THE RORSCHACH TEST IN EPILEPTICS.*

By ARTHUR GUIRDHAM, M.A., D.M.Oxon., D.P.M.Lond.,

Resident Physician, Bailbrook House, Bath; late Medical Officer, Brentwood Mental Hospital, Essex.

THE application of the above test to epileptics is a useful subject for an article, firstly because Rorschach's findings for epileptics were established from a very small number of patients; secondly, there was, in his investigations, no subdivision of epileptics into mental categories other than those of "early" and "late" demented; thirdly, the references in literature to the application of this test to epileptics are so meagre; and fourthly, the results obtained in this particular investigation show a considerable diversity from those of Rorschach.

The material for this test consisted of 132 epileptics and 100 control normals. Of the epileptics 32 were uncertified, though in an institution run largely on an occupational basis, and the remaining 100 comprised cases of epilepsy associated with mental defect, insanity and epileptic dementia.

It is proposed to deal first with inferences to be drawn from the epileptic group as a whole. The modifications incidental to mental status will be dealt with later.

THE ERLEBNISTYPUS.

It must be stated at the outset that those seeking to discover, in the test findings, a specific epileptic reaction type, are foredoomed to disappointment. This need prove troublesome only to such as believe that each epileptic displays the epileptic personality. The occurrence of the different personality types, with the related normal figures, are given below. In both cases the figures are expressed per 100 subjects:

TABLE I.

	Normals.	Epileptics.
Coarted	13	32
Coartative	32	30
Introversive	17	10
Extratensive	25	20
Ambiequal	13	8

The above findings are of importance in that they are in contradistinction to those of Rorschach, who placed his epileptics, whom he classified as cases of "early" and "late" dementia, and mentally defective epileptics, in the extratensive category, with the exception of those in an "epileptoid" group—

* An essay for which the Bronze Medal of the Royal Medico-Psychological Association was awarded in 1935.

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defined apparently according to the dicta of E. Bleuler—who were found to be ambiequal. Rorschach, however, investigated only a small number of epileptic subjects (20). These appear to have been defective types—a fact which might tend to raise the number of extratensive subjects. In addition, he appears to have derived a high colour score from a marked development of primary descriptive colour answers, which he held to be almost specific for epileptics. The assessment of answers of this type as $\Sigma Fb = 1\frac{1}{2}$ is questionable, as has been argued in the preceding paper.

In marked contrast to the findings of Rorschach, who discovered no constricted types of any description, in this investigation no fewer than 62% had reaction types of this nature, as compared with 45% in the normal control group. Such findings as this do not in any way invalidate Rorschach's general claims for the constancy of the *Erlebnistypus* in different pathological categories. The author has obtained striking confirmation of the truth of these in other mental conditions, particularly in melancholia, and depressive states generally. The variability of the Rorschach reaction types is merely in accordance with the existence of epileptic subtypes derived from clinical observation.

Subjects showing sufficient development of the classical described traits to merit the designation of epileptic character are found in the extratensive and ambiequal categories. Even more striking is the occurrence in these categories of cases in which impulsiveness and violence are the most salient features.

The constricted epileptic types fall into four categories :

(*a*) A subgroup in which coartation is imposed by a recognizable and concomitant depression. This may be either a habitual melancholic tinge or a depressive mood consequent on the occurrence of the fits.

(*b*) There are a number of subjects in whom coartation, or coartativeness, is accompanied by responses of a confabulatory type, and by the phenomenon of perseveration (to be described later), which involves confabulatory processes. It seems that here perseveration may operate to limit the capacity for experience expressed in the *Erlebnistypus*, which effect would seem to be an example of the general tendency of perseveration to limit the epileptic reaction to a lower teleological plane. The constriction of the *Erlebnistypus* in these subjects shows also that, in epileptics, confabulatory processes and a preoccupation with phantasy are not necessarily associated with a capacity for inner creativity, the number of kinæsthetic answers associated with which would expand the *Erlebnistypus* beyond the limits of coartation and coartativeness.

(*c*) There is also a subgroup in which mental defect is very marked—a finding contradictory to that of Rorschach. It is of interest that here we have a type of oligophrenia which shows not only the intellectual paralysis and unproductiveness associated with oligophrenia in general, but also well-marked affective sterility.

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(*d*) This sub-group contains those in whom the signs of coartation approximate most closely with those occurring in normal subjects. The usual concomitants of a coartated *Erlebnistypus*, i.e., a high $F+\%$, a compulsively ordered sequence, are not marked, though the $F+\%$, the *Sukzession* and the *Erfassungstypus*, are the most favourable of the epileptic group. This section is largely composed of the uncertified epileptics. Of 32 of these latter subjects 28 were found in the coarted and coartative groups.

Introversive and Extratensive Categories.

Epileptics, as a whole, show far less development of introversive tendencies than normals. Of 3,332 responses, 115 *B* answers are given by 132 of the former subjects, as against 163 out of 3,336 answers by 100 normals. Extratensive tendencies are diffused fairly evenly through both groups, until we reach the category of a marked preponderance of *Fb* over *B* answers—an occurrence far more common in the epileptic group.

Fb (*Colour*) *Answers.*

These are present, in the normal and epileptic groups, in the proportion shown in the table below :

Table II.—*Incidence of Colour Answers.*

	In 100 normals.	Per 100 epileptics.
Total colour responses . . .	266	170
Total *FFb* responses . . .	158	72
Total *FbF* responses . . .	90	58
Total *Fb* responses	18	40

This works out at a ΣFb average per individual of 1·96 for normals and 1·52 for epileptics.

Rorschach specifically insists that epileptics give an unusually high number of colour answers. It can only be reiterated that this indicates again the necessity of subdividing epileptics according to mental status and other factors. There seems to have been a high development of mental defectives in Rorschach's small epileptic group. Patients such as these give, above all others, that high number of primary descriptive colour answers, the numerical assessment of which, I am convinced, is far too large. Dr. Morgenthaler, who wrote the preface to Rorschach's book, states, in a personal communication, that his findings are largely in agreement with those offered in this investigation, and that he considers that individual varieties, and, above all, the momentary mental status of the individual, play a great part in determining the result.

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A most emphatic difference, in the normal and epileptic response, is revealed in the above table. This is the disproportionately high percentage of *FbF* and *Fb* forms in the latter group. In normals the *FFb* answers account for 59·4% of the total colour answers, and in epileptics for 42·35%.

Most significant is the behaviour of the primary colour (*Fb*) responses. In normals they amount to no more than 6·77% of the total answers. In epileptics they provide 23·53% of the total.

The higher incidence of *FbF* and *Fb* forms in epileptics indicates a greater development in them of an unadapted, labile and egocentric affectivity, the development of primary *Fb* forms pointing to irritability and impulsiveness. The *B* answers have a stabilizing influence on the colour answers. Of these latter, the *FFb* answer is the most normal type, representing an adapted affectivity. The *FbF* and *Fb* answers, representing different degrees of unadapted affectivity, are accompanied by *B* answers to a far less degree in epileptics than normals. The number of normal subjects in whom an excess of *FbF* plus *Fb* answers over *FFb* forms was accompanied by *B* answers was 13 as against 5·3 per 100 epileptics. The number of subjects with an extreme development of colour elements in the absence of *B* answers, i.e., scores of *O B*, Σ*Fb* 4 or more, was more than twice as common in epileptics.

The factors underlying the perception of form have also a stabilizing effect on those factors represented by the colour answers. Study of the *F*+% in subjects giving an excess of the unadapted (*FbF* and *Fb*) types of colour answer is instructive. The average F+ percentage for those with *FbF* in excess of *FFb* answers were 83·02 and 66·39 in normals and epileptics respectively. This indicates that even in its transgression beyond the adaptation required by the *FFb* group, the affectivity in normals is still potentially more adaptable than that of epileptics. As the colour element becomes more prepotent as a determinant of responses, the subject's *F*+% diminishes, until, in the most extreme cases, such as occur only in the epileptic group, it is no more than 20–30%.

The above factors indicate a far more labile and unadapted affectivity in epileptics than in normal subjects.

The Psychogram Factors.

We will now deal with the findings for the most important psychogram factors as they apply generally in the epileptic group. Comparisons alluded to refer always to the 100 normal subjects investigated in this experiment.

The Erfassungstypus.

This is more contaminated with poorer apperception types than the normal. There is a greater frequency of *D-Dd* types, *D-Dd-Do* types, and related varieties not present, or in absolutely minimal development, in normals.

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A study of the incidence of poorer apperception types gives the following results :

TABLE III.—*Poor Apperception Types.*

	Normals.	Epileptics.
D	0	1
D-Dd	4	10
D-Dd-Dzw	5	8
D-Dd-Do	0	5
Total	9	24
	(out of 100) = 9%	(out of 132) = 18·32%.

A definite over-development of poorer apperception types in epileptics is to be noted.

Whole and Detail Answers.

The incidence of these is briefly demonstrated by a study of the average *Erfassungstypus* for the normal and the epileptic group :

	Number of answers.	*G.*	*D.*	*Dd.*	*Dzw.*	*Do.*
Normals	34	9	20½	2½	2	0
Epileptics	34	8½	19½	4½	1½	0

The accentuation in the epileptics of the small detail answers at the expense of the detail answers is obvious.

In addition, it must be pointed out that in epileptics many of the *G* answers are repetitive, and determined by the process of perseveration (see later), whereby subsequent whole answers are dictated by the persistence of an interpretation offered for an earlier table.

The Sukzession.

The sequence in epileptics is far less regulated than in normals. Loose, reversed and irregular types are overwhelmingly more common. The table below shows this relationship. In it is excluded from consideration 32 epileptics, which equalizes the number of subjects to be compared in the two groups. (An omission of 32 out of 132 subjects in considering the *Erfassungstypus* may seem surprisingly large, but this factor, above all others, can only be assessed fairly from a tangible number of answers. In addition, the whole tendency in the rejected group, though not utilized as data for the table, is confirmation of its findings.)

It will be seen that the optimally ordered sequence, i.e., the regulated sequence, is present in 71% normals and 50% epileptics, and the last figure is

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TABLE IV.—*The Sukzession.*

	Normals.	Epileptics.
Compulsive	9	1
Regulated	71	50
Reversed	4	17
Loose	16	30
Irregular	0	2

probably too high, owing to the preponderance of tendencies to a loose sequence in the rejected group.

The potential value of an ordered sequence depends on the richness or otherwise of the *Erfassungstypus*. In epileptics the latent value of the ordered *Sukzession* is much more vitiated by the coincidence of poorer types of apperception.

TABLE V.—*Table showing Relation of Ordered Sukzession to Erfassungstypus.*

	Number of subjects with ordered *Sukzession.**	Number of subjects with rich *Erfassungstypus.*	Number of subjects with poor *Erfassungstypus.*	Percentage of subjects with rich *Erfassungstypus.*
Normals	80	69	11	86·25
Epileptics	51	33	8	64·12

It may be concluded from the foregoing statistics that there is, in epileptics, a deficiency in the process of abstractive synthesis. This is shown by the greater number of concrete and over-meticulous types of intelligence, as revealed by the accentuation of *D-Dd* and its allied comprehension types. Where the type of intelligence would seem to be wider and richer (as indicated by *G* and *G-D* types) there is often no real capacity for regular and competent abstraction. In these cases the proffering of whole answers is largely determined by perseveration (see later). By this process, a detail in the first plate, more or less resembling a part of the human body, is amplified by confabulation till the whole plate is regarded as depicting the human body, or a larger anatomical unit than that at first perceived. Not only this, but the rest of the plates are regarded as similar interpretations. Such a procedure borrows minimally from the associational processes, and cannot be regarded as indicative of organizing abstractive powers.

It is interesting that some epileptics reveal this power of abstractive synthesis in an abortive form which seems quite characteristic of them, and involves the confabulation of *D* answers from a single small detail, by a process analogous with, but not proceeding to the extent of, the production of a *DG* answer.

(The incidence of subjects with an abstract, theorizing type of intelligence is small.)

* Regulated and compulsive.

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This deficiency in the powers of abstraction implies an inability to elaborate from perception any generalizing or simplifying hypotheses. This is possibly of great importance in the genesis of the epileptic temperament.

From the nature of the *Sukzession* in epileptics we may infer in them, as compared with normals, impaired powers of attention and a lack of precision and definition in the associative processes.

The Potential Intelligence.

The above paragraphs deal more directly with types of intelligence. It is now necessary to discuss the general potentiality we call intelligence. This is considerably less in epileptics, the low $F+\%$ being possibly the most salient indication.

Rorschach's criteria of intelligence were a high percentage of well-perceived forms, a high proportion of *B* answers, a high proportion of *G* answers, a rich *Erfassungstypus*, i.e., *G*, *G-D*, *G-D-Dd*, an optimally ordered *Sukzession*, i.e., avoiding compulsive, loose, or reversed sequences, a low *T* percentage, and an optimally high *O* percentage.

Table VI.—*The Factors Determining Intelligence.*

	Epileptics.	Normals.
$F+\%$	58·67	80·525
Average *B* score	·87	1·63
Average *G*/*A* ratio	8½ : 34	9 : 34
% Poor *Erfassungstypus*	18·32	9
% Optimal *Sukzession*	50	71
$T\%$	30·374	44·964
$O\%$	33·343 $\overline{+}^{-}$	24·73±

The near equivalence of the *G*/*A* ratio* in epileptics and in normals is more apparent than real, due to the effects of perseveration.

From the above table the general intellectual deficiency in epileptic subjects will be appreciated. This, it must be understood, is an expression of the intellectual potentiality of the whole group, no selective significance being given to cases of oligophrenia and dementia. So far as comparisons from any single factor are concerned, the difference in the potential intelligence of normals and epileptics is shown most strikingly by the relative scores of 80·525 and 58·67 for the $F+\%$.

Additional proof of the poorer potential intelligence in epileptics is given by the greater occurrence in them of oligophrene (*Do*) answers, 18 as compared to 5, per 100 subjects.

* The ratio of the number of whole answers to the total number of responses of any description.

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Stereotypy.

Briefly, the epileptics show less indications of stereotypy than normals. Their *V* and *T* percentages are smaller and their *O* percentage higher. (The *O*% will be discussed more fully in connection with the imagination.)

The Original Answers.

These are numerically greater in epileptics than in normals. They constitute almost one third of the whole answers given, there being 1,111 *O* answers out of a total of 3,332 answers, whereas of 3,336 answers given by the normal group, only 882 were *O* answers.

There is a striking difference in the quality of these answers in the two groups. Only 199 of the epileptic answers are plus scores, i.e., 17·91% of the total *O* score, whereas the corresponding figure in the normal group is 504 out of 882, or 57·14%.

The Vulgar Answers.

These are of smaller development in the epileptic group, constituting 11·375% as against 14·36% for the normal subjects.

The T *Response.*

This factor (*T* and *Td*) combined is smaller in epileptics than in normals, the appropriate figures being 36·374% and 44·964%.

The M *Response.*

The *M* element is approximately coincident in both types of subject, but the *Md* element is more developed in epileptics, the figures for the two types of subject being 16·6% and 13·2%.

Rorschach stated that epileptics show a rather specific form of stereotypy, i.e., a preoccupation with parts of the human body rather than with animal forms. As has been pointed out above, the *Md*% is greater in epileptics than normals. The difference must actually be greater than that expressed by the above figures, because a large proportion of the normal controls had received an anatomical education. But Rorschach's statement that this is a manifestation of stereotypy must be examined more closely, because a large proportion of the *Md* answers are given by patients exhibiting perseveration, the most typical form of which, described previously, gives rise to numerous bad form perceptions. Stereotypy is a phenomenon usually associated with *F*+ forms and a diminution in *O* answers. These findings are not presented here. Certainly stereotypy and perseveration are associated clinical symptoms in certain conditions, such as katatonic dementia præcox. Within the more specialized definitions of these investigations the two meanings are not in any

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sense synonymous. Rorschach's statement that the epileptic preoccupation with *Md* responses is a form of stereotypy is, then, open to question.

Imagination in Epileptics.

It is beyond the scope of this paper to discuss the distinction between what Rorschach meant by productive and confabulant types of imagination. He laid down the following as definitive criteria of genuine imagination :

(*a*) A high number of *G* answers.
(*b*) A high number of *Fb* answers.
(*c*) A high number of *B* answers.
(*d*) A tendency to combinatory *G* answers.
(*e*) A high percentage of original answers (of good quality).
(*f*) A high *F*+ percentage.
(*g*) A low percentage of *T* answers.

Previously quoted figures show, in epileptics, a deficiency in all the above factors except in (*d*) and (*g*). In the latter case it has been shown that the lower *T*% is not necessarily an indication of a higher facility of the associational processes, because it is associated, if not with a true stereotypy, at any rate with another form of preoccupation, i.e., with *Md* forms. In the case of (*d*) a general equality is shown in the two groups, the figures being : normals 19, epileptics 23 (per 100 subjects). But it was very evident throughout this test that the *DG* combinatory answers in epileptics do not indicate, as they do in normals, a power of unusual synthesis in constructing well-perceived details into novel but acceptable totalities. They do not reveal, in comparison with the *DG* (confabulatory) responses, an imagination more disciplined, vivid and real, as one would expect from the fact of their being derived by a more complex process of summation through various associative links. They are, in fact, little different in nature from the *DG* (confabulatory) answers, of which they may be considered a variation.

Though, as has been seen above, the indications of a productive imagination are less evident than in normals, the existence of confabulatory processes is most strikingly over-emphasized. In making such a statement, consideration is being given not only to such signs of confabulatory processes as are shown in the *DG* (confabulatory) answers and in the production of an extremely high percentage of *O* forms, but also to the incidence of confabulatory answers so strikingly developed in epileptics as compared with normals that it was considered necessary to give responses of this nature a special designation. Answers of this type referred to here are called confabulatory kinæsthetic (*CB*) and confabulatory pictorial (*CP*) answers. The former are those involving an interpretation of movement entirely independent of any element of form perception, while the latter constitute fantastic and confabulated scenic responses, never offered as interpretations in the normal group.

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In the table below are set out those factors indicative of confabulatory processes. The over-emphasis of these in epileptics is very apparent.

TABLE VII.

	In 100 normals.	In 100 epileptics.
Confabulatory kinæsthetic (*CB*)	1	39
Confabulatory pictorial (*CP*)	0	55
DG (confabulatory)	16	32·3
% of — forms in total *O* score	42·86	82·09

Such factors as the above show that, so far as the apparent diminution of stereotypy in epileptics is concerned, their avoidance of such a condition involves no genuine originality of thought, but an undue, unproductive and pathological variability of the associational processes, which shows itself in phantasy preoccupations.

THE CHIAROSCURO RESPONSE.

Since anxiety as a precipitant, a sequel, or an accompaniment of the convulsions, has been postulated by so many different authors, it has been deemed advisable to include a section on this type of response, because it indicates, more than all others, an anxious affectivity.

The incidence of these responses is expressed below.

TABLE VIII.—*Incidence of Types of Chiaroscuro Response.*

	Normals.	Per 100 epileptics.
F(CH)	157	97
(CH)F	29	37
(CH)	3	18

These figures show, in their distribution, a remarkable similarity to that of the true colour answers. There is, in epileptics, the same higher development of responses more independent of form perception. This parallelism is expressed below.

TABLE IX.—*Relation of Chiaroscuro and Colour Response.*

	Normals.	Epileptics.		Normals.	Epileptics.		Normals.	Epileptics.
FFb	59·4%	42·08%	*FbF*	33·6%	34·39%	*Fb*	7%	23·53%
F(CH)	83·07%	63·78%	*(CH)F*	14·8%	24·49%	*(CH)*	2·13%	11·73%

The *(CH)F* and *(CH)* factors seem of particular significance, because of their frequent occurrence in those epileptics who reveal most characteristically the classical epileptic traits.

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These chiaroscuro answers, in epileptics, are found mostly in those subjects with an extratensive preponderance.

Relation of the Chiaroscuro Response to the Different Mental Categories.

The above is revealed in the following table:

TABLE X.

	Oligophrenia.	Dementia.	Under no certificate.	Epilepsy with insanity.
Number of chiaroscuro answers.	52	16	43	76
Number of subjects . .	47	25	30	26
Average per subject . .	1·11	·64	1·43	2·92

The above figures show that the incidence of chiaroscuro elements is greatly diminished where there is evident intellectual impairment. There is an inescapable over-development of these factors in cases of epilepsy with insanity. This is of interest because the genuine epileptic traits were exhibited most commonly by cases of epileptic insanity, being of highest incidence in those with the highest $F+$ and $O+$ percentages, and, in addition, being very meagre in those with congenital intellectual impoverishment. In addition, the average (CH) score in the cases of oligophrenia was considerably raised by 4 cases whose (CH) score was greatly in excess of that of their fellows, and who, peculiarly enough, showed far more than others in their group those characteristics we describe as epileptic.

It cannot be argued that the nearer one approaches the normal the more anxious is the affectivity. It would be an enticing hypothesis to assume that anxiety developed in parallel with the subject's acute sense of his position. But the group of patients under no form of certification have a chiaroscuro score of less than half that given by the insane epileptics. This is of significance in stressing the anxious affectivity as causative of, rather than resultant on, the factors which constitute the epileptic personality. It seems to indicate that the relative absence of the classical traits in the uncertified, as compared with the insane, group, is due to the lesser development of this type of affect in the former group.

Chiaroscuro Responses and Convulsions.

There is absolutely no proportionality between the number of fits, the type of fit, and the chiaroscuro response.

Chiaroscuro Reponse and Age.

The table subjoined demonstrates the above relationship. Subjects who showed signs of oligophrenia of any variety were excluded:

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TABLE XI.

Age.	Number of chiaroscuro answers.	Number of subjects.	Average per subject.
Up to 20	41	30	1·37
20–30	33	8	4·125
30–40	22	16	1·375
40–50	11	6	1·833
50–60	21	13	1·615
Over 60	5	7	·714

It will be seen that the chiaroscuro response is very markedly accentuated, relative to other age-periods, in the years between 20 and 30. The only other striking factor is the fall in the value beyond the age of 60. These figures are of great interest, because the epileptic character traits are most obvious clinically from 20 to 30 years of age, and, to a less degree, in the subsequent decade.

The figures for epileptic oligophrenics are quite analogous, there being a similar more than three-fold accentuation of these elements from 20 to 30 as compared with the age-period up to 20.

FURTHER TYPES OF RESPONSE.

There was an absence, in epileptics, of certain types of answer regarded as representing the power of organizing new perceptions. These included responses, called incorporation answers, where areas of different colour were combined to produce a single form answer. There were also responses called essential quality answers, of the astereognostic variety (symbol *EQa*), where astereognostic perceptions were regarded as determining the response. A further type of essential quality answer, of the emotional variety called *EQe*, held to show close affinities in content and meaning to the *B* answers, was also absent in epileptics.*

The following table shows the relative incidence of these types of answer :

TABLE XII.

	Normals.	Epileptics.
Incorporation answers	14	1
EQa	28	0
EQe	16	0

Answers allied to *EQe* answers, but demonstrating, not definitely emotional, but intrinsic attributes of mien so well marked as to be determining factors in producing the responses, are present in epileptics. These responses show a marked preoccupation with the pathological. Examples are, " It is obviously

* For fuller description of these answers see previous paper.

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decayed ", " It looks dead ", " There's no life in it ". Answers such as these are only given by epileptics with well-marked epileptic characterological peculiarities. They seem to represent the preoccupation with, and the insistent, though unrecognized desire for, unconsciousness, which is present in epileptics. Such a view as this gains support from the perseverative tendencies of epileptics. Elsewhere in the investigation we find epileptics preoccupied with the essential basis factors of their disease, with cuts, wounds, and men who have fallen in fits. Further support for this opinion is the fact that projection is, in epileptics, a process of minimal development.

Non-interpretation Responses in Epileptics.

These include descriptive responses, where the tables are merely described, and what I have called geometric answers, which latter were described but given no special designation by Rorschach, and which are answers determined solely by position, e.g., where the whole plate is regarded as the body, a point in the centre being referred to as the abdomen.

The subjects giving descriptive answers are divisible into two categories according to the degree of form-perception present. (Consideration of cases with a high $F+\%$ will be postponed for the present.) The average psychogram, and other factors, for 8 patients giving descriptive answers with a low $F+\%$ are as follows :

Number of descriptive answers.	Total number of answers.	Number of *G*'s.	$F+\%$.	$O\%$.	*B*.	ΣFb.
6	23	6	14·61	30·64—	·12	·31

All these were cases with gross intellectual impairment, either epileptic oligophrenics, or cases of epileptic deterioration.

The offering of descriptive answers is obviously not due to an affective lability. The low $F+\%$, and the high percentage of $O-$ forms, point to an impoverishment of genuine associational processes.

The average main factors for 10 patients giving geometric answers are as below :

Number of geometric answers.	$F\times\%$.	$O\%$.	*B*.	ΣFb.	$Md\%$.
8·7	30·4	36·59——	0	1·5	43·37

The figures here indicate also that in general the offering of geometric answers is determined by inadequate associational data. Furthermore, signs of confabulation are very marked.

	Number of *DG* answers.	Number of *CB* and *CP* answers.
Average for geometric group	2·2	1·9
Average for whole epileptic group	·55	·93

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The accentuation of the $Md\%$, 43·37 against average figures ior the whole normal and epileptic groups of 13·31 and 16·59, is very striking.

Nine out of these 10 patients show the phenomenon of perseveration.

The most striking feature of this group is the number of cases who demonstrate a perseveration of the human body in all ten tables, and in whom the process is initiated by the amplification, in Table I, of a human body detail, so that the whole table is regarded as the human body. Characteristic of these cases is the extremely high $Md\%$ of 78·73, and a higher proportion of *G* answers in the *Erfassungstypus*. The explanation appears to be that in these latter cases we are dealing with a tendency to the comprehension of whole forms. The inherent tendency to abstractive synthesis is present, but the associative material is too poor, and confabulatory elements supply the deficiency. It seems, too, that perseveration is connected with this abstractive process, because in its most common and striking form it seems to be dedicated to the production of whole answers. Perseveration appears capable of acting as a substitution phenomenon for association, and of initiating confabulatory elements for its functioning.

Signs of Neurosis in the Investigation.

Average values of various factors for the group with a high $F+\%$ who gave descriptive answers are given below:

Number of *Ds* answers.	Total number of answers.	Number of *G* answers.	$F+\%$.	$O\%$.	*B*.	ΣFb.
4	28	5·67	77·53	29·9∓	·22	2·17

This group contained the patients with the highest intelligences in the epileptic group; 36·4% of them were under no form of certification, and the majority of the others were cases of epileptic insanity with no noticeable intellectual deterioration.

These patients first respond by a laboured offering of a few descriptive answers, which is obviously, from the figures above, not due to an associational impoverishment, following which there is a ready flow of answers of a good $F+$ quality. There seems first a block to, and than a facility in, the process of interpretation. The phenomenon has obvious affinities with colour shock. The responses of these subjects, and colour-shock normals, show many close similarities. There is the same negligible development of *B* answers, the same extratensive preponderance,* and a stressing above the normal of *Dzw* and (*CH*) factors, and, most striking of all, the lengthening of the reaction time, from 1·026 to 1·27 minutes in colour-shock cases, and from 1·124 to 1·64 in these epileptics.

* The subjects exhibiting colour-shock all proceeded subsequently to the production of colour answers.

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The early exhibition of descriptive answers by epileptics of this degree of intelligence seems indicative of repressive tendencies.

Abstract Answers.

Responses of the above type are difficult of actual definition. For examples, *Psychodiagnostik* and Rorschach and Oberholzer's monograph should first be consulted. Relevant factors, for those who offer abstract answers, are given below in their average values :

	B.	Σ*Fb.*	*F*+%.	*O*%.	Σ*CH.*
Normal	4	5·53	81·13	35·02E*	3·88
Epileptic	2	3·98	56·42	28·01 — —	2·31

In both types of subject the chiaroscuro value is well over three times that for the whole group.

Colour details largely provide the basis for abstract answers in epileptics. Details, usually interpreted as to form, more commonly stimulate the production of such answers in normal subjects. Whereas in normals, some personal experience, very commonly a dream, is incorporated in the abstract answers, in epileptics the response seems dictated by a disproportionate degree of symbolism, often derived from a colour in the table. The interpretation, in Table VIII, of the central white area as " a part ready for holy purity ", is characteristic of this, the response being a symbolic derivation from the colour of the detail. The primary colours serve also as stimuli for these answers. Answers of this nature seem to involve a mental process similar to that employed in the production of *DG* confabulatory answers.

It is permissible to theorize that in epileptics the abstract answer is a confabulated goal for an unadapted affective tendency, and that in normals it is an imaginative addition to some already well-adapted basis. Certainly epileptics giving these answers are relatively far more extratensive than their normal counterparts, while their lower *F*+%, and the nature of their *O*%, indicate a much lower degree of adaptation. In this connection it is interesting to note how often in epileptics the form of the answer seems expressive of a wish, an example of this tendency being, " They are saying farewell with new hope in their minds ", etc., whereas in normals the abstract answers are often derived from what has happened before, and often seem to reveal the operations of an erupting complex.

Whereas in normal subjects it seems that a preoccupation with abstract answers is determined by sexual factors, there is insufficient evidence that this is the case in epileptics.

Sex and Religious Answers and those of a Personal Implication.

The latter of the above-mentioned responses, referred to, for convenience, as ego answers, are those in which interpretations are referred to as belonging

* E indicates equality of + and — forms.

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to the subject interpreting them, a type of response sometimes offered to human body interpretations. The incidence of these responses is as given below:

	Ego.	Religious.	Sex.
Normals	0	7	12
Epileptics (per 100 subjects) .	10	17	88

Classifications as to content of answers must be pursued with the utmost circumspection. In the above cases any direct inference as to the relative strength of different tendencies from the numbers of answers associated with each would be fallacious. In two cases, i.e., the ego and sex answers, in most varieties of subject at any rate, the tendency would be to suppression.

The very much greater number of *S* answers in epileptics cannot alone be taken to indicate a greater sexual preoccupation. But the score of *S* answers was obtained from a small number of subjects, most of whom revealed a complete, or almost complete, perseveration for human anatomical interpretations, and in whom the *Md*% was necessarily very high. The majority of these had a constricted *Erlebnistypus*, with a strong development of answers of a confabulatory type; 80% of these subjects were young persons undergoing rapid epileptic deterioration. In this type there is, associated with a restriction of the subject's experiencing capacity, a preoccupation with the anatomical self, the sexual apparatus being the main element of interest. Concomitant affectivity is inconsiderably marked—there are few colour answers in these subjects. The preoccupation involves a perseverative tendency, a definite inertia—in the sense used by Edwards—centred about the body in general and the sexual apparatus in particular. The chiaroscuro response, indicating anxious affectivity, diminishes steadily with the degree of dementia displayed by the subject. Ego answers are found in these patients, the highest number in those in whom the chiaroscuro response is absent, indicating a location of the residual personality in its own sexual structure.

The above indicates, in epileptics, a largely intellectual sexual preoccupation accompanied, far less than usual, by affective factors. It seems only a further stage in the largely "intellectual" hypochondria wherein, in concentrating his attention on his body, the epileptic is demonstrating the increasing constriction of his interest.

The higher development of ego answers in epileptics is very significant, but, as a matter of scientific principle, its implied conclusions are best left undrawn.

The Relation of Kinæsthetic with Confabulated Kinæsthetic Answers.

Answers of the latter variety, i.e., secondary movement* (B_2) and confabulated movement answers, seem particularly developed in epileptics. The relationship of these is demonstrated in Table XIII.

* Responses primarily determined by form, wherein expressions of movement are added afterwards as a confabulated addition.

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The following conclusions may be drawn from this table :

(*a*) Subjects offering movement answers where confabulation plays a part (e.g., B_2 and *CB* answers) are characterized by—

(1) Other confabulatory answers, e.g., *CP*, *DG*.

(2) Perseveration.

(3) Psychomotility.

(4) A general extratensive predominance, involving an unadapted egocentric extratension.

The frequency of association of these answers with psychomotility is shown by the fact that only 13 epileptics demonstrate this phenomenon, 9 of whom are among the 19 patients constituting this group.

(*b*) The table bears out Rorschach's contention that obvious psychomotility occurs in those deficient in introversive elements. Seven of these 9 subjects had no *B* answers. In the other 2 the true *B* answers were equalled or exceeded by secondary *B* or confabulated *B* answers.

(*c*) A deficiency in true kinæsthetic sensation is accompanied by a preoccupation with confabulated movement. The highest number of these latter elements is associated with a complete absence of *B* answers.

(*d*) As a general rule, confabulatory answers, chiefly of the movement variety, are not associated with psychomotility unless accompanied by a favourable development of colour answers.

Of the 19 patients in this group, 11 showed hypochondria of the epileptic variety. This is a large proportion in my cases, in which, in a total of 132, not more than 23 displayed this symptom-complex. In this group where the confabulated movement answers were present, not a single subject revealed symptoms of agitation in association with his hypochondria, and such psychomotility as was demonstrated could not be described as due to anxiety.

The connection between hypochondria and movement confabulation is not clear, but certainly whatever the latter represents seems to absorb the tension associated with the former. Another interesting observation was that where, in a hypochondriacal subject, the confabulated kinæsthetic element was expressed in movement of the bodily organs, there was no overt motility of any description.

The Effect of Oligophrenia and Dementia in the Test Response.

This is an important question to decide, because institutional epilepsy is commonly associated with conspicuous intellectual deficiency, either with oligophrenia or dementia. The incipient intellectual degeneration implied in the epileptic psychosis, involving so marked a withdrawal of interest from the environment, cannot, of course, be assessed.

The effect of both these factors is to lower the form perception. In oligophrenics the *O* percentage is mostly reduced, whereas in dements there is a high score of O — forms. The *O* — forms are produced firstly by perseveration, since

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TABLE XIII.

Subject.	Primary *B.*	Secondary *B.*	Confabulated *B.*	*FFb.*	*FbF.*	Primary *Fb.*	Σ*Fb.*	*F* + %.	*O*%.	Other confabulant signs.	Perseveration.	Psycho-motor activity.
A	0	0	2	0	3	1	4½	33·33	43·75—	0	Yes	No.
B	0	0	1	0	2	0	2	50	0	0	,,	Yes.
C	1	0	2	2	0	0	1	40	47·37—	2 *CP*	,,	No.
D	0	0	4	0	0	3	4½	37·04	31·82—	2 *DG* (combin.)	,,	Yes.
E	0	0	1	0	0	0	0	28·57	33·33—	2 *CP* 1 *DG* (confab.)	,,	No.
F	0	0	5	0	0	1	1½	33·33	7·7—	7 *CP*	,,	No.
G	0	0	2	0	1	1	2½	57·14	14·3—	1 *DG* (confab.)	No	Yes.
H	0	0	9	0	0	0	0	0·09	41·51—	6 *CP* 8 *DG* (confab.)	Yes	No.
I	0	0	2	0	0	1	1½	24·14	48·08—	1 *DG* (confab.)	,,	,,
J	1	3	1	1	1	0	1½	33·96	60—	1 *CP* 5 *CP* 1 *DG* (confab.)	,,	,,
K	0	2	2	0	1	0	1	13·8	83·33—	18 *CP*	No	Yes.
L	0	1	1	0	0	1	1½	74·2	20·41±	0	,,	No.
M	0	0	2	2	1	2	5	61·11	19·23—	0	,,	Yes.
N	3	2	1	0	0	0	0	77·78	36·51E	1 *DG* (confab.)	,,	No.
O	3	5	4	3	4	0	5½	34·88	54·39— —	2 *DG* (confab.) 2 *DG* (combin.) 5 *CP*	,,	Yes.
P	0	0	1	0	0	0	0	14·29	37·5— —	0	,,	No.
Q	0	1	2	1	1	2	4½	69·23	55·55∓	1 *DG* (confab.) 2 *CP*	Yes	Yes.
R	0	0	3	1	0	0	½	0	20— —	2 *CP*	,,	,,
S	3	2	1	1	1	3	6	69·44	30·49E	3 *DG* (combin.)	No	,,
—	—	—	—	—	—	—				73 other evidences of confabulation. 50 *CP*, 16 *DG* (confab.), 7 *DG* (combin.).		
Totals : 19	11	16	46	11	15	15						
Averages :	·58	·84	2·42				2·26	40·07	39·75 $^{-}_{+}$	. *CP* = 2·63; *DG* (confab.) = ·84; *DG* (combin.) = ·37.		

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the later answers in a sequence bear no resemblance to the tables, and secondly, by elaborate confabulation, the latter process being of greater consequence in dements. It may be concluded that in epileptic oligophrenics there is a greater bias towards stereotypy, whereas, in dements, there is a disruptive facility of the association processes.

The *Erfassungstypus* is richer in dements than in oligophrenics, in whom there is a disproportionate attention to trivial detail, and a further contamination by oligophrene answers.

There is a considerable development of confabulated movement answers in dements.

A sharply delineated affect in oligophrenia or dementia would be worthier of consideration if these conditions were confined to one variety of *Erlebnistypus*. Rorschach indicated that, with the exception of arteriosclerotic dementia, these conditions were to be found in the extratensive category. Study of the table below will show findings quite at variance with those of Rorschach :

TABLE XIV.—*Number of Subjects in each Erlebnistypus.*

	Oligophrenia.	Dementia.
Coarted	12	12
Coartative	5	3
Introversive	2	2
Extratensive	11	4
Ambi-equal	2	1
	32	22

Only 34·375% of epileptic oligophrenics, and 18·18% dements, are extratensive. The percentage of constricted types, 53·125 in the former and 68·18 in the latter, is very striking. This finding is quite logical when one considers the affective atrophy coincident with the restriction of interest which is the sign, par excellence, of epileptic deterioration. While this explanation is more directly applicable to the demented group, there is no reason why the same degenerative process should not be postulated in epileptic oligophrenia, wherein a considerable degree of deterioration is often inextricably interwoven.

PERSEVERATION.

This is possibly the most characteristic finding for the epileptic group. It is the persistence, through several tables, of a single response, the later answers being such as are not proffered by normal subjects. Where the first interpretation is permissible, as that of " butterfly " or " bat " for Table I, only a recurrence through at least eight tables is considered as exemplifying perseveration. This, while almost certainly too stringent a standard, precludes, at any rate, phenomena better regarded as indicative of stereotypy.

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This phenomenon merits at least a paper to itself. Here, reference to it must be brief.

The commonest variety is the type referred to previously, where a human figure detail in Table I is so amplified that the table is regarded as the whole body, and this idea persists throughout the test. In other subjects there are perseverations of performance, interpretations of histrionic rites being repeated. Cases like this afford the nearest approach to the kinæsthetic perseveration referred to by Rorschach as characterizing epileptics. It must be emphasized that in this investigation only confabulated kinæsthetic perseveration is referred to. A preoccupation with catastrophic sequelæ of fits is very noticeable.

It is to be noted that the intelligence (estimated by the Rorschach criteria, $F+\%$, $O\%$, etc.) rises in proportion to the degree to which the subject is devoted to detail (see Table XV).

TABLE XV.

	$F+\%$.	$O\%$.
Perseveration of *DG* whole answers . .	35·17 .	43·16 —
,, of primary whole answers .	40·07 .	44·56 —
,, of detail answers . . .	48·94 .	31·04 $\overline{-}+$
,, of fine detail answers . .	67·74 .	34·85 $\mp$

There is, in association with perseveration, a very considerable development of answers of a confabulatory type, i.e., *DG* (confabulatory), *CB*, *CP*, *O* —, etc. This is important in view of the function postulated for perseveration in connection with abstractive synthesis.

Perseveration occurs in 43 subjects. Of these only 4 are introversive. There is also a general deficiency of kinæsthetic elements in this group, as shown by the subjacent average figures for different apperception types of perseveration.

TABLE XVI.

	B.	ΣFb.
Subjects with perseveration of *DG* (confabulatory) answers	·14 .	1·29
,, ,, ,, of primary *G* answers . .	·56 .	1·22
,, ,, ,, of detail answers . . .	1·15 .	1·73
,, ,, ,, of fine detail answers . .	·4 .	1·1

These results are interesting because the general conclusions of the work done on perseveration and non-perseveration types indicate an identification of perseveration with introverted types. It seems that in epileptics perseveration is a peculiar and specific property, rather than the evidence of a characteristic type contained within the epileptic genus.

PERSEVERATION AND STEREOTYPY.

It must be pointed out that the above phenomena possess quite different criteria in the investigation. A preoccupation with faces and heads, animal

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and human, might seem to belong equally to either phenomenon. This is a misconception. The tables lend themselves readily to the interpretation of particular heads and faces, which receive an $F+$, and sometimes a V designation. Such responses are offered most generally by those in whom other indications of stereotypy exist. The preoccupation with faces which is a real perseveration involves the production of $F-$ and $O-$ scores. Though casual consideration might lead to suppositions as to the similarity of the two processes, their psychogram factors are completely different, stereotypy being associated with a high $F+\%$ and a low $O\%$, and the converse being almost always true for perseveration.

Varieties of Perseveration.

Perseveration seems divisible, from one standpoint, into two varieties. The first is that in which a confabulation of the human body arises from a single anatomical detail. This type, with its persisting tendency towards abstractive synthesis, appears to involve a genuine ideational perseveration. The second type is found in subjects of a more concrete intelligence, as shown by the occurrence of a *D-Dd Erfassungstypus*, and of a higher potential intelligence, and includes a small subgroup where an unusually fine detail, exceptionally well perceived as to form, is sought for in subsequent tables, leading to the discovery of details of similar fineness and content, scored often as $F+$ and sometimes as $O+$. In this second group signs of confabulation are far less evident. The interpretation, initiating perseveration, seems to persist and exclude all others from notice. It must be considered possible that this type is a perceptional perseveration.

The fact that perseveration occurs in subjects of every *Erlebnistypus*, *Erfassungstypus*, degree of intelligence and clinical mental category indicates its importance as an epileptic phenomenon.

"Staccato" Phenomenon.

Attention must be drawn to this peculiarity in the mode of interpretation displayed by some epileptics. This involves a waxing and waning of the flow of interpretations, independent of the effects of inattention from progressive fatigue, since it is noted in the earlier tables, and not specifically connected with the relative difficulty of interpretation of the different tables, since cessation often occurs after the patient has offered a satisfactory number of responses, and often at a table like V, which lends itself to the production of a stereoptyped whole answer. It is almost as if interpretation were followed by a negative phase during which the faculty of association is inaccessible to further stimuli.

The interest of this finding lies in the fact that an uneven and staccato nature of the mental processes is regarded by E. Bleuler as one of the salient features of the epileptic character.

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Conclusions.

The information, statistical and otherwise, derived from this investigation is so extensive that this article of itself partakes of the nature of a summary.

The new nomenclature evolved is not regarded as a transgression of Rorschach's dictum that it is the type, rather than the content, of the answer which is of most importance. These symbols are merely a convenient method of recording answers of such overwhelming incidence in epileptics, as compared with the normal group, that to fail to assess them would be a definitely unscientific procedure.

A full summary of the epileptic response to this test would include so many subtypes that it would expand beyond the limits of its definition. Regarding the epileptic group as a whole, the following three findings, translated into ordinary psychological terminology, are the most striking; the deficiency of abstractive synthesis, the association of extratensive factors with strong indications of confabulation, and the process of perseveration. The value of elucidating three such factors as the above lies in the fact that they are experimentally determined and are more or less primary psychological data. As such, they are possibly of greater scientific value than the complexly derived so-called epileptic characterological traits, the degrees of which must necessarily be assessed differently by different authors.

In epilepsy, there is no such constant Rorschach reaction type, as is found in other mental disorders. This is to be expected, for epilepsy seems less a disease than a particular mode of response on a lower teleological plane. It can be said, however, that subjects showing the classically described epileptic character show well-marked extratensive, chiaroscuro and confabulant tendencies in their response, and are found most commonly in the extratensive, but sometimes in the ambi-equal, category. These cases constitute a minority in the present group.

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It must be understood that in this bibliography only the literature directly impinging on the Rorschach test is supplied. The literature related to the psychiatric problems raised in the text is considered to be too wide for quotation. This applies in particular to references concerned with the epileptic temperament, consulted in relation to the last article.

Additional literature on the Rorschach test may be obtained by consulting Vernon's articles in the *British Journal of Medical Psychology* in 1933, *vide supra*, and in this number of the *Journal of Mental Science*.

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