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Part I.—Original Articles.

ASPECTS OF THEMATIC APPERCEPTION TESTING: PARANOID SCHIZOPHRENIA.

By MAX VALENTINE, M.D., D.P.M.,
Senior Lecturer, Department of Mental Health, Aberdeen University,

and

ASHLEY A. ROBIN, M.B., Ch.B.,
Junior Registrar, Scalebor Park.*

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THIS paper embodies an attempt to study paranoid conditions by the use of psychological tests of the "projection" type—here, the Thematic Apperception test (*TAT*) and the Ink-blot test of Rorschach. In giving a standardized projection test to a homogeneous group there is some hope that factors specific to the group may emerge. When the group has a common "mental disease" or psychiatric syndrome, it is possible that the results may throw light on the nature of its psychological processes—and hence, ultimately, on the nature of the disease.

In a previous paper (Valentine and Robin, 1950) we demonstrated a scoring system for the *TAT* which we considered more objective, and on a firmer methodological basis, than some existing methods. This technique has been, first, to give the *TAT* to a control group and analyse the series of responses to each card. The procedure is then repeated with the experimental group, and the proportions of each type of response in every card-series in the control and experimental groups are compared; any differences of proportions are tested for statistical significance. Finally, two experimental groups may be compared.

In this way it was felt that the normal range of responses would be at least approximately ascertained, and further, the specifically different responses of the various psychiatric syndromes could be found. The advantages of the method are, first, that it compares nosological groups against a normal control group; second, it reduces the subjective factor in interpretation; and third,

* Now Registrar, Runwell Hospital.

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it points a way to accurate measurement of trends shown both in diagnostic groups and in the individual case.

Constitution of the Groups.

It may be as well at this point to give the working classification which we used in selecting our test group; also to comment on the control group.

The paranoid reaction must be considered essentially non-specific—that is to say, "paranoid" features can arise as symptoms in various illnesses ranging from delirium tremens to early hebephrenic schizophrenia. The unsatisfactory nature of the concept *paranoid* is appreciated when we consider that it means *like or resembling paranoia*, which in itself can scarcely be considered an entity any longer. It is used as a description of cases which may have nothing in common apart from some tendency to persecutory ideation at one phase or another of the illness. The disparate nature of the schizophrenic psychoses in general has been stressed by a number of authorities (*see* Bruetsch, 1940), and an equally good case can be made out for the paranoid psychoses in particular.

The classification which we have used in selecting cases for this study is as follows:

1. *Symptomatic paranoid reaction.*—Here the paranoid features are secondary to some systemic disturbance. Examples are given by Thompson and Nielsen (1948), and Silverman (1949); other examples are the *formes frustes* seen in developing psychoses of the hebephrenic type.

2. *Paranoid-depressive psychosis.*—The paranoid element is associated with depression here, and may be sufficiently florid to mask the affective component. The illness tends to be benign, and the paranoid features are considered to constitute a component; in a different personality setting they might have been replaced by hypochondriacal delusions or guilt reactions.

3. *Paranoid state.*—This comprises mainly ideas of reference and a tendency to fixed persecutory delusions; insight is variable. It seems doubtful whether Kraepelin's *paranoia vera* is, in fact, an entity to be classed separately from *paranoid state*, and this view appears to be supported by the case-histories described by Rosen and Keine (1949).

4. *Paranoid schizophrenia.*—Classically, the illness is marked by delusions which are "multiple, unsystematized, changeable, usually of the most fantastic and illogical nature and accompanied by hallucinations. . . . This type of schizophrenia runs very much the same course as the other varieties, and ends usually in a state of dementia, characterized by mannerisms, stereotypies, incoherence and a total lack of interest." (Henderson and Gillespie, 1944.)

So far as *paraphrenia* is concerned, we are in agreement with the view of Strecker *et al.* (1947)—"it is scarcely justifiable to think of paraphrenia as a clinical entity. It is one of the redundancies of Kraepelin's passion for classification, and is allied to the original 'Délire chronique à evolution systématique' of Magnan." The term is no longer used in the official American psychiatric classification, and, in addition to the above objections, one finds that different interpretations are attached to it by different people; for

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example, to some psychiatrists the distinctive point about *paraphrenia* is consonant emotionality; to others it is the preservation of an outward-going personality. We have therefore included cases that some might diagnose as *paraphrenia* in our *paranoid schizophrenic* group. All these cases were grossly deluded and suffered from auditory hallucinations.

Cases of this type (and indeed all schizophrenic disorders) we feel should be classed according to whether there is interference with abstract thinking, as this appears to consitute an important natural division. The disability is conceived in terms of Goldstein's theory of abstract and concrete thought, and can be tested for in a variety of ways. Concrete thinking is nearly always present in "deteriorated" paranoid schizophrenics, but not necessarily in all chronic cases (Meduna, 1950).

5. *Involutional psychosis, paranoid type.*—The separation of this category from *involutional melancholia*, on one hand, and from *paranoid schizophrenia* on the other, is sometimes a tenuous one. In general, however, there seems to be ample justification for its retention as a separate entity, and it is recognized as such in the American classification.

This, then, was the frame of reference used for diagnostic classification, and all cases were drawn from Class 4—*paranoid schizophrenia*, at varying levels of chronicity. In so far as these figures mean anything, the mean duration of illness was 16·0 ± 13.4 years, and the mean length of hospitalization was 11·0 ± 14·0 years. The group numbered 25 cases.

The control group was made up partly of hospital staff, partly of other volunteers, to a total of 25. The mean ages of the two groups were very close; intelligence was approximately matched also. This was done by (i) measuring the intelligence of the experimental group members by Matrix testing and fitting them into Raven's (1938) classes I–V—superior, definitely above average, average, definitely below average, and defective; (ii) selecting control records so that equal numbers of each class of intelligence were obtained. Finally the groups were adjusted so that each had the same balance of the sexes—12 male and 13 female.

TAT Scoring Categories.

We have been in the habit of extracting from our *TAT* protocols certain fairly objective scores in an attempt to formulate a scoring pattern. No finality is claimed for the type of scoring presented, but it does represent one method of arriving at differences between diagnostic groups as demonstrated by their *TAT* performances.

The scores are set out in Tables I and II, and for purposes of comparison the control scores, and the scores made by the depressed group in our last study, are shown also. Differences between the depressed group and the others must be interpreted with caution; the depressed group was matched against its own control group in our previous study, but it is not directly comparable with the present series.

The scores are the means for each group; and the ± values (as elsewhere in this paper) are standard deviations, not probable errors. The scores were calculated to two decimal places, but are presented correct to one place.

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TABLE I.—*Mean Scores and Standard Deviations for the TAT Time Values.*

Scoring category.	Group. Paranoid.	Control.	Depressed.
Total time (min.)	43·0±10·4	35·2±16·0	30·6± 8·4
Mean response-time (sec.)	24·6±11·3	19·0±12·1	16·3± 7·2
Sum response-times/total time (percentage)	19·5± 9·0	19·9±10·6	14·8± 5·5
Range of response-times (sec.)	60·0±35·8	35·9±20·5	25·7±12·0
Ratio longest/shortest response-time	12·0± 8·9	6·6± 2·6	8·7± 6·2

TABLE II.—*Mean Values and Standard Deviations of Certain TAT Scoring Categories in the Paranoid, Control and Depressed Groups.*

Scoring category.	Group. Paranoid.	Control.	Depressed.
Popular Themes	10·3±6·5	13·9±3·3	12·8±5·7
Superior Themes	0·3±0·7	4·0±3·9	0·3±1·1
Elicited Themes	0·3±0·7	0·1±1·0	0·5±0·8
Identification	1·5±1·8	0·9±0.7	1·8±1·5
Alternative Themes	1·4±1·7	1·2±1·6	0·9±1·0
Unusual or Abnormal Themes	4·0±4·6	1·2±1·9	2·3±1·5
Misperceptions	1·9±1·7	0·3±2·0	2·0±1·6
Description without theme	3·4±2·4	not measured.	
No adequate theme.	6·4±4·2	1·7±2·1	6·3±5·6

Time Values.

The response-time is taken as the interval between the patient's receiving the card and the point where he begins to respond with his thematic reply. The paranoid schizophrenic group showed a median response-time of 21·6 sec. (general mean 24·6 sec.), ranging from 9·1 sec. ± 3·9 sec. to 46·4 sec. ± 32·0 sec. The duration of the illness, or degree of deterioration of the patient, did not seem to correlate in any way with the mean response-time over the 20 cards.

In addition to finding the mean response-time of the patients to the series of cards, we also calculated the mean response-times shown by the series of patients to each card. The cards with the longest response-times were Cards 19, 11 and 15, and those with the shortest response-times, 14, 8 and 1 respectively. The median response-time for the cards was 22·9 sec. (general mean 24·6 sec.), and the range extended from 15·1 sec. ± 14·0 to 34·0 sec. ± 30·8 sec.

It will be seen that in general the response-time of the group of patients to one card closely resembles the response-time of one patient to a group of cards; but the patients show more variability in their individual response-times (i.e. from the general mean) than do the cards.

It is also noted that the paranoid schizophrenic group spend more time on the test than do either of the others; also, their response-times are in every case longer than those of the control or depressed groups (see Fig. 1). Their response-times are most markedly greater than the controls on Cards 13 MF, 15, 19 and 20; and most nearly resembling those of the controls on Cards 14, 12 F, 9 GF and 10. This is rather different from the findings in the depressed group, whose response-times differed from the controls most on Cards 19, 9 GF, 5 and 11, and resembled them most on Cards 4, 7 and 8 GF, and 20.

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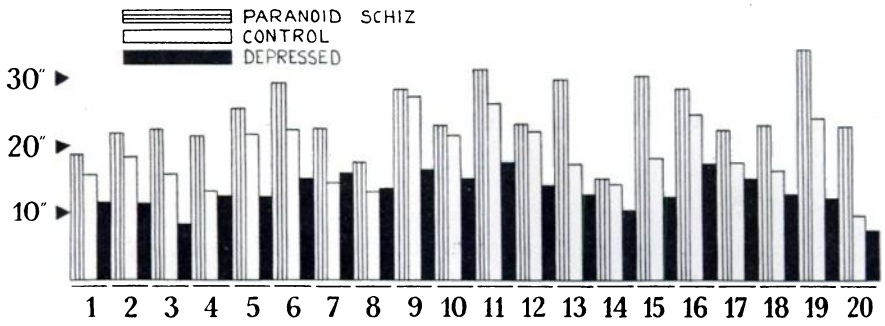


FIG. 1.—Histogram showing the Mean Response-times to each *TAT* card of the paranoid-schizophrenic, control, and depressed groups.

Although many of the patients in our previous depressed group showed some retardation and difficulty in thinking, it will be noted that their response-times are nearly always shorter than those of the controls. This may be perhaps explained by their failure of imagination—because few alternatives occur to them, they have less hesitation in voicing what thematic material the card does convey to them. This failure of imagination is probably the same thing as the classical symptom of "poverty of ideation." The normals are more guarded and selective in making their replies, and the paranoid-schizophrenic group more so still. Occasionally the long response-time of the schizophrenic is an outward indication of blocking or preoccupation with hallucinations; this blocking effect on the response-time is most marked, in our experience, in catatonic schizophrenia.

It may be noted that Rosenzweig and Fleming (1949) found a significantly increased response-time for Card 13 MF in a male control group, as contrasted with a normal female group. In our mixed control group, however, we did not find that Card 13 tended to present an abnormally high value. In the other cards our control response-times corresponded fairly closely with those given by Rosenzweig.

The comparatively longer mean response-times of the paranoid-schizophrenic group on Cards 13 MF and 15 seem to indicate they are especially prone to complexes concerning sex and death. This is quite in keeping with the known tendency of these patients to think symbolically and autistically on those subjects. No such specific complexes were suggested by the response-times of the depressed group, who tended to hesitate most on the "difficult" cards, i.e. those presenting most difficulty in interpreting imaginatively.

The response-times of both the paranoid-schizophrenic and depressed groups correlate positively with the controls ($r = +0{\cdot}69$ and $+0{\cdot}59$ respectively, both significant at the 0·01 level of confidence), but the paranoid and depressed response-times together show only a non-significant correlation of $+0{\cdot}40$. *This serves to emphasize that although both diagnostic groups show some general similarity to the controls as regards mean response-times, their differences from the control group do not tend to appear on the same cards.*

The *per cent.–ratio*, sum of response-times/total time, is an indication of how much of the total time spent on the test is occupied by response-time hesitation. It will be noted that the paranoid schizophrenic group is very

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similar to the controls in this respect; in terms of actual scores, of course, both the total-time and the response-time sum are greater in the paranoid group. Two scores which assist in estimating blocking, the range of response-times and the ratio of longest/shortest response-time, are both considerably higher in the paranoid schizophrenics.

Thematic Material.

We recognize a number of commonly-occurring stories which we designate *Popular Themes*; it will be observed that these occur slightly less frequently in the paranoid-schizophrenic group.

Themes which are original, or told in an exceptionally competent manner and brought to an outcome, we call *Superior Themes*. These score low in both groups of patients; it may be that the production of superior themes calls for some quality of insight which is generally much impaired in psychotic groups.

In our standard technique of presenting the test the subject is given the usual instructions at the start, and then allowed to go ahead without further encouragement to produce material, as we are interested in his *performance in a set situation* rather than in prompting him to produce as much content as possible. However, should he appear to have an idea about a card which he hesitates to express, he is encouraged to do so, and any resulting material is scored as an *Elicited Theme*, because it is not a spontaneous effort. Elicited Themes were scored most commonly in the depressed, where creative imagination, in addition to being reduced, is inhibited. The paranoid-schizophrenic group scored higher than the normals, but not so high as the depressed.

The subject's tendency to *Identification* in his themes is scored when a straightforward self-projection into the story or picture is admitted. This is more common in the paranoid schizophrenics, and the large standard error is due to a number of patients, who are often reminded of themselves or their friends and relatives by the figures in the cards. These patients may incorporate the test into their paranoid systems, and go on to accuse the examiner of having made up the pictures deliberately to taunt them and exploit their anxieties.

Alternative Themes are scored when the subject advances another story or explanation of the situation. This scores quite high in the paranoid group, largely due to the tendency, seen in early cases, to advance several explanations without committing themselves to any.

Attempting to classify the *Unusual or Abnormal Themes* which may occur would take too long, and in any case they are fairly easily recognized. According to our practice, a theme may be classed in this category only, or it may be scored additionally if, for example, an abnormal Alternative Theme is advanced. This type of response is much commoner in the paranoid-schizophrenic group, and more than compensates for the deficiency in Popular Themes found in the group. The significant increase in highly individualized, or Abnormal Themes found in paranoid schizophrenia points to a further difference between this group and the depressions. In depression we found the patients to conform to a pattern more than did the controls—they showed less individual

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differences ; but in paranoid schizophrenia the responses are more scattered than those of the control group.

Misperceptions is the term commonly applied to the illusions which crop up in *TAT* responses, and they are scored when the subject gives indication of distorted apperception. It is important to try to exclude misperceptions due to diminished visual acuity, and if the subject uses reading glasses he should wear them while being tested. Most misperceptions appear to occur as a result of the " mental set " of the subject, and it seems probable that percepts which are emotionally acceptable or concordant are given priority at the apperceptual level. Misperceptions were scored much more commonly in both patient groups than in the controls ; the large standard error is again an indication that high scoring is almost entirely confined to certain patients in the series.

When the subject is able to present *No Adequate Theme*, it is scored as such. Both patient groups scored much higher in this category. It seems likely, however, that the reason for failing cards is not the same in both groups.

At the conclusion of the test we asked the patient whether he particularly liked or disliked any of the cards he saw. We found that Cards 2 and 7 GF were liked most frequently, followed by 1 and, surprisingly enough, 11. The cards most commonly disliked were 12 F and 15, followed by 11, 13 MF and 20. There is insufficient data at the present time to attempt to advance any explanation for this. The almost ambi-equal display of attitudes towards Card 11 seems an interesting point.

Rorschach Scoring Categories.

The scores for the paranoid-schizophrenic patients are set out in Table III, and contrasted with the scores of our previous depressed series and the approximate normal range drawn from several sources (Beck, 1944 ; Rapaport, 1946 ; Sherman and Johnson, 1948). Owing to differences in the scoring technique, reports from different workers are seldom directly comparable.

It will be noticed that the paranoid-schizophrenic group show some increase in mean response-time, also higher scoring for rare detail and white-space responses. Good form is lower, but inner psychic life, as demonstrated by human movement responses, is well maintained. Animal responses are low ; this is ordinarily characteristic of high intelligence, but here it is caused rather by the increase of abnormal responses, as demonstrated by the high value for poor original concepts.

The ratio responses on Plates VIII, IX, X/R is often held to give an indication of extraversion, or attachment to reality ; this ratio is slightly lower in the schizophrenic group. Another method of evaluating the ratio of colour responses is to consider the five so-called chromatic plates, II, III, VIII, IX and X. An attempt was made to discover whether there was any difference in productivity, or response-time, in the chromatic plates as distinct from the non-chromatic. So far as the responses are concerned, these can be expressed as the ratio, number of responses on chromatic plates/number of responses on non-chromatic plates. The mean ratio for the group was found to be

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TABLE III.—*Mean Values and Standard Deviations for Rorschach Scoring Categories in the Paranoid-Schizophrenic and Depressed Groups, with Approximate Normal Range.*

Category.	Group.		
	Paranoid-schizophrenic.	Approximate normal range.	Depressed.
R	21·9±11·9	30.4±15.9	19·3±13·9
T (min.)	25·9±11·0	Variable	18·1±10·5
T/R (sec.)	73·3±24·4	,,	80·9±41·1
Mean R-T (sec.)	28·0±13·2	About 20 sec.	19·3±15·3
VIII, IX, X/R%	29·1± 9·3	29%	36·8±10·5
W%	45·0±29·72	25–30%	43·0±23·6
D%	46·1±25·25	60–70%	54·2±21·1
Dr%	8·9±10·4	5–10%	2·8± 4·5
s	1·8± 2·5	1–2	0·9± 1·2
F %	68·4±18·5	About 50%	67·3±13·8
F+%	63·4±28·5	80%	73·3±23·2
Sum C	1·6± 1·6	About 3.5	1·6± 2·1
H%	14·7±14·7	About 20%	7·1± 8·2
A%	30·5±19·6	46.9±17·6	52.3±19·3
P	3·0± 1·9	4–9	3·7± 2·0
O+	1·2± 1·2	Several	1·3± 2·3
O—	2·8± 3·0	None	0·7± 1·4
M	1·9± 1·8	Variable	0·5± 0·7
FM	0·7± 0·9	,,	1·5± 1·5
Fm	0·2± 0·5	Infrequent	0·3± 1·0
Fc	0·9± 1·2	,,	0·8± 1·2
FK	0·5± 0·7	,,	0·5± 0·9
C′	0·3± 0·8	Rare	0·2± 0·4

1·13 : 1 (median also 1·13 : 1), indicating that the group of patients did tend to produce rather more responses on the chromatic plates.

Similarly, the ratio response-time on chromatic plates/response-time on non-chromatic plates gave a mean result of 1·36 : 1 (median 1·09 : 1). Summing up, one may say that, first, the association between a higher number of responses and a longer response-time is found in the chromatic plates in addition to being present in the series as a whole ; and second, there is some evidence that the patients tended to hesitate more, and produce more responses, on the chromatic plates.

In the last paragraph it was mentioned that there is some general association between the number of responses and the response-time. In point of fact, the means for these values on each plate showed a rank-difference correlation of + 0·52 ; *this seems to indicate that the patient's hesitation may often be caused by his sorting out and organizing a number of impressions received from the plate.* The fact that the correlation is relatively imperfect is an indication that in other instances the hesitation may be due to blocking or some other non-productive mental mechanism.

Regarding responses per plate, the general mean was 2·23 ± 0·47. Most responses were given on Plates X and II, which both averaged 3·0 ; fewest responses were given on Plates V, VI and VII (means 1·6, 1·7, 1·7). These differences are significant at the 0·05 level. Plate X also had the longest mean response-time (33·4 sec.), and the shortest was on Plate III (20·2 sec.) ; this difference is significant at the 0·01 level.

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Correlations.

A number of linear correlations were carried out in an attempt to find associations between the various factors concerned. Two items should be noted before we go on to consider these.

First, the *TAT* Themes were awarded arbitrary marks of 2, 3, 1 and 2 for popular, superior, elicited and alternative responses respectively. On this basis the mean score for themes (paranoid-schizophrenic group) was 23·24 ± 12·49.

The second point is that correlations of less than 0·40 are not statistically significant for the degrees of freedom used in this series of cases.

It was noted that the themes tended to decrease with the age of the subject more markedly than they decreased with the duration of the illness; the length of illness, however, was associated with an increase in abnormal thematic material, as was the duration of hospitalization. There was no correlation between normal themes and duration of hospitalization.

Themes tended to decrease in subjects who took an unusually long time over the test, but they showed no firm connection with the mean response-times. The normal run of themes diminished as abnormal themes increased, and also diminished in the presence of blocking; blocking was related to abnormal themes.

The production of normal *TAT* themes was not correlated with the duration of hospitalization, but it did tend to diminish is the face of an increase of abnormal thematic material; and this abnormal thematic production increases with the duration of hospitalization. *This seems to argue that these patients tend to retain a certain capacity for adjustment, even although their autisms are increasing.*

Considering the Rorschach test, the total time was strongly associated with the time spent on the *TAT*; this correlation was positive in the depressed series also, but much weaker. The response-times of the two tests also correlated; themes and Rorschach responses showed no marked correlation numerically. One might have expected *TAT* Abnormal Themes to correlate positively with Rorschach O − (poor original) responses, and negatively with Rorschach P (popular) responses; but in fact no such correlations were found. However, one does find some slight connection between *TAT* Popular Themes and Rorschach popular responses; and *TAT* themes show a faint association with Rorschach M (human movement) responses and the Colour Sum. The Rorschach H (human) responses correlated very slightly with themes, and A (animal) responses showed a similar slight negative correlation. Rorschach "Good Form" (F + per cent.) showed little association with themes as contrasted with the firm correlation found in the depressive group between these factors. Rorschach rare detail percentage showed a weak association with themes similar to the findings in the depressed; similarly, there was again a negative correlation between Rorschach "Good Form" responses and misperceptions, and a weak positive connection between Alternative Themes and the number of Rorschach responses. Identification on the *TAT* showed a slight association with Rorschach human responses, but none with the Ro-

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schach Colour Sum. Good original Rorschach responses (O +) showed no association with *TAT* Alternative Themes, but poor original concepts (O −) correlated with *TAT* Misperceptions; this last was not found in the depressive series. Age showed no correlation with the number of Rorschach responses, nor was the number of responses associated with duration of hospitalization.

The coefficients of correlation for those values are set out in Table IV.

TABLE IV.—*Coefficients of Correlation (r) for a Number of Scoring Categories.*

			r.
TAT Themes	&	Age of subject	−·42
	&	Duration of illness	−·23
	&	Duration of hospitalization	−.07
	&	*TAT* total time	−·44
	&	*TAT* mean response-time	−·11
	&	*TAT* range of response-times	−·39
	&	*TAT* Abnormal Themes	−·29
	&	No. of Rorschach responses	+·28
	&	Rorschach Rare Detail	+·25
	&	Rorschach Human Movement	+·38
	&	Rorschach Colour Sum	+·27
	&	Rorschach Human Responses	+·19
	&	Rorschach Animal Responses	−·20
	&	Rorschach " Good Form " Responses	+·11
TAT Abnormal Themes	&	Duration of illness	+·28
	&	Duration of hospitalization	+·44
	&	*TAT* range of response-times	+·55
	&	Rorschach popular responses	+·03
	&	Rorschach poor original responses	−·06
TAT Alternative Themes	&	No. of Rorschach responses	+·31
	&	Rorschach good original responses	+·13
TAT Misperceptions	&	Rorschach poor original responses	+·63
	&	Rorschach " good form " responses	−·35
TAT Identification	&	Rorschach Human Responses	+·23
	&	Rorschach Colour Sum	+·00
TAT Popular Themes	&	Rorschach popular responses	+·25
Rorschach No. of Responses	&	Age of subject	−·07
	&	Duration of hospitalization	+·17
Rorschach Total Time	&	*TAT* total time	+·90
Rorschach Mean Response-time	&	*TAT* mean response-time	+·56

ANALYSIS OF THE *TAT* CARDS.

In this section of the paper we return to the comparison-analysis method of investigating groups by the *TAT*. Each card is analysed under headings suggested by the control responses, and the paranoid-schizophrenic group responses are then perused to discover how they compare with the controls. The results have been expressed in percentages; where alternative responses are being considered, they are given only half the weighting of the main response.

When significant differences are being sought between the two groups, the method used is the standard error of the difference between two proportions. The standard error is corrected ($\sqrt{n}/(n-1)$), and the critical ratio or t-score is referred to a table of t with $(n_1 - 1) + (n_2 - 1) = 48$ degrees of freedom.

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These are precautions against attributing significance where none may be present, owing to the relatively small size of the groups. *Significant differences from the control group are indicated by one, two or three asterisks for the* 0·05, 0·02 *and* 0·01 *levels of confidence respectively.* Thus, at the 0·01 level the odds are 99 : 1 against a greater difference occurring *in either direction* due to the effects of chance. However, if we were to assume that the control responses are in the *correct* direction, we would then be concerned only with whether the given difference or a greater positive one is likely to occur by chance. This more lenient view would admit as significant many differences which are not so recognized here; for example, a difference of 11 per cent. from zero would then be considered significant at the 0·05 level.

	Group.		
	Control.	Paranoid schizophrenic.	Significance.
CARD 1.			
The figure: A boy	100	96	
A man	—	4	
Unusual descriptive comment on the boy	—	28	***
He is compelled to practise	32	8	*
He is lazy	—	12	
The boy's drive: Ambition	46	32	
Uncertainty expressed about it	30	28	
No opinion	24	40	
The violin: A special violin, Stradivarius, gift, etc.	44	4	***
Mentioned, but no special comment	40	48	
The violin is damaged	8	36	**
Violin not mentioned	8	12	
The boy's mood: Depressed	16	12	
Aggressive	8	4	
Not mentioned	76	84	
Outcome: Success	28	28	
Failure	16	12	
No opinion	56	60	
Background comments	8	16	
CARD 2.			
Family group	56	20	**
Woman on right: Pregnant	28	4	*
Praying	8	—	
Depressed	16	—	*
The women are rivals	4	—	
Contrast between desire for education and the farming background	68	44	
Setting: Poor farm land	24	—	**
E. European	8	—	
Egyptian	—	2	
Biblical	—	20	**
The man is ploughing	28	26	
sowing	8	6	
It is a poster	8	—	
CARD 3 GF.			
The girl is depressed	76	56	
She is ill	4	8	
She is ashamed	8	—	
Cause of the trouble: A death	30	14	
Somebody's illness	20	4	
Family matters	16	10	
Quarrel or conflict	34	12	
Outcome—recovery	52	—	***
Background—the door is closed	8	36	**

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	Group. Control.	Paranoid schizophrenic.	Significance.
CARD 4.			
The girl is restraining him	49	30	
The man rejects her	28	8	
He is a bad character	16	10	
He is ill	—	8	
The girl is foreign	—	16	*
Background figure said to be a picture	16	20	
a woman.	16	12	
implied that it is a woman.	36	2	***
CARD 5.			
She is checking the room	12	12	
Her mood is worried	26	16	
cheerful	12	—	
aggressive	18	4	
Other people imagined to be in the room	60	40	
Background comments	36	36	
Doubt about sex of figure	—	8	
CARD 6 GF.			
The girl is startled	48	40	
She is pregnant	4	4	
The man's attitude is friendly	44	16	*
aggressive	12	12	
The man is married	12	—	
proposing to her	8	—	
asking her out	12	12	
he is a CID man	4	—	
They are arguing about money	8	—	
He is telling her something startling	4	4	
Relationship: Husband and wife	20	20	
Father and daughter	8	8	
Mother and son	—	4	
Background comments	—	32	***
Girl taken to be a man	—	4	
CARD 7 GF.			
Relationship: Mother and daughter	84	58	*
Aunt and niece	12	—	
Lady and a girl	4	12	
Maid and a girl	—	6	
Sisters	—	4	
The doll: Mentioned	56	54	
Broken	8	4	
A favourite	4	—	
It is a baby	8	6	
It is the girl's baby	4	2	
The girl is reflecting	20	12	
She is unhappy	28	4	**
Wants to do something else	16	8	
The woman is reading to the girl	40	20	
giving her advice	16	24	
telling her the "facts of life"	8	6	
CARD 8 GF.			
The figure: A model	20	12	
A domestic	12	4	
She is depressed	36	12	*
anxious about something	12	—	
day-dreaming	48	48	
shows vitality	12	4	
she is ill	4	—	
Has a masculine type of strength	—	8	

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	Group.		
	Control.	Paranoid schizophrenic.	Significance.
CARD 9 GF			
Relationship: Sisters	20	4	
Mother and daughter	4	4	
Rivals	26	8	
Enemies	12	4	
They are alarmed by a wreck or accident	20	6	
Playing a game	6	—	
The upper girl is watching	40	40	
She wants to help	8	8	
The lower girl is in danger	28	16	
She is suiciding	—	6	
Anxiety is mentioned	28	24	
implied	28	16	
CARD 10.			
The figures: Man and woman	86	60	*
Two men	14	24	
Mother and son	14	12	
Father and son	—	4	
Father and daughter	4	—	
Two homosexuals	4	—	
Theme of contentment	80	60	
aggression	8	—	
They are whispering secrets	—	12	
CARD 11.			
Card rejected	16	8	
The dragon is chasing the man	18	—	*
chasing the animal	10	8	
called some innocuous creature	8	8	
not mentioned	20	32	
The man is mentioned	32	12	
The animal is mentioned	36	40	
CARD 12 F.			
The elderly figure: An unpleasant old woman	52	24	*
A man	—	10	
Doubt as to sex	—	20	**
She is a nun	12	20	
a witch	20	4	
a gipsy	8	—	
The girl is the daughter	12	8	
She is anxious	20	—	**
She is looking at someone	28	20	
She is imagining a future picture of herself	8	12	
CARD 13 MF.			
A seduction scene	26	—	***
Murder or rape	40	16	
The girl is ill or dying	30	46	
She is asleep	10	14	
Alternative themes given	56	64	
CARD 14.			
The figure is masculine	98	96	
It is light outside	40	60	
daylight	24	18	
dawn	12	12	
moonlight	16	14	
It is dark outside	28	12	
He can't sleep	4	—	
He is a burglar	8	—	
He is thinking of suicide	16	4	
Alternative themes given	32	24	

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	Group.		
	Control.	Paranoid schizophrenic.	Significance.
CARD 15.			
The figure is an actual person (body-snatcher, dying man, madman, miser, etc.)	52	22	*
A ghost, or unreal	20	16	
Male sex	98	92	
He is visiting a grave	52	46	
thinking of life's futility	8	—	
repenting	8	8	
CARD 16.			
The subject related to self	—	6	
family	10	18	
other persons	8	12	
personal interests	42	24	
No response	4	4	
CARD 17 GF.			
The figure on the bridge: Female	96	98	
Waiting for her husband or lover	36	8	**
Looking at the water	16	20	
She is suiciding	8	4	
She is escaping	4	4	
She is anxious	16	4	
A smuggling scene	24	4	*
A stage set	8	—	
CARD 18 GF.			
Relationship: Family	64	56	
Both same sex	62	60	
Opposite sex	2	20	*
The upper figure is throttling the other	28	8	
chastizing the other	18	26	
comforting the other	22	38	
The lower figure is ill or injured	32	12	
No opinion	—	16	*
CARD 19.			
A house	62	56	
It looks snug	16	4	
Other responses	10	20	
It is snowing	48	56	
stormy	32	8	*
Described as "futuristic," "modernistic," etc.	48	12	***
CARD 20.			
The figure: Male	66	46	
Female	18	30	
Someone	8	12	
Don't know	8	12	
Depressed	32	—	***
Unemployed	12	—	
Waiting for a bus	—	10	
In uniform	20	36	
A woman in uniform	—	8	
A gangster	16	—	
A prostitute	2	—	
Background: Fog	20	12	
Prison camp, barbed wire	8	24	

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Discussion.

Some work was done by Harrison (1943) on typical *TAT* response patterns in the various diagnostic groups. He mentions the following schizophrenic indicators:

> " . . . improbable stories, incoherence and confusion, absurdities and bizarre elements, poor originality in interpretation, neologisms and strange modes of expression, circumstantiality, affectless story tone, ambitendency in story trend, delusional material in the content, and perseveration of words, phrases and ideas. Less frequently encountered are punning, irrelevant soliloquies by the characters, disruption of obvious relationship in the pictures, and dictation of punctuation, paragraphing and spelling."

He is careful to point out, however, that these findings cannot be considered more than tentative generalizations, and he is of course referring to schizophrenic subjects, not the paranoid group only. From a broader psychological viewpoint Shakow (1946) writes of the paranoid-schizophrenic group:

> " The paranoid subject resembles the normal much more than does the hebephrenic subject. Although he is quite rigid in his response, he is sufficiently preserved intellectually and has sufficient ' pride ' to protect his personality against the inroads of the environment . . . the disturbance is primarily at the capacity level (i.e. ' the upper limits of functional ability under ordinary day-to-day conditions '). . . The psychological functions most likely to be disturbed at this level of deterioration are conceptual thinking, immediate recall, speed of self-initiated movement."

Our own findings may be summarized as follows:

1. *Mannerisms of speech and pronunciation.*—There may be muttering, or formalized mispronunciations, leading to difficulty in hearing and comprehending their speech. One subject, for example, tended to distort words, as saying " opeera " and " Mephistopheeles." In spite of apparent superficial inconsistencies, one generally finds that these mannerisms are justified by the patient's system.

2. *Patients' unwillingness to commit themselves to a definite course in their replies.*—This was noted in cases where the illness was in an early stage of development. On the *TAT*, for instance, they tended to give a number of simple alternative explanations, or rather mundane possibilities, which did not possess much in the way of real thematic difference.

3. *Perseveration or stereotypy.*—This was marked, and seemed to be complex-determined by a nuclear focus. It is apt to carry through the *TAT*, the patient's individual complex being introduced into all kinds of situations in an unreasonable and unwarrantable manner. In the Rorschach test, also, the individual shows stereotypy of his theme throughout most of the plates, introducing it at every conceivable opportunity. Where there is no obvious opportunity, one may be made by means of distortions—poorly-seen forms, poor original concepts, etc. One of our most deteriorated patients had 11 Rorschach responses, all perseverations of the first gestalt, " an insect." The perseveration is also seen in early cases, although the departure from normal thinking is much less marked.

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4. *Concretization of thought.*—This is shown by a number of factors. For example, the patients frequently believe that the blots represent something, in spite of repeated assurances that they do not. Also, autisms are common. An example of this is a response to Plate VIII—" Blood-ruined, isn't it ? " On investigation, the patient said that she experienced pains in her thighs at her period times, but had no period ; and she believed that a physician was influencing her menstruation by television and turning the blood into her intestines—hence " blood-ruined."

5. *Involved and fantastic thinking*, which, however, is not completely autistic, may be met with in better-preserved cases. Examples of this from the Rorschach are the following :

Plate V.—A girl dressed as a rabbit which is dressed as a moth.
Plate IX.—Two girls, each thinking the other looks like a donkey.

6. *Symbolic thinking*, where the subject projects sexual symbolism on to the artist but denies it in himself, is neatly shown by the following example :

Plate VI.—The labial folds of the female, but he didn't want to make an anatomical picture, so he made a narrow opening in a hedge or wall and surrounded it by an heraldic emblem. The fantastic lantern over the gateway would, of course, correspond to the clitoris in a woman. One of these artists who always makes a thing something else and doesn't know he's doing it.

Another patient showed symbolic thinking on *TAT* Card 17 GF—" I don't understand this, unless it's to do with Japan "—utilizing the rising sun motif. Some of the more chronic patients carry their symbolizations into practice ; this was demonstrated *in excelsis* by the patient who smoked cigars " to keep the airships up "!

7. *Apparent inability to question the premises of a thought process or to revise and re-integrate impressions.*—An example is shown by a response on *TAT* Card 2.

This is the pyramids of the Sahara—this might be a maid or mother. Reapers of the field. Looks like sand dunes. Her collar isn't set right by that side. I don't see how they could have a field beside a desert.

Here, a misperception—seeing the barn roofs as the pyramids—set off a train of percept-integration which the patient cannot revise when it leads to something she thinks absurd. Another series of examples of this inability is seen in responses which contain unquestionable contradictions passed without comment, e.g. :

Card 3.—The door is open . . . the girl cannot get through the door.
Card 17.—There is a bright sun . . . the stars are in the sky.

8. *Unusual choice of words.*—The following is an example of unusual wording in response to Card 2, *TAT* :

Literature on one side and agriculture on the other pending to the Irish. This is pending to the religious more, to the Sacred Heart, yes, that is Rosary.

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Here the theme is a common norm—a story of the conflict between a girl's desire for education (or religion, less often) and her poor agricultural background. The wording adds a new quality.

9. *Individuality of theme.*—A good example of this is the following on *TAT* Card 17 GF :

> There is a girl with a big black dog waiting for the time when there is a man with her on the bridge.

Asked where the dog was, this patient replied, " Oh, you can't see the dog ; it is hidden by the parapet." One does not expect to meet with this tale again in a lifetime !

Some significant differences of *TAT* content between the paranoid-schizophrenic group and control group were noted, and these were compared with the differences previously observed between controls and a depressed group. This comparison was made under three headings :

(1) Themes appearing in paranoid records but in neither control nor depressed groups.

(2) Themes appearing in paranoid and depressed records, but not in the control group.

(3) Themes appearing in paranoid and control records, but not in the depressed group.

For example, in *TAT* Card 1 (the official description is " A young boy contemplating a violin which rests on a table in front of him "), it was noted that unusual descriptive comment on the boy—e.g. " he has one eye open and one eye closed," " he is lazy-looking," etc.—was almost specific to the paranoid group. On the other hand, the paranoid group resembled the controls, and were unlike the depressions in that their stories did not indicate a lack of ambition or the absence of external forces. Finally, the paranoid group resembled the depressions, and were unlike the controls in the number of " broken-violin " responses.

The uniqueness of the paranoid themes as a whole, as compared with the other groups, lay in their—

(1) Concentration on background.

(2) Frequent misperceptions of sex.

(3) Symbolic settings—Biblical, mythical, etc.

These findings are consistent with those found in another projective field—free painting—in which Reitman (1947) describes concentration on background and prevalence of symbolic elements in schizophrenic paintings.

Ways in which the paranoid group approached the depressions but were distinct from the controls were in their—

(1) Failure to see family situations.

(2) Failure to suggest futures or outcomes.

(3) Failure to comment on the mood of the people in the pictures.

(4) Absence of comment on the unreality of certain cards.

(5) Broken-violin responses on *TAT* Card 1.

The more depressed patients (also the paranoid-depressive psychotics) tended to show the " broken-violin " and " broken-doll " responses even more com-

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monly than noted in our series of depressed patients. Also, comments on the *TAT* on shadow, darkness and pallor are often paralleled on the Rorschach records by C' (black) responses, held by a number of authorities to indicate depression. Rosenzweig and Fleming (1949) remark of "broken-violin" responses, which they found in a significantly higher proportion of psychotic subjects, that "if . . . the characterization of the instrument by the subject is in some sense to be regarded as a characteristic of himself, it is reasonable to conclude that mental patients experience themselves as disintegrated or 'broken' about three times as frequently as do normal individuals."

Finally, the paranoid group resembles the controls, but are distinct from the depressives in—

(1) The presence of drive, ambition, etc.
(2) The ability to see cause and conflict.
(3) The ability to see alternatives.
(4) The ability to imagine the implied present.
(5) Their responses to Card 16 (blank card).

In the depressive it was noted that imagination was reduced or absent, and reference was made to Beck's comment on the lethal effect of depression on the imagination. This does not appear to be a prominent feature in the paranoid group, so far as the implications of the existing state or present time are concerned; e.g. in *TAT* Card 5 the presence of other unseen people in the room is adequately commented on. There is, however, still an inability to suggest further outcomes, and this is the reason for the distinction made in our reference to the "implied present."

The resemblance of the control and paranoid group responses on *TAT* Card 16 must alter our previous suggestion that the hospitalization of the depressed group was the reason for their significantly higher proportion of "family" responses. If this was indeed a factor, then there are still features in the depressions *per se* which are more probably responsible for the themes evoked.

An explanation for some of these findings may now be hazarded. The frequent misperceptions, omissions and bizarrities found in the *TAT* records become clearer if we remember that the schizophrenic tends to organize percepts into images of concrete objects; if the capacity to abstract is lost, a geometrical figure conveys no meaning unless it can be perceived concretely, e.g. as a window or some objective, concrete thing. Similarly the paranoid-schizophrenic tends to organize percepts into something meaningful to his own autistic thought system (*cf.* Goldstein, 1940; Goldstein and Bolles, 1938; Goldstein and Katz, 1937).

The tendency for these patients to have perseverated, individual complexes as a sort of "filter" through which they must perforce receive all their external impressions was commented upon by Jung in 1909. Writing first of the results of Freud's investigations, he said they may be summed up as follows:

"The symptoms of paranoid dementia praecox contain thoughts both in form and content which, in consequence of their disagreeable feeling-tone, become unbearable to the conscious ego, and hence become repressed. These repressions

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then determine the nature of the delusions and hallucinations, as well as the whole general behaviour of the patient. Hence, whenever a person shows an apperceptive paralysis, the manifested autisms contain the disassociated idea complexes—the whole army of obsessive controlled thoughts then becomes unchained."

Jung considered this view too narrow, and went on to put forward a more inclusive theory:

"Nevertheless, the mechanisms of Freud are not comprehensive enough to explain why a dementia praecox originates rather than a hysteria; we must therefore postulate that in the case of dementia praecox there is a specific resultant of the affects (toxine ?), which causes a definite fixation of the complex by injuring the sum total of the psychic functions. But one cannot, however, dispute the possibility that the 'intoxication" might appear also as primary as a result of 'somatic' causes, and then seize the last complex which happened to be there and change it pathologically."

At all events, it seems that our paranoid patients misperceive because they organize part of the field in a concrete fashion and lack the ability to criticize the misperception. Their misperceptions are perseverated, and they tend to see in fact whatever is most meaningful to them; finally, we find that the most frequent misperception common to the group is that of sex reversal. This, it may be noted, is also the most common isolated misperception, and is often found where the rest of the picture is described in obsessionally meticulous and accurate detail.

Summary.

The Thematic Apperception and Rorschach tests were given to a group of 25 paranoid schizophrenics and to 25 controls. The *TAT* results of both groups were scored for objective values such as time factors, identification with the picture, misperceptions, etc., and the themes of the paranoid-schizophrenic group were compared card by card with those of the controls; the Rorschach test scores of the groups were also compared. Finally, the paranoid-schizophrenic group is compared with a depressed group previously studied.

A number of positive findings emerged, in so far as statistically significant differences were found between the groups. The most outstanding features shown by the paranoid schizophrenics were (*a*) an increase in the time taken on the *TAT*, in the mean response-time and in the range of response-times; (*b*) an increase in autistic thematic material, ranging from what is merely fantastic or bizarre thinking to gross autisms and concretization of thought; (*c*) hesitation, blocking and difficulty with themes concerning sex and death; (*d*) tendency to reverse the sex of characters depicted in the cards; (*e*) use of symbolic settings and preoccupation with background detail; (*f*) perseveration.

On the Rorschach scoring was higher for poor original responses, rare detail and white-space responses; there are also features of the content of the responses which bear some relationship to the *TAT* material.

The paranoid-schizophrenic group show in their test results a number of points of divergence from a depressive group; these are considered to constitute significant indications of the different processes occurring in these two psychiatric syndromes.

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We conclude that paranoid schizophrenia is characterized by a (? mainly psychogenic) focal emotional conflict in a setting of (? mainly somatogenic) concrete thinking and perseveration. The development of these features, and their interweaving in the human organism, lead to certain outward clinical manifestations—illusions, autisms and loss of insight, along highly individualized lines.

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