

# SOME CORRELATES OF PSYCHOTICISM

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*Principal components analysis was employed to test the hypothesis that the bulk of the reliable variance of the P-scale of the P.E.N. Inventory was identifiable as a manifestation of hostility and that the bulk of the remaining reliable variance reflected aspects of emotional instability. The hypothesis was given substantial support. It was concluded, however, that it would be unwise to consider the hypothesised general concept of Psychoticism as consisting of nothing but these variables.*

In comparison with intensive work on the behaviours proper to the concepts of Neuroticism and Extraversion, which has continued since the late 1940s, investigation by the Eysencks and their co-workers on the nature and measurement of the dimension of Psychoticism has been sparse until recently. Eysenck (1952) had shown that the objective test performance by normal, neurotic and psychotic patients required two dimensions for optimal separation of these three groups. More precisely conducted experiments by Eysenck (1955) and S. B. G. Eysenck (1956) confirmed this. Troughton and Maxwell (1956) showed that four factors of any consequence emerged from symptom- and sign-ratings made on a random sample of psychiatric patients. One of these was the well-established one of Neuroticism, another was defined by symptoms and signs clearly associated with psychotic illness. The conclusion drawn from these and other studies was in the form of a hypothesis: ". . . there exists a set of correlated variables indicative of predisposition to psychotic breakdown, demonstrable as a continuous variable in the normal population, and independent of E and N." (Eysenck and Eysenck, 1968a).

A hint of such a dimension, or set of correlated variables, in the questionnaire responses of children is given by S. B. G. Eysenck (1968 pp. 291 and 292), although none such occurs in the analyses of the Eysenck Personality Inventory, the Cattell Sixteen Personality Factor scales or the Guildford scales reported by Eysenck and Eysenck (1968b). The mode and results of the Eysencks' attack on the problems of delineating the hypothesised set of Psychoticism variables in the questionnaire realm with adult subjects has been described by Eysenck and Eysenck (1968a; 1968c; 1969). A modified version of the Psychoticism, Extraversion and Neuroticism scales (P.E.N.) described in these reports, the Personality Inventory (P.I.), was used in

experimental studies with normal and prisoner groups (Eysenck and Eysenck, 1970; 1971a, b). Extensive modifications to the original P.E.N. are reported in Eysenck and Eysenck (1972). One answer to Adcock's (1957) question, *What is Psychoticism?*, is given in that reference: "The high P scorer is cold, impersonal, hostile, lacking in empathy, unfriendly, untrustful, rude, unmannered, unhelpful, unemotional and lacking in human feeling." (Eysenck and Eysenck, 1972, p. 54). These descriptors do not, however, apply to the original P.E.N. Inventory, where items specific to rudeness, bad manners and lack of empathy, for example, are not included. On the other hand, common to both original versions of the P.-scale are items suggestive of the respondent as viewing the world as inimical, whether he is liable to other people's ill-will (e.g. having enemies who wish to harm him), the ill-will of an impersonal malign fortune (e.g. having had an awful lot of bad luck), the onslaught of germs (e.g. worrying about catching diseases), or a bad upbringing (e.g. not having had a good mother or father). This view of the world may be the result of projected, possibly delusional, hostility (cf. Foulds, 1965), and the Eysencks are careful to point out that hostility is an important aspect of Psychoticism (1970, p. 230).

The aim of the present study is to establish how importantly hostility features in Psychoticism in a normal population. It was stimulated by the writer's finding during a class exercise in item analysis that by no means all of the twenty items on the P.-scale of the P.E.N. correlated significantly with the total score. A factor analysis of the inter-item correlations showed in fact that the first component, which accounted for 14% of the total variance, was defined by only eleven items with loadings of more than 0.30. In order of importance, these items were: having enemies who wished to harm one (item 55), having had more trouble than most (item 19), having people putting obstacles in one's way (item 71), having had an awful lot of bad luck (item 28), having someone responsible for most of one's troubles (item 39), having people trying to avoid one (item 31), not having had a good man as a father (item 67), having people deliberately annoying one (item 63), worrying about catching diseases (item 23), being warned and guided by one's dreams (item 35), and enjoying hurting people one loves (item 7). The *active* extrapunitiveness implied by item 7 was not a conspicuous contributor to the first principal component, its loading being only 0.31. All the other items, however, had loadings of more than 0.35, the mean value of these ten loadings being 0.48. Plainly, a *passive* extrapunitiveness appeared the best way of "interpreting" this first component, the items concerning dream-warnings and active extrapunitiveness offering little by way of additional definition. It was concluded, therefore, that the most important *single* component within the P.-scale was one related to hostility.

In order to test this conclusion a hypothesis-testing principal components study was designed. Those students who had completed the

P.E.N. had also completed the Comrey Personality Scales (Comrey, 1970) and the Hostility and Direction of Hostility Questionnaire (Caine *et al.*, 1967). The format and construction of the Comrey Personality Scales (C.P.S.) are fully described in Comrey (*op. cit.*) and their factorial robustness when applied to a New Zealand student population has been described by Forbes and Dexter (1972) and Forbes *et al.* (1973). The Hostility and Direction of Hostility Questionnaire (H.D.H.Q.) has been described and widely used in the personality and illness studies of Foulds (*op. cit.*).

The design of the present study called first for the definition of the principal components of the test space defined by the C.P.S., H.D.H.Q. and the P.E.N. Neuroticism and Extraversion variables. It was hypothesised that the three most important principal components would be:

- a) an Extraversion component defined by the E.-scale of the P.E.N. and the five FHID's (F26-30) comprising the Extraversion scale of the P.P.S.;
- b) a Neuroticism component defined by the N.-scale of the P.E.N. (eN), and the five FHIDs (F21-25) comprising the Emotional Stability scale of the C.P.S.; given the general tenor of self-denigration underlying the neurotic direction of response on these variables it was hypothesised, further, that the H.D.H.Q. variables of Self-criticism (SC) and Guilt (G) would contribute to the expected component of Neuroticism;
- c) a Hostility component, with an emphasis on a jaundiced and defensive view of an inimical world, defined by the five FHIDs (F1-5) of the Trust vs. Hostility scale of the C.P.S., together with the Criticism of Others (CO) and Projected Hostility (PH) scales of the H.D.H.Q. In view of the passivity implied by these seven variables it was expected that the Acting-out (AH) scale of the H.D.H.Q. would not contribute to this principal component.

Since the five scales of Orderliness (O), Conformity (C), Activity (A), Masculinity (M) and Empathy (P) were also to be included in the analysis, it was expected that more than these three specified principal components would emerge but no specific hypotheses as to their compositions were made.

The major hypothesis to be tested was that when the intercorrelations between these twenty-seven variables together with the P.-scale (eP) were subjected to a second principal components analysis, the components derived from the original analysis should be identical with those in the second, with Psychoticism (cP) having at most two loadings, its major one on the expected component of Hostility, with a minor loading on the expected component of Neuroticism. The reason for this second expected loading was the Eysencks' finding of small but

significant correlations between Neuroticism and Psychotism even in normal populations (Eysenck and Eysenck, 1968c, p. 293), and the reason for using the FHIDs for defining the Comrey scales of Extraversion, Emotional Stability and Trust instead of these scales themselves was to find which facets of the last two, if any, contributed to the expected principal component of Hostility and vice versa.

## METHOD

The subjects were 201 students reading Psychology Intermediate at the University of Otago. The mean age of the 110 men was 19.81 (s.d.=2.88), that of the 91 women 19.56 (s.d.=3.57) and that of the combined group 19.70 (s.d.=3.22). They completed the C.P.S., H.D.H.Q. and P.E.N. in closely supervised small groups of about thirty during laboratory hours. Their active cooperation was sought by offering those who wished it an account of their performance on the C.P.S. One hundred and sixty-three students requested this information. The writer personally guaranteed the security of their results.

With code-numbers substituted for names, the data were transferred to punched card form and the required total scores obtained in printed and punched card form by specially-written computer programs. Two principal component analyses were run on the  $201 \times 27$  and the  $201 \times 28$  data matrices resulting from the scoring programmes. All components with associated latent roots greater than 1.0 were extracted and rotated to orthogonal simple structure using the Varimax procedure.

## RESULTS

The means and standard deviations for the twenty-eight variables are shown on the left of Table 1. The means and standard deviations for the most comparable groups reported elsewhere are shown on the right. The comparison group for the C.P.S. is that described by Forbes and Dexter (op. cit.), that for the P.E.N. is that described by Eysenck and Eysenck (1968c) and that for the H.D.H.Q. is that reported by Mayo and Ball (1971). An informal analysis shows that apart from their lowest score on the C.P.S. scale of Conformity, the mean scores of the present group indicate no noteworthy departure from expectation. It may be assumed, therefore, that its performance on these inventories is not obviously eccentric.

The loadings of the twenty-seven variables on the six rotated principal components are shown in Table 2. The order in which the variables appear in the first column was partly determined by the hypotheses. The first five variables are the whole scales O, C, A, M and P from the C.P.S. and were not expected to contribute to the three major principal components. The next six variables (eE-F30) were expected to define Extraversion, the next six (eN-F25), Neuroticism. The

five H.D.H.Q. variables (AH-G) have been kept together although, as stated above, SC and G were expected to contribute to Neuroticism, AH to an unspecified component, and CO and PH, together with F1-F5 and Psychoticism (eP) to the third expected component of Hostility. The order in which the components are presented is that in which they

TABLE 1

MEANS AND STANDARD DEVIATIONS OF THE SAMPLE ON EACH OF THE VARIABLES, WITH CORRESPONDING VALUES FROM COMPARABLE SAMPLES

Variable	Present sample		Comparison sample	
	$\bar{x}$	s	$\bar{x}$	s
<i>C.P.S.*:</i>				
Orderliness (O)	78.04	15.38	79.36	15.34
Conformity (C)	73.56	15.80	79.97	16.23
Activity (A)	88.07	13.49	88.47	14.02
Masculinity (M)	84.01	14.64	81.61	15.82
Empathy (P)	95.42	14.56	93.83	12.21
Lack of reserve (F26)	16.61	3.95	16.75	3.67
Lack of seclusiveness (F27)	19.00	4.03	18.51	3.76
No loss for words (F28)	18.09	3.75	17.94	3.56
Lack of shyness (F29)	16.21	4.12	16.29	3.89
No stage fright (F30)	14.24	5.16	14.64	5.41
Lack of inferiority (F21)	18.60	4.08	19.05	3.73
Lack of depression (F22)	21.08	3.33	21.91	3.13
Lack of agitation (F23)	18.12	4.12	18.83	3.80
Lack of pessimism (F24)	19.41	4.07	19.92	4.28
Mood stability (F25)	15.79	5.51	16.94	5.46
Lack of cynicism (F1)	17.29	3.47	17.85	3.06
Lack of defensiveness (F2)	16.15	3.92	6.39	3.24
Belief in human worth (F3)	23.21	3.54	23.67	3.07
Trust in human nature (F4)	15.68	3.08	15.73	2.84
Lack of paranoia (F5)	18.15	3.05	18.74	2.61
<i>P.E.N. Inventory**:</i>				
Extraversion (eE)	12.74	3.98	12.94	3.67
Neuroticism (eN)	11.25	3.82	9.95	4.07
Psychoticism (eP)	2.22	2.13	2.03	2.22
<i>H.D.H.Q.†:</i>				
Acting-out hostility (AH)	5.66	2.42	5.25	2.60
Criticism of others (CO)	5.53	2.45	5.35	2.20
Projected hostility (PH)	0.89	1.00	0.85	1.01
Self-criticism (SC)	5.36	2.36	4.81	2.41
Guilt (G)	2.20	1.29	1.95	1.44

\* Otago University and Dunedin Teachers' College students (N=179)

\*\* English students, professional and technical (N=1400)

† English students, college of education (N=152)

emerged from the rotation process. As expected, the first three are substantial, between them accounting for slightly more than 69% of the accountable variance in the data matrix, whereas the remaining three are comparatively minor. (In all, these six factors accounted for 62.68% of the total variance in the data matrix.)

Component I is clearly the predicted Extraversion one, marked by the Extraversion scale of the P.E.N. and the five FHIDs (F26-F30) defining the Extraversion scale of the CPS. Four variables other than these predicted ones have loadings of more than 0.3 on it, however, although none of these loadings is as high as those of the predicted variables. These are Activity (A) and Empathy (P) from the C.P.S., FHID 21 (Lack of inferiority feelings), also from the C.P.S., and an absence of Self-criticism (SC(-)) from the H.D.H.Q. Although not predicted, their appearance on Component I is easily justified: the lively sociable Eysenckian extravert, the outgoing self-confident Comreyian extravert is surely active (A), somewhat sensitive to others' needs (P), has few feelings of inferiority (FHID 21) and is little given to agonising self-appraisal (SC(-)).

Rotated component II, although smaller than either components I or III, is the expected one of Hostility, defined almost precisely as predicted, although FHID 24 from the C.P.S., Lack of pessimism, had a small contribution to this composite. A person scoring highly on this component would be critical of others (CO), given to perceiving others as malevolent (PH), cynical (FHID 1), defensive (FHID 2), would devalue others (FHID 3), would not trust others (FHID 4), and impute deliberate ill-will in other people's feelings with him (FHID 5). Given this view of the environment as hostile, it would be surprising if such a respondent did not take a gloomy view of his prospects (FHID 24).

Component III is defined principally by those variables hypothesised to define a composite identifiable as Neuroticism, namely, Neuroticism from the P.E.N., the five FHIDs contributing to Emotional Stability of the C.P.S. (F21-25), and Self-criticism (SC) and Guilt (G) from the H.D.H.Q. Four other variables, however, make some contribution to this component: Activity (A) and Masculinity (M) from the C.P.S. and F.H.I.D. 30 (No stage fright), also from the C.P.S. Projected Hostility (PH) from the H.D.H.Q. also contributes to this component.

Although not predicted to make a contribution to hypothesised Neuroticism, the appearance of these variables does not make nonsense of such an interpretation. The emotionally unstable individual is known to have a low energy output (e.g. Troughton and Maxwell, *op. cit.*), hence the negative contribution of C.P.S. Activity; he may display phobic behaviours and a conspicuous emotional response such as tearfulness, hence his low score on C.P.S. Masculinity; he may "dry up" when faced with an audience, hence his low score on C.P.S. FHID 30; he *may* see the world as threatening, through the defence mechanism

TABLE 2

LOADINGS OF BASIC VARIABLES ON SIX ROTATED COMPONENTS. (Decimal points omitted and loadings greater than 0.30 underlined.)

Variable	Component						h <sup>2</sup>
	I	II	III	IV	V	VI	
O	—128	123	018	<u>811</u>	218	—058	740
C	—078	—157	013	<u>839</u>	011	—069	739
A	<u>366</u>	—006	— <u>442</u>	<u>441</u>	—021	<u>369</u>	660
M	109	041	— <u>379</u>	—136	— <u>574</u>	—022	505
P	<u>339</u>	—275	—073	031	<u>517</u>	226	515
eE	<u>779</u>	—006	—205	068	—127	—056	674
F26	<u>816</u>	—009	—093	—035	—048	010	678
F27	<u>764</u>	—099	—051	008	287	—086	687
F28	871	—060	—193	—047	064	—017	806
F29	<u>816</u>	018	—043	—162	021	—110	707
F30	<u>494</u>	062	— <u>322</u>	—044	—144	195	412
eN	000	071	<u>684</u>	—172	—272	285	658
F21	<u>304</u>	005	— <u>639</u>	—030	—200	—163	568
F22	232	—291	— <u>597</u>	001	267	—102	577
F23	224	—156	— <u>498</u>	091	089	— <u>566</u>	658
F24	203	— <u>313</u>	— <u>633</u>	—228	068	—101	606
F25	111	—145	— <u>475</u>	229	—091	— <u>625</u>	710
AH	027	175	251	—089	— <u>717</u>	134	635
CO	—007	<u>677</u>	179	070	— <u>336</u>	137	627
PH	074	<u>509</u>	<u>396</u>	293	—127	014	524
SC	— <u>341</u>	021	<u>718</u>	025	227	021	685
G	— <u>005</u>	002	<u>768</u>	—033	—062	—018	596
F1	—098	— <u>777</u>	—029	202	013	—015	655
F2	—029	— <u>540</u>	039	—237	214	— <u>434</u>	585
F3	255	— <u>646</u>	—062	066	254	—023	555
F4	038	— <u>818</u>	021	—003	—050	035	675
F5	001	— <u>567</u>	—187	029	—082	— <u>417</u>	538
$\Sigma\alpha^2$	4.258	3.420	4.047	1.958	1.795	1.498	16.976
% var.	15.77	12.67	14.99	7.25	6.65	5.55	62.87

TABLE 3

LOADINGS OF ALL VARIABLES ON SIX ROTATED COMPONENTS. (Conventions as in Table 2).

Variable	Component						h <sup>2</sup>
	I	II	III	IV	V	VI	
O	—013	—128	—125	<u>810</u>	222	—068	742
C	—009	—083	164	<u>838</u>	011	—058	740
A	<u>431</u>	<u>381</u>	007	<u>446</u>	—037	<u>363</u>	662
M	<u>353</u>	123	—055	—134	— <u>583</u>	—050	503
P	062	<u>350</u>	266	033	<u>505</u>	207	496
eE	201	<u>775</u>	019	068	—129	—032	664
F26	091	<u>810</u>	022	—036	—045	029	668
F27	057	<u>756</u>	117	006	290	—067	677
F28	173	<u>876</u>	055	—048	063	—040	809
F29	018	<u>820</u>	—033	—164	028	—153	726
F30	281	<u>517</u>	—093	—043	—149	112	392
eN	— <u>683</u>	—012	—081	—172	—253	292	652
F21	<u>627</u>	<u>315</u>	001	—030	—215	—169	567
F22	<u>601</u>	240	<u>311</u>	004	241	—072	579
F23	<u>502</u>	221	178	088	082	— <u>554</u>	653
F24	<u>617</u>	220	<u>314</u>	—225	040	—101	590
F25	<u>471</u>	110	158	225	—097	—626	711
FAH	—259	022	—184	—087	— <u>709</u>	149	634
CO	—167	—015	— <u>678</u>	070	— <u>320</u>	155	619
PH	— <u>420</u>	079	— <u>551</u>	290	—102	—090	589
SC	— <u>701</u>	— <u>357</u>	—024	023	246	035	682
G	— <u>766</u>	—022	—013	—036	—037	—020	591
F1	003	—086	<u>762</u>	205	—004	—035	632
F2	—040	—034	<u>547</u>	—240	210	— <u>427</u>	586
F3	061	254	<u>660</u>	069	238	006	565
F4	—056	054	<u>793</u>	001	—071	014	641
F5	172	004	<u>566</u>	028	—093	—422	538
eP	— <u>436</u>	044	— <u>638</u>	—013	—200	064	644
$\Sigma \alpha^2$	4.128	4.321	3.872	1.957	1.793	1.479	17.550
% var.	14.74	15.43	13.83	6.99	6.40	5.28	62.68



of projection, hence his high score on Projected Hostility. (The contribution of the 16 P.F. factor of Protension (L) to second-order Anxiety lends support to this supposition, Cattell and Scheier, 1961.) It will be noted, however, that none of these unpredicted variables has a loading as high as that of any variable predicted to load on component III.

The three remaining components are relatively minor. The fourth is composed primarily of Orderliness (O) and Conformity (C) from the C.P.S. The correlation between these two variables is known and has been discussed elsewhere (Forbes and Dexter, *op. cit.*; Forbes *et al.*, *op. cit.*), hence their appearance defining essentially a doubleton component is not entirely unprecedented although troublesome. As predicted, Acting-out Hostility (AH) did not define a major component. Instead it appears on the fifth along with Masculinity (M) and a lack of Empathy (P) from the C.P.C. It is possible that it relates to the supposed continuum of Tough-*vs.* Tender-mindedness. The statistical significance of the sixth component is marginal and its psychological meaning obscure, composed as it is of facets of unpleasant affective experience, with defensiveness, paranoia and anergia.

Summarising the above findings, it is clear that the initial three hypotheses have been given substantial support, and that the marker variables' positions in the test-space can be specified clearly by reference to three major principal components or axes.

The results of the second principal components analysis, in which the Psychoticism scale (eP) of the P.E.N. was included as the twenty-eighth variable, are shown in Table 3. As in Table 2, the order in which the rotated components are presented is that in which they emerged from the Varimax process. Differences in sign between the significant loadings in the two sets of results are artefacts of the rotational procedure.

The correspondence between the two analyses is considerable. Six components with associated latent roots greater than 1.0 were extracted from the  $201 \times 28$  data matrix and accounted for 62.68% of the total variance. Six virtually identical components had accounted for 62.87% of the total variance in the first analysis. The three major components in the second analysis accounted for 70% of the accountable variance, the corresponding components in the first accounted for 69%.

Rotated component I in the second analysis, identifiable as Neuroticism, has the same relative magnitude as rotated component III in the first. The predicted marker variables eN, F21-F25, SC and G define it. The three unpredictable variables of C.P.S. Activity (A), Masculinity (M) and Projected Hostility (PH) have lower but still significant loadings on this rotated component but in contrast with component III in the first analysis where F30, No stage fright, had a marginally significant loading, this C.P.S. FHID drops out of the set of defining variables in

the second analysis, its loading being only 0.281. As predicted, Psychoticism (eP) has a contribution to this component, its loading of -0.436 using up 29.6% of its variance.

Rotated component II in the second analysis has the same relative magnitude as rotated component I in the first. The patterns of loadings are virtually identical, and this Extraversion component calls for no further comment.

Similarly, rotated component III in the second analysis corresponds with component II in the first. Psychoticism contributes significantly to this composite variable, its loading of -0.638 using up 63.3% of its common variance. In contrast to the first analysis, however, in which the only unpredicted defining variable was C.P.S. FHID 24, Lack of pessimism, another Comrey variable, FHID 22, Lack of depression, makes a marginal contribution to the definition of this composite with a loading of 0.311. Otherwise these two components have identical patterns of loadings.

Rotated components IV, V and VI in the second analysis are identical in composition and in relative magnitude with those in the first.

The communality of the Psychoticism scale or the amount of its variance accounted for by the six principal components bounding the test space is 0.644. Taking this as 100%, 29.6% of its common variance is associated with the Neuroticism component, and 63.3% with the Hostility component. The remaining trivial amount is scattered round the other four components. (It is worthwhile noting at this point that the reliability of the Psychoticism scale as estimated by Coefficient Alpha is 0.63). It may be concluded, therefore, that the present analysis accounts for virtually all of the reliable variance of the Psychoticism scale. Almost two-thirds of this is associated with a composite variable conceptualised as passive extrapunitiveness, and rather less than one third associated with the composite variable conceptualised as Neuroticism/Emotional Instability. The link between the two composites is made up of depressive-seeming affective responsiveness.

In concluding this section, it may be stated that the evidence afforded by the second analysis lends considerable support to the fourth and principal hypothesis that P.E.N. Psychoticism would be associated primarily with Hostility and secondarily with Neuroticism.

## DISCUSSION

It would be imprudent to conclude from the present study that Psychoticism as conceptualised by the Eysencks is nothing but a composite of passive extrapunitiveness and depressive affect. There are two reasons for this caveat. First, this study was concerned only with those

components of Psychoticism manifest in the first published version of the P.E.N. Inventory. The more recent version (Eysenck and Eysenck, 1972) includes fewer items concerning passive extrapunitive and more concerning hostile modes of interaction with other people, e.g. rudeness and unfriendliness. It is interesting to note, however, that while extrapunitive and lack of empathy load on the Psychoticism factor in the 1972 version, empathy as measured by the C.P.S. does not load on the Hostility component in either of the present analyses. (It may be noted also that its failure to load on the Hostility component calls some doubt on Foulds' (*op. cit.*) assertion that personal illness leads to reduced empathy and hence to increased hostility, although Comrey's Empathy scale does load on the Neuroticism components described above and so part of Foulds' argument is given some empirical support by the present study.)

The second and more important reason for the caveat is that Psychoticism is a concept, not a single "thing". Whatever abstract term is finally decided upon to describe their common property, several behaviours are already included in the general concept-questionnaire responses such as those described above, performance on "objective" tests including not only those of the Maudsley workers but also those of Cattell and his co-workers (e.g. Cattell and Scheier, *op. cit.*), symptomatic behaviours rated in psychiatric patients and antisocial behaviours leading to imprisonment. How many co-varying behaviours will eventually be subsumed under the term Psychoticism remains a matter for empirical research and this promises to be nothing if not vigorously pursued if the earlier concepts of Neuroticism and Extraversion may be taken as precedents.

One may ask, however, what have been the adumbrations of P.E.N. Psychoticism? Cattell's and Bolton's (1969) factor of General Psychoticism was derived chiefly from the M.M.P.I. scales of Depression, Hysteria, Paranoia and Schizophrenia. The last two are in the "psychotic" scales of the M.M.P.I., and it was from this source that some of the preliminary P.E.N. Psychoticism items were taken, albeit with some modification. While no set of items corresponding to Psychoticism was found in the analyses of the E.P.I., 16 P.F. and Guilford scales in adult subjects reported by Eysenck and Eysenck (1968b), it is perhaps significant that Sells *et al.* (1971) extracted several oblique facets of Psychoticism and these include factors T6 (Agreeableness *vs.* Hostility), T7 (Relaxed Composure *vs.* Suspicious Excitability), T8 (Personal Relations) and T11 (Paranoid Sensitivity). These slightly intercorrelated factors all refer to unsatisfactory relationships with others, with hostility being characteristic of the respondent's behaviour to others and his ascription of untrustworthiness and hostility to them.

Given the importance of hostility as a major but single facet of Psychoticism then measures of that facet are otherwise available, prin-

cipally in the C.P.S. and H.D.H.Q. as hypothesised, but also in the Guilford scale of Cooperativeness (Guilford and Zimmerman, 1956). Perhaps the closest approximation to Psychoticism as reflected in the most recent (1972) version of the P.E.N. is, however, a second-order factor reported by Comrey and Duffy (1968). Called *Empathy-Hostility*, it was defined by those Comrey FHIDs composing the two factor-scales of its title, and Cattell's 16 P.F. factors L (Protension), A (Sizothymia), and less importantly by the 16 P.F. factors E (Dominance), I (Premsia) and Q<sub>3</sub> (Self-sentiment). The correspondence between the description of the person scoring in the appropriate direction on these scales and the already-quoted description of the high scorer on the 1972 Psychoticism scale is evident.

The Eysencks' development of a short simple scale designed to measure these aspects of personality in addition to Neuroticism and Extraversion, as well as being of theoretical importance, could well prove to be useful to those concerned in practice with how well people succeed in establishing and maintaining mutually satisfying relationships with others.

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