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II. The Phenomenology of Childhood Psychoses

By I. KOLVIN, C. OUNSTED, M. HUMPHREY and A. McNAY

This paper analyses the clinical picture in 80 children referred to the Park Hospital, Oxford, or to the Newcastle department of child psychiatry, and admitted for intensive assessment of their psychosis. All were seen by two psychiatrists and nearly three quarters of them in Oxford. The diagnostic criteria, and the differentiation by age of onset into infantile psychosis (I.P.) and late onset psychosis (L.O.P.) were discussed in the previous paper (Kolvin, I).

A. PRE-MORBID ANOMALIES AND PSYCHOTIC ONSET

The task of disentangling pre-morbid behavioural anomalies from psychotic onset features was, with the I.P. group, almost impossible. In a high proportion (45 per cent) of those described as being premorbidly odd the behaviour could quite easily have been the symptoms of psychotic onset. In others pre-morbid anomalies could have been missed. There was a tendency for wisdom after the event, a reporting of abnormal features after a diagnosis had been made.

TABLE I
History of premorbid oddity

	L.O.P.	I.P.
No	4	25
Yes	29 (87%)	21 (45%)
Unknown ..	0	1
	33	47
	$\chi^2 = 12.9$ 1df $p < .001$	

Because of all the difficulties and contaminations parents were simply asked whether the child was 'Odd or unusual before the condition was recognized, and if so in what way'.

TABLE II
Rate of onset

	L.O.P.	I.P.
Acute	4	} 41
Insidious with acute exacerbation ..	7	
Insidious ..	22	6
	33	47
	$\chi^2 = 22.5$ 1df $p < .001$	

The task was slightly easier in the L.O.P. group because of the greater lapse of time before the development of the disorder. A high percentage (87 per cent) of them were reported as being premorbidly odd by the parents or by medical or psychological clinics attended before the clear onset of the disorder. The main traits ascribed to these children were shyness, diffidence, withdrawal, timidity and sensitivity. These schizoid traits constituted 58 per cent and the rest were a mixed bag of oddities. Eighty-seven per cent is much higher than the 67 per cent found by Arnold (1955). Holmboe and Astrup (1957) found 18 per cent of their schizophrenics had normal prepsychotic personalities, some 33 per cent had personality disorders of a non-schizoid variety, and the other 49 per cent had either sensitive or schizoid personalities. The higher frequency of personality oddities in our L.O.P. group is possibly determined by their earlier onset.

There is no implication here that a high proportion of children with the shy, introverted, schizoid type of personality will develop L.O.P. We only suggest that in the relatively rare condition of L.O.P. a significant pre-morbid personality pattern is the schizoid pattern of shyness-cum-introversion, and do not claim

that the particular cluster of personality anomalies described in this study are sufficient on their own to result in schizophrenic disorder in later years.

Onset was rated according to whether it was acute or insidious (Ssucharewa, 1932) or 'insidious with an acute episode' (Despert, 1938). Major difficulties in applying this kind of classification to the L.O.P. group consisted in trying to disentangle pre-morbid personality factors and pre-existing behaviour disorders from features of psychotic onset.

In only four of the L.O.P. cases was there no evidence of premorbid oddities either of personality or behaviour and the onset was out of the blue. The rate of onset in these cases was only moderately fast and all were severe, but without exception the children, at least initially under cover of phenothiazine therapy, managed to return to school. One is functioning extremely well, the second is at least not deteriorating further, and the other two are doing relatively poorly.

A number of children seemed to combine both pre-existing abnormal personalities and pre-existing behaviour disorder. Five of these are of considerable importance as they had previously been under psychiatric care. In them an acute episode was superimposed on the pre-existing anomaly. It was decided to rate them amongst the group of insidious onset with acute exacerbation. In two cases the disorder was associated with a temporal lobe focus. One had an epileptic schizophrenic father and two others a family loading of schizophrenia. The schizophrenic and epileptic loading in this acute group is of considerable interest. In the other two cases the breaks were superimposed on either an abnormal personality or a previous behavioural anomaly. The total cases in which some kind of break occurred was, therefore, 11 out of 33. Of the 19 cases over eleven years, 7 had acute episodes, while of the 14 under eleven years, 4 had acute episodes.

The other 22 L.O.P. cases had a relatively insidious onset, diagnosable only after a number of years. Even in them, though the process was slow, there appeared to be some kind of almost imperceptible change super-

imposed on the pre-existing personality anomaly or behaviour disorder. Nevertheless, it was difficult to pin-point in time the exact onset of clear-cut psychotic features.

A case of acute onset was a twelve-year-old boy, previously described as being friendly, helpful and even-tempered, with patchy educational progress. Despite his recorded I.Q. of 73 he was found to be a fluent reader. At his good private school he was either bottom or near bottom out of 34 boys in most subjects, except French where he was top, English where he was 18th, and geography where he was 22nd. In the previous year his illness had started with ideas of reference and these had developed into a conviction that others could read his thoughts; later he exhibited auditory and visual hallucinations. His mood was a peculiar mixture of flatness and unconcern interspersed with periods of perplexity and on occasions with silly giggling or sudden rushes of anxiety. These latter features seemed to develop rapidly and the psychosis was relatively clear-cut by the age of twelve.

Other cases were far more insidious. One child with extremely bizarre behaviour for many years was only definitively labelled psychotic at the age of eleven.

In the I.P. group the situation was even more difficult. In 41 cases the parents described what amounted to a recognizable change in their children. Against this must be weighed a number of points:

(i) Twenty-five patients were recognized in the first year of life. In lives so short abnormality might be considered to have a sudden onset when in fact the parents had only suddenly become aware of it.

(ii) In 21 patients the parents also described what amounted to a premorbid oddity. In these it was difficult to be sure whether this change was of sudden onset or represented a sudden deterioration in a more insidiously developing condition.

In these circumstances only the six cases in which the parents clearly described what amounted to autistic features present from the very beginning have been placed in the insidious category. This is likely to be an underestimate; it may be that some cases developing slowly in the first year have been misclassified, and also that what some parents described as premorbidly odd were in fact insidious cases with acute exacerbations.

Psychological Precipitants

Elsewhere (Kolvin *et al.*, V, 1970) these factors were noted to be present to an appreciable extent in the L.O.P. group, especially in those with no significant organic component. Indeed, ignoring the accumulated evidence of brain dysfunction we found 14 (42 per cent) out of 32 adequately documented cases in which there was an obvious psychological precipitating factor.

It was also found that some 25 out of 33 of the late onset psychotic group had suffered from severe and cruel teasing by other children prior to the onset of the clear-cut psychotic picture. It could be that the teasing played a part in the precipitation of the psychosis. Alternatively the well-known perspicacity of children in uncovering the idiosyncracies of their peers may be the key factor. Once identified the afflicted child is cruelly tormented. If this is correct then serious tormenting of a child may be one of the early signals of serious psychiatric disorder in that child.

B. RELATIONAL ABILITY

The most striking finding was that the I.P. child, even in comparison with the L.O.P. child, both qualitatively and quantitatively displayed a more severe incapacity for making relationships with adults. The I.P. child also received extremely low ratings for mixing with other children. Gaze avoidance' was perhaps the best discriminator between the two groups, evident in some 85 per cent of the infantile psychotics but only 6 per cent of the late onset psychotics. The poor relationships of the L.O.P.'s were less global and more patchily present than the I.P.'s. As we had no non-psychotic control group we cannot say whether the distribution of these poor relationship items for the L.O.P.'s would differ from that of more normal children, but Rutter's control children in his Maudsley study (1966) do not appear to be notably different from them.

This poor relational ability with other people is confirmed as a central feature of infantile psychosis. It is an important but not a central feature of late onset psychosis, with only half

of these children mixing poorly or avoiding contact with adults or children.

TABLE III
Relationship with people

	L.O.P.		I.P.		χ^2
	N	%	N	%	
Uninterested in people	11	33	47	100	39.9
Avoids contact with people	16	50	37	79	6.6
Gaze avoidance	2	6	40	85	45.4
Avoids outstretched hands	1		25	52	20.0
Mixes poorly with children	17	52	47	100	25.5
Clings if picked up (Not for L.O.P.)	—		31	63	
Rejecting any contact whatsoever (Total withdrawal)	14	42	35	74	7.1
Poor at play with children (when encouraged)	9	27	44	90	35.2
True negativism	7	21	19	40	N.S.
Marked aversion/adversion	6	19	30	63	14.5

C. SPEECH AND OTHER MILESTONES

Speech delay was defined as incapacity for three-word phrases by the age of three years; motor delay as incapacity for taking three unsupported steps by the age of two, and delay in bladder and bowel control as not clean and dry by day by the age of three. The majority of L.O.P. children were aged 13 or more, and of the I.P. children over half were over 7. (Table V.)

TABLE IV
Milestone delay

	L.O.P.		I.P.		χ^2
	N	%	N	%	
No known delay	17	51	4	8	16.3
Any major milestone delay, including speech	16	49	43	88	16.3
Speech delay (phrases)	15	46	43	88	18.3
Speech delay without other milestone delay	15	46	20	40	N.S.
Never spoken words at any time	0		13		8.9

TABLE V
Number of patients in each age group

Age when last seen	L.O.P.	I.P.
Under 5	—	6
5—6·11	—	14
7—8·11	1	11
9—10·11	3	12
11—12·11	6	2
13 and over	23	2
	33	47

TABLE VI
Age of onset of meaningful three word phrases

	L.O.P.	I.P.
Under 2 years ..	4	0
2—2·5 years ..	9	3
2·6—2·11 years ..	1	1
3—3·5 years ..	6	2
3·6—3·11 years ..	3	1
4—4·5 years ..	4	4
4·6—4·11 years ..	0 (+4)	3
At 5 or over 5 years ..	2	7

It will be seen that 51 per cent of the L.O.P. group had no known milestone delay whereas only 8 per cent of the I.P. group were like this. Surprisingly the main delay for both groups was in speech; 15 out of 16 L.O.P. and 43 out of 43 I.P. with any major delay showed it in speech. All the L.O.P. group had used speech at one time or another, whereas 13 of the I.P. group had not used meaningful words by the age of three years.

Generally the step from words to sentences appeared a particularly complex exercise for the I.P. group. Table VI shows the age of onset of meaningful three-word phrases for both groups, as reliably observed on more than one occasion. In 29 of the 33 L.O.P. cases adequately reliable accounts were given of the onset of speech. In the 4 other cases the parents, although they could not actually pinpoint the onset of three-word phrases, seemed very sure that their children were using sentences before they started school. All but two of the L.O.P. cases were using three-word phrases before the age of five, but 15 of them clearly had a speech delay in terms of three-word phrases. Though

this was never as extensive as the speech delay in the I.P. group it pointed to some underlying physiological anomaly or dysmaturation process.

The vast majority of the I.P. cases were not using three-word phrases by the age of three. Of the 6 that were still under five years of age when last seen 2 were speaking and 4 were not. Of those over five 21 out of 41 were using meaningful speech, and because any child who has words may yet develop the use of meaningful phrases after the age of five the final proportion of I.P. children using speech was potentially higher than 45 per cent. Only a handful of these I.P. children had begun to use words at an early age but had then lost them.

TABLE VII
Speech and response to speech or sound stimuli

	L.O.P.		I.P.		χ^2
	N	%	N	%	
Pronominal reversal	0		14 of 34		14·7
Unpredictable response to noises or sounds	0		28	58	27·7
Spoke like younger child	6	19	26 of 34		20·5
Meaningless words or phrases (at any time)	1	3	28 of 34		39·7
Echolalia	2	6	24 of 34		26·7
Partial answers	25	75	12 of 21	56	N.S.
Responds to 'unusual noises with interest (with little response to others)	0		23	48	20·3
Jerky speech	15	45	13 of 34	39	N.S.

Pronominal reversal occurred in 14 of 34 I.P. cases who were using words if not speech. It was never recorded as occurring in the L.O.P. group but this may well be due to the fact that clinical examination took place long after the early development was over. The speech of the infantile psychotic child when it developed tended in many ways to be reminiscent of the speech of a much younger child. This was

previously described by Wolff and Chess (1965). A few children in the L.O.P. group displayed regression to a more infantile speech. Meaningless words or phrases and echolalia were, however, relatively frequent in the speaking I.P. cases but relatively infrequent in the L.O.P. cases. As Rutter (1966) has noted, there was a rather unpredictable response to noises in the I.P. group. In addition, a high percentage of these children showed an immediate non-sustained response to unusual noises.

The most common feature of the speech of the L.O.P. group was the tendency to provide partial answers to questions. However, this also occurred in over half of those I.P. cases who were adequately using speech. Thus speech anomalies were again demonstrated as a central feature of the I.P. group.

With the L.O.P. group there was a relative delay in the onset of three-word phrases compared to a normal population and there is of course a known relationship between the late onset of speech and educational disabilities. However, speech delay is unlikely to account for the total variance of educational disability, and it is possible that both the poor development of speech and the educational disability were partly determined by poor intelligence. It is also tempting to speculate that there is a common denominator in terms of a schizophrenic process which impedes both intellectual functioning and linguistic development.

D. THOUGHT DISORDER

Some consider that formal thought disorder is a central feature of schizophrenia, and Fish (1962) claims that all schizophrenics will show this if their illness lasts long enough. Disorder of association of thought was present in a high percentage of the L.O.P. cases (60 per cent) but in only three out of 21 speaking I.P. cases (14 per cent). The same applied to thought blocking. We must therefore conclude that disorder of form and disorder of stream of thought are in the main L.O.P. phenomena. (See Table VIII.)

The frequency of the disorders of form and stream of thought in the I.P. group may well be an overestimate. The speech of these children was often very stunted and stilted. Sometimes

TABLE VIII
Thought disorder

	L.O.P.		I.P.	
	N	%	N	%
I Disorder of the Form of Thought				
(a) Disorder of association ..	20	60	3/21	14
(b) Autistic (derealistic) thinking	8	24	1	3
(c) Derailment of thought ..	18	45	5/21	23
(d) Talking past the point (Vorbeireden)	17	51	8/21	38
II Disorder of Stream of Thought				
Thought blocking	20	60	5/21	23
III Disorder of the Possession of Thought				
(a) Thought deprivation ..	7	21		
(b) Thought insertion ..	6	18		
(c) Thought broadcast ..	7	21		
IV Disorder of Content of Thought (Delusions)				
i Persecution	14	42		
ii Grandeur	3	9		
iii Hypochondriacal ..	4	12		
iv Fantastic	13	39		
v Any one of i, ii, iii or iv ..	19	57		
vi Autochthonous thought ..	10	30		

they used a sing-song voice and they tended to use language in a more concrete way. Some showed pronominal reversal and some in spite of having speech were echolalic. It took a great deal of patience to arrive at the figures given; in view of their other disabilities inclusion of the infantile psychotics in these categories could never be as certain as it was for the L.O.P. cases. Disorder of content or possession of thought occurred relatively infrequently in the L.O.P. group but never in the I.P. group.

E. COMPULSIVE AND RITUALISTIC PHENOMENA

The phenomena included in this section have been subdivided by Rutter (1966a) into four groups: abnormal attachment, abnormal pre-occupations, non-adaptability, and other obsessive phenomena. Unfortunately our data did not lend themselves to an exactly similar breakdown; there had been no recording of abnormal attachments and the data which could be subsumed under the other three headings were only broadly assimilable to Rutter's categories. (See Table IX.)

TABLE IX
Ritualistic and compulsive phenomena

	L.O.P.	I.P.	χ^2
I Abnormal Preoccupations			
(a) Explored or scrutinized parts of body ..	1	28	58 24.4
(b) Attracted in unusual way by parts of objects	0	29	60 29.3
(c) Preoccupied by unusual characteristics of objects	0	31	64 32.8
Any of above 3 items	1	3	42 89 54.7
II Resistance to Change			
(a) Disliked routine changes	4	12	24 51 11.2
(b) Disliked object changes	1	3	21 44 14.8
(c) Disliked people changes	1	3	19 40 12.5
Any of the above 3 items	5	15	35 75 24.9
III Other Obsessional Phenomena			
(a) Ritualistic	13	39	27 56 N.S.
(b) Perseverative	9	27	16 of 34 N.S.
Any of above 2 items	18	54	33 70 N.S.
IV Any of items I or II or III	19	57	47 100 21.3
V At least one item in each of the 3 main groups I, II and III	0	23	49 20.3

The findings in Table IX have to be interpreted with caution as the ascertainment criteria for the I.P. group implied either a resistance to change or the appearance of stereotypies. It is not therefore surprising that some 75 per cent of the I.P. group showed resistance to change. Nevertheless, both abnormal preoccupations and resistance to change seemed to be reasonably specific to infantile psychosis and almost incidental to the L.O.P. group. Ritualistic and perseverative phenomena were frequent in both groups with a trend to an excess in the I.P. group.

The last line of Table IX shows that if features in all three categories were observed in a particular child this constituted a useful discriminant, and meant a high probability of the case being I.P. It is also of interest to note that every I.P. child showed phenomena under at least one of the three categories while only 57 per cent of the L.O.P. cases did so.

F. HALLUCINATIONS

A survey and review of childhood hallucinations is to appear elsewhere (Egdell and Kolvin, 1970). Rigorous criteria were used for accepting

pieces of behaviour as indicating hallucinations: gazing round in a distracted manner or 'looking as if hearing voices' were deemed insufficient. The child had to have given an account of the phenomena at some time. This was of particular importance in the I.P. group who could easily be suspected of alerting to hallucinatory stimuli. In fact in two cases where the doctor had strong suspicions and both the children had speech neither could give an unequivocal account of hallucinations. In other cases with lesser degrees of suspicion certainty was lacking because of lack of speech. Pseudo-hallucinations, day dreaming, fantasizing, imaginary companions and the so-called 'hallucinatory games' which are actively created by the child (Stern, 1928) were excluded. The hallucinatory experiences had also to be reasonably persistent to be included. For convenience passivity phenomena have been included under bodily hallucinations.

TABLE X
Hallucinations

		L.O.P.	
		N	%
I Auditory	Total	27	81
(i) Voices complained of ..		15	45
(ii) Content complained of ..		10	30
(iii) Voices from own body ..		12	36
(iv) Speaking to voices		16	48
II Bodily	Total ..	12	36
(i) Feelings of passivity		10	30
(ii) Fantastic		9	27
III Visual		10	30
IV Any of items of I, II or III ..		27	81
V At least one item in each of the three main groups		6	18
VI At least one item in two of the three main groups		16	48

Some authors, e.g. Fish 1962, have claimed that hallucinatory voices in clear consciousness in the absence of demonstrable brain disease are characteristic of schizophrenia. This is especially applicable when the hallucinations are well organized. The complete absence of certain hallucinations in I.P. cases even when they were older and able to speak is therefore of particular significance. It strongly suggests that either the I.P. process is unrelated to adult

schizophrenia, or if the underlying process is the same it must be greatly modified by ontogenetic factors. It is therefore not surprising that Potter (1933) made no reference to hallucinatory phenomena when trying to establish criteria for childhood psychosis which would be especially applicable to younger children.

Patients usually just non-specifically complained of voices, or of what they said, or described them coming from their own bodies, or admitted speaking to voices. (See Table X.) The high incidence of visual hallucinations might perhaps be expected in children as opposed to adults. No child had bodily or visual hallucinations without auditory ones. Sixteen children (48 per cent) had hallucinations in one of these modalities in addition to the auditory and 6 (18 per cent) had hallucinations in both.

Anthony (1962) predicted that L.O.P. children would develop hallucinatory and delusional phenomena, while Jaffe (1966) found some 80 per cent of his psychotics with convulsive disorder and 67 per cent of those without convulsive disorder were hallucinated.

It would therefore be reasonable to conclude that hallucinatory phenomena are characteristic of late onset psychosis and this is therefore an important differentiating feature.

G. MOVEMENT ABNORMALITIES

Mannerisms were defined as any odd or stilted fashion of executing certain movements, and the stereotypies consisted of repetitive movements of the whole body, head, and especially of the hands and fingers. The spontaneous stereotypies differentiate between the two psychoses at a highly significant level, being present in only 18 per cent of the late onset group but 90 per cent of the infantile group (higher than that found by Rutter (1966a)). Grimacing differentiated at a significant level but it is important to note that even many L.O.P. showed this feature, and mannerisms do not differentiate at all.

The significance of hyperactivity must remain in doubt as the I.P. were studied at an age when overactivity is a common symptom anyway (Ounsted, 1955) and little direct

TABLE XI
Abnormal movements

	L.O.P.		I.P.		χ^2
<i>I Spontaneous</i>					
Grimace	21	63	42	89	6.9
Mannerisms ..	26	84	37	75	N.S.
Stereotypies ..	6	18	43	90	40.8
<i>II Locomotion Anomalies</i>					
Jerkiness of movements	20	60	26	55	N.S.
Overactivity ..	3	9	30	62	24.5
<i>III Induced Movement</i>					
Ambitendency (Movement indecision) ..	20	60	14	34	42 N.S.

information was available about the activity of the L.O.P. at a comparable age.

Ambitendency was tested by offering a patient one's hands. An immediate handshake was rated as normal. Any indecision or stopping before shaking hands was rated as positive ambitendency. It occurred slightly more frequently in L.O.P., but not at a statistically significant level. This test was not attempted with the non-speaking I.P.

H. MOOD AND ATTITUDE ABNORMALITIES

Bouts of apparently silly or inappropriate giggling were seen in a fair number of both groups. Incongruity and blunting of affect, if severe enough, are considered by some, e.g. Fish (1962), to be diagnostic of schizophrenia. These two symptoms were shown by a high proportion of the L.O.P. cases, but it was not considered possible to demonstrate them in the infantile psychotics. Perplexity was especially common in the early stages of L.O.P., possibly in the face of bizarre experiences. A similar explanation can be offered for the 'expression of suffering' which was seen in approximately half of these cases.

In some of the L.O.P. cases rages or tantrums seemed to occur without any obvious precipitant, and this was particularly true of two of the children with epilepsy. However, some of the outbursts seemed to have a delusional basis. There were no obvious similar explanations for the more chronic tantrums or acute outbursts of certain of the I.P. cases.

TABLE XII
Mood and attitude abnormalities

	L.O.P.		I.P.		χ^2
	N	%	N	%	
Bouts of silly or inappropriate giggling	14	42	13	27	N.S.
Incongruity of affect	18	54	—	—	Not applicable
Blunting of affect	21	63	—	—	Not applicable
Perplexity	23	69	7 of 33	21	13.7
Suffering	16	48	2 of 33	6	12.9
Rages or tantrums	10	30	19	39	N.S.
Self-directed aggression	1	—	22	45	16.0
Episodic cheerfulness	5	15	9	18	N.S.
Easily depressed and querulous	9	27	—	—	Not applicable
Restless and interfering	8	24	12	24	N.S.
General ambivalence (excluding ambitendency)	18	54	13 of 34	39	N.S.

A small number of both groups showed episodic cheerfulness. The infantile psychotics who manifested this tended to do so at a later age. A small number of the L.O.P. cases tended to become easily depressed and querulous. Again small percentages of both groups displayed general restlessness, combined with a tendency to interfere with the activities of other children. In the L.O.P. cases this happened fairly frequently, and in some of them it seemed to have a delusional basis. In the I.P. cases in the main it consisted of snatching an object being used by another child, or less frequently a sudden and almost impulsive sweeping aside of toys, sometimes combined with an aggressive attack on other children including their siblings. On the whole temper tantrums and rages appeared less frequently in I.P. cases (39 per cent) than in Rutter's (1966a) autistic group (approx. 78 per cent). The most probable explanation is that different criteria were used for assessing rages and tantrums.

Both sets of patients were also rated for ambivalence, though this examination was again confined to those of the I.P. group who at least had some speech. (Ambitendency was excluded.) For Eugen Bleuler ambivalence was a central feature of schizophrenia. It was found in just over half of the L.O.P. cases and also, it is interesting to note, in almost 40 per cent of the I.P. cases who were using speech.

I. OTHER BEHAVIOURAL PHENOMENA

Desultory and aimless wandering is especially characteristic of the I.P. group but it occurred in the L.O.P. group as well. The wanderings of I.P. children especially in the earlier years are non-exploratory and appear not only to be without goal but also non-constructive. The wandering of L.O.P. children, though seemingly aimless, is often determined by unease or distress in relation to their symptoms, such as their delusions or their 'voices'. One child displaying a more simple type of schizophrenic picture could give no explanation for his wanderings.

TABLE XIII
Other behavioural phenomena

	L.O.P.		I.P.		χ^2
	N	%	N	%	
Aimless wandering	7	21	39	81	27.8
Unresponsiveness to pain	0	—	12	25	8.0
Absence of fear in face of real danger	1	16	33	—	9.9
Impulsive actions	11	33	18	37	N.S.

A fair proportion of I.P. children were apparently unresponsive to pain. This tends to suggest that other explanations, such as pathophysiological ones, need to be sought for the apparently inexplicable crying which is common in the early years of life. They also sometimes show a complete absence of fear in the face of real danger.

TABLE XIV
Distinctive signs in infantile psychosis

Discriminative Level I.P.					
	D1	D2	D3	Do	
Frequency Level I.P.	F1	Gaze avoidance Abnormal pre-occupations	Disinterest in people Poor at supervised play Stereotypy	Serious speech delay Aimless wandering	Grimace
	F2		Echolalia Overactivity	Marked aversion/ adversion Resistance to change	Mannerisms
	F3			Unpredictable response to noise/ sounds Poor response to danger Self-directed aggression Pronominal reversal	Partial answers Ambitendency

F1 D1 = Very High

F2 D2 = High

F3 D3 = Moderate

Do = No discrimination

Discriminative level from direction of higher incidence in I.P.

TABLE XV
Distinctive signs in late onset psychosis

Discriminative Level L.O.P.					
	D1	D2	D3	Do	
Frequency Level L.O.P.	F1	Hallucinations		Mannerisms Partial answers Teased (Not comparable)	
	F2		Disorder of content of thought Blunting of affect Incongruity of affect	Disorder of association and blocking of thought Perplexity	Ambitendency Ambivalence Mixes poorly with peers Grimace Jerkiness of movement
	F3			Attitude of suffering	Silly giggling Ritualistic Relative speech delay

F1 D1 = Very High

F2 D2 = High

F3 D3 = Moderate

Discriminative level from direction of higher incidence in L.O.P.

J. DISCRIMINANTS BETWEEN L.O.P. AND I.P.

Two tasks remained: to list a hierarchy of symptoms according to their incidence, and to decide which have discriminant value.

Symptoms were grouped by frequency into deciles and the 9th and 10th decile regrouped as F1, 7th and 8th decile as F2, and the 5th and 6th decile as F3. The decile level of each

symptom in one psychotic group was then subtracted from the decile level of that symptom in the other psychotic group. This did not allow adequate emphasis of the importance of those symptoms which while only of medium frequency in one psychotic group appeared confined to that group, and a formula was therefore evolved for maximizing the discriminative levels of these symptoms. Deciles of 1 were ignored, but if a frequency level was 0 per cent in one group 1 decile was added to the frequency score of the other group. Discriminative levels were defined as differences between the deciles. These differences were categorized into three broad groups, D₁, D₂, D₃.

In the L.O.P. group the very high discriminative levels (D₁) were given by decile differences of 9 and 10; high differences (D₂) meant decile differences of 7 and 8; while decile differences between 3 and 6 indicated only moderate discrimination (D₃).

For the I.P. group decile differences of 8 and 9 were regarded as very high (D₁), a difference of 7 as high (D₂), and differences of 4 to 6 as moderate (D₃). This is an arbitrary system, but it at least allows both for frequency and for the distance between levels of symptom to be taken into consideration.

Table XV reveals that in the L.O.P. group high discriminative levels, with one exception, were associated with high frequency levels. The high discriminators were hallucinations, disorders of thought content, incongruity, and blunting. On the other hand many symptoms occurring at high frequencies proved to be poor discriminators. Only three of these merit further discussion. In both the L.O.P. and I.P. groups ambitendency, ambivalence and partial answers were rated highly. For this group of symptoms only I.P. cases with some speech were assessed and poor performance may have simply reflected a poor intellectual level and an extremely poor language development, rather than ambivalence. On the other hand high frequency levels of ambitendency, ambivalence and partial answers in the L.O.P. may well be determined by the underlying simultaneous presence of negative and positive reactions which Bleuler considered fundamental to schizophrenia.

Table XIV reveals that features of very high frequency and discriminative value in the I.P. group were gaze avoidance and abnormal preoccupations. Again broadly there was an association between frequency and discriminative levels, but this was not as high as in the L.O.P. group. Some high frequency symptoms such as aimless wandering and severe speech delay had only moderate discriminative value. Again there were a number of symptoms with no discriminative value.

There were some surprising discriminators, such as echolalia. It is possible that the low frequency of this symptom in the L.O.P. group was just a reflection of the short duration of the psychotic process.

DISCUSSION

It is important that it has proved possible to identify features other than age of onset and the other ascertainment criteria which broadly differentiate the groups. They consist of family and social class factors and genetic factors (Kolvin *et al.*, III), maternal personality differences (Kolvin *et al.*, IV), evidence of cerebral dysfunction (Kolvin *et al.*, V), and here phenomenological differences.

Our findings, therefore, broadly substantiate both the main and subsidiary hypotheses. However, there are some important qualifications. For example, though there is no difficulty in differentiating L.O.P. cases with florid symptoms from I.P. cases at a comparable later age, the case without florid symptoms, especially the one reminiscent of simple schizophrenia, is another matter. Indeed some of the older I.P. cases with their suggestion of thought disorder and affective rigidity or poverty were almost indistinguishable in terms of behavioural features alone from certain of the L.O.P. cases.

When the course of the illness is taken into consideration the differentiation is not usually difficult. However, there are some overlapping cases in which the margins between the two conditions may be blurred. This is particularly true of the L.O.P. patient who starts off with poor speech development and combines this with some personality difficulties, behaviour disorder and poor intellectual endowment, is then perhaps made worse by teasing in early

school years, and drifts almost imperceptibly and insidiously around puberty into a simple schizophrenic state.

Finally one should remember that though comparisons of most symptoms have been undertaken not all symptoms are validly comparable as, for instance, ambitendency, ambivalence and partial answers. We have tried to overcome this difficulty to a certain degree by using for comparative purposes only those children in whom a symptom could be reliably elicited.

When symptoms were classified according to both frequency and discriminative value high discriminative values were closely associated with high frequency levels in the L.O.P. as follows:

(a) **VERY HIGH DISCRIMINATORS**—hallucinations;

(b) **HIGH**—blunting of affect; incongruity; disorder of content of thought; blunting of affect and incongruity with the qualifications previously described;

(c) **MODERATE**—thought blocking and disorder of association; perplexity and attitude of suffering.

In the I.P. group high discriminative values were only broadly associated with high frequency levels:

(a) **VERY HIGH DISCRIMINATORS**—gaze avoidance and abnormal preoccupations;

(b) **HIGH**—self-isolating pattern of behaviour, stereotypies; echolalia; over-activity;

(c) **MODERATE**—pronominal reversal, aimless wandering; self-directed aggression; poor response to danger; marked aversion/adversion, severe speech delay, resistance to change, unpredictable response to sounds.

SUMMARY

1. Eighty psychotic children studied at Oxford or Newcastle have been classified as suffering

from infantile psychosis (I.P.) if the illness began before the age of 3, or from late onset psychosis (L.O.P.) if it began later than 5.

2. This division was found to correspond to a distinction in clinical phenomena. The L.O.P. group displayed disorder of form and stream of thought and disordered thought content, were commonly hallucinated (especially auditorily), auditory and showed perplexity or an attitude of suffering. The I.P. group showed none of these but was characterized by severe speech delay and many speech anomalies, especially echolalia, by unusual responses to noises, by indifference to pain, by overactivity, by stereotyped movements, by self-directed aggression and a spread of compulsive acts, and by poor relationships with others especially as shown by gaze avoidance.

3. The problems of accurately assessing the presence of these and other clinical phenomena are discussed.

4. By ranking the symptoms in each group according to their frequency of occurrence it is made clear which particular symptoms are diagnostically discriminant.

5. L.O.P. cases with a simple schizophrenic picture may be confused with I.P. cases of the same age if a clear history is not available, but cases with pronounced symptoms are easily distinguishable.

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NOTE

All χ^2 in this paper have been calculated with Yates' correction.

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