harrower-Erickson report and that of Brosin and Fromm (17), while " shading shock " is defined by Miale and Harrower-Erickson in terms of analogy to " colour shock." The definitions of Miale and Harrower-Erickson have been followed in this study, but these still require the exercise of some judgment, which might vary between examiners.

The group of cases reported in Table IV may not be directly comparable with the series reported by Miale and Harrower-Erickson. If these workers did not include all random cases selected on clinical grounds alone there may have been a tendency for the Rorschach findings to influence the selection. Another possible source of differences between the two groups is that types might exist within the neurotic group as a whole which differ in the number of signs present, and that the two series may have included different proportions of these types. Miale and Harrower-Erickson do not present the individual clinical diagnoses of their cases, but in Table IV of this study there appears to be no correlation between the clinical type of psychoneurosis and the number of signs. It must be remembered that the clinical classification of psychoneuroses is purely a symptomatic one, with a great deal of overlapping, and that types may exist within the neurotic group not apparent to the clinical method of classification, but perhaps related to an etiological classification.

A hint as to a type which might show fewer of the signs is given by Miale and Harrower-Erickson when they point out that one of the cases in their series with few of the signs was an individual who had broken down in a very challenging environmental situation. The present finding of 31 out of 42 cases compares with that of Miale and Harrower-Erickson of 38 out of 43 to the extent that the difference between these results could be accounted for by chance in more than 5 per cent. of cases ($\chi^2 = 2{\cdot}9$; $P = 1$ to $\cdot 05$; not significant). However, we cannot draw conclusions in regard to reliability unless both series are homogeneous in regard to whatever the signs represent and are both selected at random on standard clinical criteria.

TABLE IV.—*Primarily Psychoneurotic. Incidence of "Neurotic Signs."*

Subject.	Age.	Sex.	Diagnosis.	R.	M.	F.M.	C.S.	S.S.	Ref.	F.%.	A.%.	F.C.	No. of signs.
M. G—	38	M.	Anxiety neurosis	1	1	1	0	0	0	1	1	1	6
M. H—	36	M.	,, ,,	1	1	1	0	1	0	0	0	0	4
I. K—	46	M.	Anxiety hysteria	1	0	1	0	0	1	0	0	1	4
J. G—	26	F.	Facial tic, psychogenic	1	0	0	0	1	0	1	0	1	4
Y. R—	33	F.	Anxiety hysteria	1	1	1	0	1	1	1	1	1	8
W. O—	54	M.	Cardiospasm, psychogenic	1	1	1	0	0	0	0	0	1	4
S. M—	40	F.	Anxiety hysteria	1	1	1	0	1	1	1	0	1	7
L. S—	21	F.	,, ,,	1	1	1	0	1	1	0	1	0	6
A. T—	27	F.	Neurasthenia	1	1	1	0	0	0	0	1	0	4
J. S—	50	M.	Anxiety neurosis	1	1	1	0	1	1	1	1	1	8
B. C—	36	F.	,, ,,	1	1	1	0	1	1	1	1	1	8
J. A—	43	M.	Neurasthenia	1	1	1	1	1	1	1	1	1	9
M. T—	35	F.	Hypochondriasis	1	1	0	1	1	0	1	0	1	6
E. K—	15	F.	Anxiety neurosis	1	1	1	0	1	1	0	1	1	7
S. S—	29	F.	Anxiety hysteria	0	0	0	0	0	0	0	0	1	1
M. G—	50	F.	Anxiety neurosis	1	1	1	1	0	1	0	0	1	6
F. D—	31	M.	Conversion hysteria	1	1	1	1	1	1	0	0	1	7
E. F—	50	F.	Anxiety neurosis	1	1	0	1	0	0	0	0	1	4
A. L—	22	M.	Conversion hysteria	1	0	0	1	1	1	1	0	1	6
R. S—	18	M.	Anorexia nervosa	1	1	1	0	1	0	0	1	1	6
F. P—	24	F.	Anxiety neurosis	1	1	1	0	1	1	0	1	1	7
S. S—	16	M.	Conversion hysteria	1	0	1	1	0	0	0	0	0	3
M. M—	27	M.	Neurasthenia	1	1	0	1	0	0	1	0	1	5
T. G—	23	F.	Conversion hysteria	1	0	1	0	0	0	0	1	0	3
K. G—	49	F.	Neurasthenia	1	1	0	0	0	0	1	0	1	4
M. B—	32	F.	Anxiety neurosis	1	1	1	1	1	1	0	1	1	8
V. M—	17	F.	Anxiety hysteria	1	0	0	1	1	0	1	1	0	5
D. B—	51	M.	Neurasthenia	0	1	1	1	0	0	1	0	1	5
A. V—	31	F.	Anxiety neurosis	1	0	1	0	1	1	0	1	1	6
A. S—	39	M.	Cardiospasm, psychogenic	1	1	0	0	0	0	1	0	1	4
F. B—	43	F.	Anxiety neurosis	1	1	1	1	0	0	0	0	1	5
E. R—	29	M.	Conversion hysteria	1	1	1	1	1	0	0	1	1	7
M. M—	36	M.	Psychasthenia (phobias)	1	0	0	1	0	0	0	0	1	3
W. C—	30	M.	Neurasthenia	1	1	0	1	1	1	1	0	0	6
R. S—	23	F.	Mild mental deficiency c hypochondriasis	1	1	0	0	1	1	1	0	1	6
M. M—	40	F.	Conversion hysteria	1	1	1	1	1	1	0	1	1	8
R. Z—	35	F.	,, ,,	1	1	0	0	1	1	1	1	1	7
B. M—	25	F.	Anxiety hysteria	1	1	1	1	1	1	1	0	1	8
V. S—	26	M.	Conversion hysteria	1	0	0	0	1	1	1	1	1	6
A. W—	29	M.	Neurasthenia	1	1	0	1	0	1	1	0	1	6
M. J—	24	F.	Hysteria (astasia abasia)	1	0	0	1	1	1	0	0	1	5
M. G—	30	M.	Neurasthenia	1	1	0	1	1	1	1	0	1	7
N. = 42	15–51	19 M.		40	31	25	20	26	23	21	18	35	Av. = 5·7

The control records used by Miale and Harrower-Erickson were a group obtained by Miale (18) from the Institute for Educational Research at Teachers College, Columbia University. They were from individuals who had been subjected to various personality tests, so that there were no neurotics included. According to Miale it is likely that they represent a group superior in intelligence to the neurotic group, and this would be coincident with the fact that the finding of no cases with five or more of the signs corresponds more with the superior normal group in this series than it does with the somatic illnesses free from neurotic features, who might be taken as more representative of the average hospital patient.

Table VI presents the values of χ^2 for comparisons between the groups in Table V. The "neurotic signs" occur highly significantly more often in the purely psychoneurotic patients than in the patients with somatic illness with neurotic features (Table VI (1)), or the patients with somatic illness without neurotic features (Table VI (2)), or even than in the sum of all the other groups excepting the neurotic group (Table VI (3)). However, these same signs occur also in the soldiers significantly more often than in the patients with somatic illness free from neurotic features (Table VI (4)), and highly significantly more often than in the sum of all groups excepting the soldier group (Table VI (5)). It appears that it is not the presence of a manifest neurosis alone which correlates with the signs. That it is not the presence of illness which is responsible for them can be checked by the lack of a significant difference between a group of all the ill people compared with all the healthy ones (Table VI (6)). The statistical significance of the differences in incidence of the signs between the three groups IX, V and VIII (Table VI (4) and Table VI (7)) suggests a factor which correlates with them. These represent three groups without neurosis who are drawn from three different levels of population from the standpoint of intellectual and economic status, with the superior normals being above, and the soldiers being below, the level of the average hospital patient. It is interesting to note that the signs described by Piotrowski, which appear to correlate with primary dysfunction in the nervous system, show no such respect for class distinctions ($\chi^2 = 1{\cdot}92$ and $\cdot 59$ between IX and V and V and VIII respectively).

The factor present in primarily psychoneurotic individuals and to a lesser extent in those of low intellectual and economic status might be an insecurity based on a personality with resources inadequate for the common demands of life. The psychological situation associated with this might contribute towards the development of a neurosis if other circumstances are conducive, but it would not necessarily mean the presence of a clinically manifest neurosis. That the patients with both somatic illness and neurosis possess fewer of the signs would be in keeping with this hypothesis as to the meaning of the signs, for these are individuals who have developed a neurosis with greater provocation on the physical side and less provocation from a basic personality insecurity

TABLE V.—*Incidence of "Neurotic Signs."*

Group.	Number of cases.	Ages.	Sex dist.	R.	M.	F.M.	C.S.	S.S.	Ref.	F. %.	A. %.	F.C.	Average number.	Number with 5 or more signs.	% with 5 or more signs.
III. Psychoneurotics . .	42	15–51	19 M. 23 F.	40	31	25	20	26	23	21	18	36	5·7	31	74%
IV. Somatic illnesses with neurotic features	26	21–63	15 M. 11 F.	17	12	19	13	10	10	10	8	17	4·5	10	39%
V. Somatic illnesses free from neurotic features	19	18–57	8 M. 11 F.	14	6	12	1	5	6	3	9	8	3·3	7	37%
VI. Psychotics . . .	15	14–48	8 M. 7 F.	14	8	8	4	4	8	7	4	13	4·6	9	60%
VII. Epileptics . . .	19	16–62	11 M. 8 F.	16	10	12	7	6	10	7	4	13	4·4	10	53%
VIII. Soldiers . . .	53	19–45	53 M.	43	37	39	16	15	21	27	28	36	4·9	34	64%
IX. Superior normals . .	34	13–76	21 M. 13 F.	11	7	14	8	5	1	10	4	8	1·9	1	3%
I. Cerebral lesions . . .	18	13–52	17 M. 1 F.	18	13	6	2	3	9	11	6	15	4·5	9	50%
II. C.N.S. lesions non-"cortical-sub-cortical"	10	22–58	5 M. 5 F.	9	5	3	1	1	2	3	3	5	3·2	1	10%
Total . . .	236		156 M. 80 F.											112	47%

TABLE VI.—*The Values of χ^2 in Comparisons Between Different Groups in Table V.*

	Comparison.	χ^2.	P.	Significance.
(1)	III *v.* IV . . .	8·3	Less than ·01	Highly significant.
(2)	III *v.* V . . .	7·5	,, ,,	,, ,,
(3)	III *v.* sum of all groups except III	14·0	,, ,,	,, ,,
(4)	VIII *v.* V . .	4·2	Between ·05 and ·02	Significant.
(5)	VIII *v.* sum of all except VIII . . .	7·6	Less than ·01	Highly significant.
(6)	III + IV + V + VI + VII + I + II *v.* VIII + IX	2·9	Between ·5 and ·1	Not significant.
(7)	V *v.* IX	10·9	Less than ·01	Highly significant.

indicated by the signs. A particular case of interest in connection with this hypothesis has been published by the author (19), in which there were two out of the nine signs present when the patient was suffering from an acute neurosis although there was a record of a type seen in many individuals with anxiety, whereas the same patient, when not suffering acute anxiety, gave a Rorschach record which showed five out of the nine signs, probably representing his basic personality.

We do not need to compute the percentage of probable wrong diagnoses in order to show that these signs cannot be used by themselves to make a definite diagnosis of psychoneurosis. However, the fact that they do occur with much greater frequency in primarily psychoneurotic patients than in those who have some somatic disorder in addition to their neurosis, indicates that they can be of diagnostic help *provided* they are used in conjunction with the rest of the clinical information available about the patient. This is in keeping with the warning in the Miale and Harrower-Erickson article that " such a suggestion " (the presence of a psychoneurosis) " may be confirmed, however, only by a study of the whole record, quantitatively and qualitatively, and finally by a study of the Rorschach results in the light of the known clinical facts." If the patient is from a high socio-economic level the presence of at least five of these signs is very strong evidence in favour of a psychoneurosis. Of course it will not rule out co-existent " organic " disease, but *the presence of a personality insecurity should not be overlooked any more than should any abnormal physical finding*.

These deductions have been based on the incidence of five or more of the particular nine signs chosen tentatively. It may be that some of these were chosen without sufficient reason, and that other constellations of signs might correlate more specifically with the presence of neurosis or with particular types of neuroses. From Table V it can be seen that some signs, such as " colour shock," " shading shock " and " refusals " occur much more frequently in the neurotic group as compared with the non-neurotic groups than do some of the other signs. The computation of the significant differences in regard to each individual sign might give rise to better constellations of signs of " types of personality insecurity," and this is being studied at present.

There are two reasons why I do not think that there will be found one set of signs which will suffice to diagnose between a psychoneurotic and a patient ill from some other cause. I do not think that there is a personality structure common to all psychoneurotics which would correspond with one such set of signs. There may be types of personality structure detectable by the Rorschach method within the psychoneuroses which do not correspond with the symptomatic classification in clinical usage, but I would not expect one typical personality structure. Secondly, I do not think that the personality of the patient is the sole factor in the production of a neurosis, but that both the physical health of the patient and the environmental situation must be taken

into account. Sargant and Slater (20) have illustrated this with respect to acute war neuroses in individuals under extraordinary strain who did not break down under ordinary strains. More specific sets of signs of " types of personality insecurity " may enable Rorschach experts to supply the clinician with standardized information in regard to the personality structure of the patient, which he can take into account along with other factors in reaching a diagnosis. The work of Miale and Harrower-Erickson has been a start towards this goal.

Both Sets of Signs.

The concurrence of five or more of both sets of signs can be shown to be not significant in comparison with the related incidence of each set, which tends to confirm their designation as separate entities. There are 18 cases with such a concurrence as follows : 4 cerebral lesions, 4 psychoneurotics, 1 somatic illness free from neurotic features, 2 psychotics, and 7 epileptics. There appears to be no greater diagnostic significance regarding the presence of a disturbance of the nervous system when both sets of signs are present than with Piotrowki's signs alone (χ^2 for both in I+II+III+VI+VII *vs.* IV+V+VIII+IX is 21·06).

The high number of epileptics showing five or more in both sets of signs, which is accounted for by the high incidence in epileptics of each set of signs separately, is of some interest. This would appear to mean that epileptics have more " dysfunction of the nervous system " than the psychoneurotics and more " personality insecurity " than those with cerebral lesions. This suggestion of the personalities of some epileptics being abnormal for both " organic " and " psychogenic " reasons is in line with the view presented by Harrower-Erickson in her chapter on the psychology of the epileptic in Penfield and Erickson's *Epilepsy and Cerebral Localization* (21). The epileptics considered in this paper are merely patients with non-hysterical convulsions exclusive of those in whom a definite lesion has been found. A Rorschach investigation of epilepsy would require a more detailed classification using electrographic and other criteria. Such an investigation has been started by Harrower-Erickson in her work on focal epileptics (7). Signs such as these whose differential significance has been considered in a wide range of disorders might be of use in such studies in addition to the psychographic method of comparison used by Harrower-Erickson.

Comment.

Apart from the use of the Rorschach in a statistically validated way there is the value of the qualitative information about the personality of a patient which can be obtained by the technique. That the method can do this successfully is illustrated by " blind diagnoses," the personality descriptions which can be given by Rorschach experts on the basis of a study of a record without even seeing the patient. Even without standardized signs of proven validity the

qualitative report of a Rorschach expert can be of help to the clinician when he seeks to piece together the jig-saw puzzle of psyche and soma which is represented in his diagnostic problem.

It should also be recognized that the particular set of cards used at present has not been devised on the basis of up-to-date psychological theory. Dr. Hermann Rorschach, although possessing an exceptional insight into human personality, selected these blots largely on a basis of trial and error, and from a background of psychological theory which has since been superseded. A modification of the cards based on known principles of perception and association might better serve the purpose of diagnosis of the psychological aspects of an illness. Until such a set is devised we have the empirical results of the Rorschach method as now in use. This study has been an illustration of the extent to which certain sets of Rorschach signs already described can be of use to the clinician.

SUMMARY.

Method.

A series of 236 individuals examined by the Rorschach method has been studied for the occurrence of two sets of signs, those presented by Piotrowski as pointing to the existence of a cerebral lesion, and those proposed tentatively by Miale and Harrower-Erickson as suggesting the presence of a psychoneurosis. The individuals were divided into nine groups on the basis of clinical information and the incidence of the signs compared between these groups using the method of χ^2.

Results.

It appears that the criterion of five or more of the signs described by Piotrowski is an indication, not specifically of a cerebral lesion, but of some dysfunction in the nervous system, either "organic" or "functional." Such a diagnosis has been wrong in less than 5 per cent. of cases in this series. This dysfunction is more likely (about 4 : 1 chance) to be a more serious disorder of the nervous system than to be a neurosis. The absence of five or more signs is not significant.

Five or more of the signs described by Miale and Harrower-Erickson appear to be indicative, not of a manifest psychoneurosis but of a basic personality insecurity. This entity has been present without manifest neurosis in only 2·9 per cent. of individuals of superior intellectual level, but in 62 per cent. of individuals of low socio-economic level and in 32 per cent. of average hospital patients without neurotic features. It has been absent in 26 per cent. of primarily psychoneurotic patients. The knowledge of the presence or absence of this can thus be of use to the clinician in evaluating the psychic factor in an illness if it is used along with information about the physical status of the patient and the environmental situation.

A group of epileptics has shown a high incidence of both of these sets of signs, suggesting personalities abnormal for both "organic" and "psychogenic" reasons.

The reliability of the application of these signs by different examiners has yet to be shown.

Conclusion.

The Rorschach method can be a valuable aid to diagnosis. Certain signs elicited by it show correlations which enable them to be used by clinicians along with other diagnostic methods. This is in addition to the value of the personality description of the patient, which can be given by the Rorschach expert. These signs, however, will have a wide application only when the reliability of their use by different examiners has been shown.

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