# A Five to Fifteen Year Follow-up Study of Infantile Psychosis

## II. Social and Behavioural Outcome

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The two major follow-up studies of children suffering from infantile psychosis, that of Kanner's cases (Kanner, 1943 and 1949; Kanner and Eisenberg, 1955; Eisenberg and Kanner, 1956; Eisenberg, 1956; Kanner and Lesser, 1958) and that of psychotic children seen by Creak (1962, 1963a and b) have shown the generally poor prognosis for these children. In both studies about half the children were in full-time residential care (usually mental subnormality hospitals) at follow-up, and only 5 per cent. to 17 per cent. could be said to be well adjusted. Similar findings have been reported in the other published studies (reviewed in Rutter, 1966a). Kanner and Eisenberg have described the course of the characteristics of aloneness or autism shown by all or nearly all children with infantile psychosis (Kanner, 1943; Kanner and Eisenberg, 1955; Eisenberg and Kanner, 1956). Although some psychotic children emerge from their solitude to a greater or lesser extent, a lack of social perceptiveness usually remains even in adolescence or early adult life.

Unfortunately in most of the published studies only some of the children were personally examined by the authors, and there is very little information available on the developmental course of the other behavioural or cognitive attributes associated with infantile psychosis. Nor, apart from the prognostic significance of lack of useful speech by the age of 5 years, noted by Eisenberg (1956), is much known of the factors associated with a good or a bad prognosis. In addition, there have been no comparisons between the course of psychotic and non-psychotic disorders in children of the same age, sex and intelligence. It is primarily to answer these three questions that further follow-up studies are required. They are given

particular consideration in the present paper, which reports a five to fifteen year follow-up study of 63 children with infantile psychosis and 63 'control' children attending the same clinic and closely matched for age, sex and IQ.

## METHOD

The selection of the samples and the matching procedure, together with a description of the behavioural, cognitive, family and other characteristics of the children are provided in a companion paper (Rutter and Lockyer, 1967). All children in both the psychotic and control groups were traced and all 63 psychotic children and 61 control children were individually seen at follow-up. No detailed information was available for one control child who had emigrated to Australia, and one control child had died. All other children were examined.

In each case the child was given a neurological and psychiatric examination by D.G. and/or M.R.* using a procedure standardized as far as was compatible with the examination of children of varying age, IQ and behavioural state, many of whom showed limited co-operation. The child was also observed in an unstructured situation with other children and with adults at home, school or hospital. A detailed description of the child's past and present behavioural and social state, together with an account of illnesses and other medical information and details of the health of the rest of the family, were obtained from the parent or

* All the psychotic children were examined by M.R. including 7 also seen by D.G. 27 of the control children were seen by M.R. and D.G., and 34 control children were examined by D.G. alone. The ratings of children seen by M.R. or D.G. alone were reviewed by both together to ensure comparability of standards.

parent substitute, using a standard interview schedule. All behaviours to be rated were specified and categorized and each was rated on a five-point scale. A similar psychiatric interview and psychiatric history-taking procedure have been shown to be reliable in another study (Rutter and Graham, 1967; Graham and Rutter, 1967). All the children were given an individual psychological examination consisting of the WISC or WAIS, Peabody Picture-Vocabulary Scale, Schonell Graded Word Reading Test, and the Vineland Social Maturity Scale (based on an account from the parent or parent substitute).* Where appropriate, a report of the child's behaviour and attainments was obtained from the school or training centre attended by the child.

The mean age of the psychotic children when examined at follow-up was 15 years 7 months and the mean age of the control children was 16 years 5 months, the duration of follow-up being 9 years 8 months and 10 years 3 months respectively. The differences in age and duration of follow-up were not statistically significant. Contact with the children was maintained after follow-up, and the information on administrative placement refers to a slightly later date for the psychotic children so that the age-matching at follow-up could be more exact.

RESULTS

1. *Administrative placement*

In both groups over a third of the children were in long-stay hospitals at follow-up, and the proportion of psychotic children in long-term care was only slightly higher than the proportion of control children (44 per cent. compared with 36 per cent. or 52 per cent. compared with 39 per cent. among those who had passed their sixteenth birthday). However, there was a larger difference between the groups with regard to the proportion in paid employment (Tables I and II). Of the 38 psychotic children aged 16 years or over only two had paid jobs, compared with 12 out of 36 control children. A few other

* Two children were tested by M.R. All other children were tested by L.L. (see Lockyer and Rutter, 1967 for details).

TABLE I

*Placement at Follow-up (Total Group)*

|  | | | Psychotic | Controls |
|---|---|---|---|---|
| Employed | .. | .. | 2 | 14 |
| Ordinary School | .. | .. | 3 | 7 |
| Special School | .. | .. | 11 | 6 |
| Village Trust | .. | .. | 3 | — |
| Training Centre | .. | .. | 7 | 10 |
| Home, not employed | .. | 9 | 2 |
| Long-stay hospital | .. | .. | 28 | 22 |
| Total Children | .. | .. | 63 | 61 |

TABLE II

*Placement at Follow-up*
*(Children aged 16 years or over)*

|  | | | Psychotics | Controls |
|---|---|---|---|---|
| Employed | .. | .. | 2 | 12 |
| Ordinary School | .. | .. | 1 | — |
| Special School | .. | .. | 1 | 3 |
| Village Trust | .. | .. | 3 | — |
| Senior training centre | .. | 4 | 6 |
| Home, not employed | .. | 7 | 1 |
| Long-stay hospital | .. | .. | 20 | 14 |
| Total Children | .. | .. | 38 | 36 |

psychotic children were doing some kind of potentially remunerative work—one girl did unpaid typing and duplicating at home, a boy helped in his father's shop, and three children did various jobs while living in a Village Trust. It appears that some of these and some others would have been capable of employment, at least in a sheltered setting, had adequate training facilities been available.

Five psychotic children attended an Industrial Rehabilitation Unit, but the Units are not really designed to aid handicapped school leavers who have never been in employment, and attendance proved to be of limited value. One of these five children obtained a job following attendance at an I.R.U. course, but the other four were told that there were no suitable jobs for them, poor concentration and poor work habits being cited as reasons. Nevertheless, one boy was later found a job by his parents through their contacting local factories. More recently

(after the comparison given in Table II was made) one more of the five who went to an I.R.U. has also obtained regular work. This boy had attended an ordinary school and then a senior training centre.

### 2. Overall social adjustment

Adjustment at follow-up was assessed in terms of the child's general level of social competence at that time. A rating of 'good' was made when the child was leading a normal or near-normal social life and was functioning satisfactorily at school or at work. Adjustment was termed 'fair' if the child was making social and educational progress in spite of significant, even marked, abnormalities in behaviour or interpersonal relationships. 'Poor' was rated when the child was severely handicapped and unable to lead an independent life, but where there was still some measure of social adjustment and it was felt that some potential for social progress remained. Adjustment was rated 'very poor' when the children were unable to lead any kind of independent existence.

As shown in Table III there was a marked and highly significant difference in the social adjustment of the two groups at follow-up. Twice as many control children as psychotic children were rated as well adjusted and half as many very poorly adjusted. Nine of the psychotic children (14 per cent.) had a good adjustment, but all but one of these still showed some oddities of personality. A quarter showed

Table III

*Social Adjustment at Follow-up*

| Adjustment | | | Psychotics | | Controls | |
|---|---|---|---|---|---|---|
| | | | No. | % | No. | % |
| Normal | .. | .. | 1 } 8 } 9 | (14) | 7 } 13 } 20 | (33) |
| Good | .. | .. | | | | |
| Fair | .. | .. | 16 | (25) | 19 | (31) |
| Poor | .. | .. | 8 | (13) | 7 | (11) |
| Very poor | .. | .. | 30 | (48) | 15 | (25) |
| Total | .. | .. | 63 | | 61 | |

$\chi^2$ (for trends) $= 9 \cdot 37$, p $< \cdot 01$

a fair adjustment. In five of the 16 children rated 'fair' only a persisting and isolated major handicap prevented a higher rating. Two children remained without any useful speech, although nearly normal in all other respects. Two other children were chiefly handicapped by poor speech and limited intelligence, and the fifth child by a lack of education and by a preoccupation with fantasy. Some of these children and some of the 8 children (13 per cent. of the total psychotic group) who were rated 'poor' were still making a little progress and might reach a better level of adjustment when older, but nearly half the group (48 per cent.) were very poorly adjusted and showed no indication that they were capable of any kind of independent life.

### 3. Schooling

A high proportion of the psychotic children had had very little schooling. Twenty-one never attended school and a further six had less than six months schooling in all. An additional four children attended school in one of the hospital units for psychotic children but did not attend any school outside hospital, and four more attended school for periods lasting between 6 and 24 months. Thus, less than half the children (28 out of 63) had as much as two years' regular schooling.

Many of the children who had not been to school were mentally subnormal (sometimes severely so) as well as psychotic, but the relationship between IQ level and schooling was not very close. As well as several children scoring between 50 and 70 on IQ tests who did not go to school, there were five children whose IQ was at least 70 who had less than two years' schooling (two had had no schooling). Two of these five children had considerable behaviour problems which would have made schooling difficult (although children as seriously disturbed have attended school quite successfully). However, two children (IQ 78 and 85) had been regarded as ineducable in early childhood, and in spite of becoming easily manageable and eager to learn neither was admitted to school. One of these two children has just recently started school at 12 years, after the follow-up assessment was made, but the other boy was excluded from school at

6 years and never re-admitted. His father taught him to read (his reading when assessed at follow-up was at a well above average level) but his knowledge of arithmetic and other subjects remained rudimentary through lack of instruction.

The educational progress of the children is dealt with more fully elsewhere (Rutter, 1967; Lockyer and Rutter, in preparation). However, it should be noted here that the educational achievements of the psychotic children and the control children were closely similar. About a quarter (15 psychotic children and 17 control children) were reading at an 8-year level and better at follow-up. Nevertheless, in both groups most of the children's educational achievements were well below that expected on the basis of their age and measured IQ. There were a few striking exceptions, and the number of 'O' levels was roughly appropriate for the IQ distribution (Rutter and Lockyer, 1967). Only one of the 63 psychotic children has passed the 'O' level examinations. One other child has not yet reached the appropriate age for the examination but is expected to pass in at least one or two subjects. An additional psychotic child followed-up but not included in the psychotic-control comparisons (because his records were not found until after the matching had been completed) has also passed in one 'O' level subject. Thus it seems likely that, at most, only 3 (5 per cent.) of the 64 psychotic children seen between 1950 and 1958 will obtain 'O' levels.

## 4. Treatment

Most of the psychotic children who were seen at the Maudsley Hospital received their main treatment elsewhere. The treatments employed were extremely heterogeneous and included prolonged courses of daily psychoanalytic psychotherapy, short-term or supportive psychotherapy of various kinds, a variety of drugs, E.C.T. (1 case), insulin coma (1 case), leucotomy (1 case), family counselling, periods of in-patient care in various units for psychotic children, speech therapy, and retraining techniques. In addition, several children received various unorthodox treatments from unrecognized medical therapists and some received little

beyond routine long-term institutional care. The study was not designed to evaluate the effects of different forms of treatment, but an attempt was made to relate the outcome to the type of treatment used. The analysis was greatly complicated by the fact that during the course of the follow-up period several therapeutic procedures had been employed with most children. The isolated cases who had E.C.T., insulin coma or leucotomy were either not improved or worse after the treatment. Otherwise all forms of treatment seemed to have much the same rate of success and failure. Thus there was no predictable relationship between the form of treatment and the type of outcome. The only exception was the effect of schooling (see below). However, it should be emphasized that the study was in no sense a therapeutic trial, so that these findings must be regarded with considerable caution.

## 5. Developmental course of individual behavioural characteristics

### (a) "Autism"

All the psychotic children had marked difficulties in relationships with other people in early and middle childhood, those with other children being almost always worse than those with adults. In about a quarter to a third of the psychotic group the abnormalities in relationships remained much the same as the child grew older, but more often there had been a considerable improvement by the time of adolescence. Even so, only one child had fully normal peer relationships at follow-up, and only 7 had fully normal relationships with adults.

In nearly all the psychotic children the abnormality in inter-personal relationships was 'autistic' in type (as defined in Rutter and Lockyer, 1967). In over half the psychotic group the 'autism' became less marked during the follow-up period, and in 9 cases the children could no longer be termed 'autistic' at follow-up. In view of the generally held view that the speech and intellectual difficulties are secondary to 'autistic' withdrawal it is important to note that the loss of "autism" was not necessarily associated with improvement in other handicaps, and it was not associated with any marked

TABLE IV

*Course of Individual Behavioural Characteristics in Psychotic Group*

| Characteristic | Loss of Characteristic | Improved | No change | Worse | Development of behaviour during follow-up | Not known |
|---|---|---|---|---|---|---|
| Autism | 9 | 24 | 16 | 6 | 0 | 2 |
| Withdrawal | 15 | 2 | 1 | 1 | 2 | — |
| Disturbed relationships: | | | | | | |
| Peers | 1 | 35 | 22 | 4 | 1 | — |
| Parents | 7 | 27 | 15 | 7 | 1 | 5 |
| Speech retardation | 9 | 15 | 31 | 6 | 1 | — |
| Morbid attachments | 7 | 5 | 4 | 1 | 9 | — |
| Morbid preoccupations | 9 | 11 | 4 | 3 | 10 | — |
| Non-adaptability | 11 | 8 | 3 | 2 | 11 | 2 |
| Obsessive phenomena | 8 | 6 | 6 | 3 | 7 | 2 |
| Stereotyped mannerisms | 13 | 16 | 12 | 3 | 5 | — |
| Aggression | 20 | 6 | 2 | 2 | 7 | — |
| Anxiety or Fears | 19 | 7 | 8 | 4 | 2 | — |
| Self-injury | 7 | 2 | 6 | 1 | 7 | — |

improvement in intellectual functioning. In fact the IQ rose in only 4 cases and fell in 5. One of the children who ceased to be autistic was normal at follow-up, another one had a 'good' adjustment, five had a 'fair' adjustment and two a 'poor' adjustment. None had a 'very poor' adjustment.

Five children whose 'autism' improved became somewhat outgoing and jovial in personality (although shallow and lacking empathy). Much more characteristically they remained very reserved, lacked warmth, had little social "know-how" and seemed unaware of the feelings of others. This lack of empathy or social perceptiveness sometimes led the children to make outrageous or tactless remarks—usually accurate but embarrassing observations of the type common in the normal young child. For example, an intelligent 17-year-old girl commented "what a *very* ugly baby" when introduced to the newly produced offspring of a friend of the family. Typically this remark was made without any sense of mischief—just lack of appreciation that this was an inappropriate remark for such an occasion and an unawareness that the comment might prove hurtful to the other person. Similarly other children would often inform mere acquaintances of intimate details of whatever happened to interest them at the time without realizing that it might not be socially acceptable to do so (for example one girl had a phase of informing people whenever she menstruated, and a boy liked to tell everyone exactly what his father earned and what everything in the house cost). In the same way the children usually could not discern when they were being teased or when a remark was made in jest, so that they recounted 'tall' stories without realizing that they were not true.

Socially embarrassing behaviour probably developed in the same way. For example, an intelligent adolescent boy came down completely nude when his parents were giving a party, in order to ask where his pyjamas were. Similarly, an adolescent on a picnic with some family friends stood up and urinated in full view of the company—again a lack of understanding of how other people felt and how they would react to his behaviour.

(b) *Physical withdrawal*

Actual physical withdrawal from people was not particularly common in psychotic children at any age (present in a third of the group), but when it occurred it was nearly always a feature of early childhood. Only 5 of the 63 psychotic children showed physical withdrawal at follow-up.

## (c) Speech

About half (31) the psychotic group showed neither improvement nor deterioration in speech, and altogether 29 were without useful speech at the time of follow-up. Seven children were rated as having worse speech at follow-up than at first hospital attendance, but in only four of these children was there a *marked* change. In three of the four the deterioration in speech was associated with the onset of epileptic fits in adolescence.

For example, 'A' was a boy whose first symptoms were nocturnal screaming attacks and rocking at about age 15 months. His development was particularly retarded with regard to relationships and to speech, there being no recognizable words until nearly 3 years. About age 4 years he became increasingly autistic and fearful, and when seen at the Maudsley Hospital at age 8 years he was severely autistic. He had a habit of playing with plasticine which he made into small balls and placed in neat symmetrical rows. His speech was of normal complexity and he had a good vocabulary. However, he talked to himself all the time, tended to speak in song and often echoed words and phrases. He was manneristic, mildly overactive, and extremely fearful and anxious. His IQ was 65. At the age of 15 years he was admitted to a mental subnormality hospital, at which time he was markedly echolalic but talked constantly. The next year he began rocking vigorously all day long and spoke less. Aged 19 he had a grand mal fit and also became more overactive. Nearly a year later there was one more fit. When seen at follow-up, aged 21 years, he was rather detached, spoke only occasional single words, would follow few instructions and rocked a great deal. His SQ was 28 and his WAIS Performance scale IQ was 46.

At the other end of the spectrum there were several children without any speech when first seen at hospital who developed useful speech during the follow-up period. Eisenberg (1956) found only one child in the Johns Hopkins series who developed speech after the age of 5 years, and stated that the prognosis was very bad for the child without useful speech at that age. In contrast, of the 32 children without speech at 5 years in the present investigation no fewer than 7 subsequently gained speech—one at 5½ years,

one at 6 years, one at 7 years, two at 8 years, and two at 11 years. However, the child's IQ made a big difference to the prognosis. Of the 22 children without speech at 5 years, and with an initial IQ of 59 or less, only two gained speech. Only one of the two (a boy of IQ 56) made much use of his speech, and apart from this boy none was receiving schooling. Three-quarters of these non-speaking children with an IQ below 60 were in long-stay hospitals at follow-up and their adjustment was mainly very poor. There were 10 children without speech at 5 years whose initial IQ was at least 60. In two children the IQ (65) was based on only a very few subtests, and both later repeatedly scored in the idiot range of intelligence; neither gained speech and both were in mental subnormality hospitals at follow-up. However, of the other 8 children with an initial IQ of 60 or above, but without speech at 5 years, 5 subsequently gained speech and 4 ceased to be 'autistic'. The poor outcome in children without speech at 5 years seemed to be related as much to their low IQ as to any factor more specifically related to speech.

The pattern of speech development in the children who improved was fairly consistent. In infancy and very early childhood the child not only did not speak but also appeared relatively unresponsive to sounds of all kinds. He did not respond when called by name, appeared not to understand what was said to him, and sometimes was regarded as deaf. Babbling was often reported as diminished in quantity, but the vocalizations had a normal tone quality. Response to sounds was always first to improve; the child gradually paid more attention to what was said to him, became able to follow instructions and to understand the speech of others. Vocalizations then became more frequent and more meaningful and occasionally there was a phase in which the child spoke in a meaningful way, but in which his language was largely idiosyncratic. Generally the child's speech gradually improved in quantity, quality and complexity, but in some cases speech seems to have developed in large steps with the sudden appearance of formed sentences, giving the impression that the child could have spoken earlier if he had been motivated to do so. In the early stages of speech development, and sometimes for much longer,

extending into later childhood and adolescence, much of the speech was echolalic, with persisting pronominal reversal. Of the children who gained useful speech, three-quarters were echolalic, and over half showed persisting confusion of 'I' and 'you'. The echoing was both immediate and delayed—the children tended to echo what was said to them and would also repeat out of context stereotyped phrases they had heard from other people or from the television.

About two-fifths of the children who developed speech had some articulation difficulties for a while, but in the majority these were merely consonant omissions and substitutions of the type commonly found in association with immature or infantile speech. However, five children had more marked and persistent articulation difficulties, sometimes associated with a lack of facility in tongue movement.

Ten of the 63 psychotic children achieved a normal level of speech development, 4 of these had abnormalities of delivery, as did 7 other children. Some had a monotonous flat delivery with little lability, change of emphasis or emotional expression. In others, speech was staccato and lacking in cadence and inflections. The overall effect was often a kind of 'mechanical' speech like that given to visitors from other planets in children's television programmes.

Finally, as speech improved, not only were there often abnormalities in delivery but also there were abnormalities in the child's use of speech. Frequently there was a formality of language and a lack of ease in the use of words leading to a pedantic way of putting things. Often, too, the children tended to converse mainly by a series of obsessive questions related to the child's particular preoccupation at that time. Most handicapping was the continuing difficulty with abstract concepts. The children tended to give over-literal and concrete answers to questions, scored poorly on the comprehension sub-test of the Wechsler scales, and had difficulty with school subjects that involved more than rote memory. It was particularly striking that some of the children who had been markedly delayed in their speech development in early childhood became verbally very fluent, and in adolescence their intellectual skills were largely verbal and mathematical. This pattern was confined to a small sub-group of intelligent, clumsy, psychotic children (Rutter, 1966b). In spite of their verbal fluency they continued to have difficulty with abstract concepts and logical argument.

As noted above, there were a few children who improved markedly in all respects except that they remained entirely without useful speech. These were all children who had been profoundly unresponsive to sounds and had often been regarded as deaf for prolonged periods.

For example, 'B' was a girl of 5 years when first seen at the Maudsley Hospital. She had been markedly autistic from early infancy, was profoundly unresponsive to sounds, and had been diagnosed as severely deaf by an audiologist at a London teaching hospital. Her motor development was fairly normal, but she was entirely without speech. She appeared uninterested in people and did not play with other children at all. She was anxious, grossly hyperkinetic, constantly cleaning, dressing and undressing herself. She resisted changes of any kind, and had a curious way of walking with her hands out in front of her as if she were blind. There were frequent episodes of aggression and destruction. Her co-operation on psychological testing was very poor, but she passed several items on the Merrill-Palmer at just below her age level and her IQ was estimated to be about 65. She was an in-patient for a year and was then transferred to a school for deaf children. Two years later it became apparent that she was not deaf and she was transferred to a hospital unit for psychotic children and then at the age of 12 years to a residential school. She gradually improved in her behaviour and relationships, but continued to do things according to fixed routines and had little expression of emotion. She was seen at follow-up when she was aged 17 years. She was still entirely without speech and her understanding of speech remained limited. Apart from lack of speech her chief problem was inertia and under-activity. She was friendly, sought the company of people, and was particularly attached to the house-mother at the school. There were several children with whom she associated, but she had no particular friends. Things continued to be done according

to a routine, and changes caused her to be upset, although less than previously. She was able to perform all the necessary household chores and was self-sufficient. There were a few fears, and she tended to get in a temper if teased. At interview she was friendly and co-operated, but was strikingly lacking in spontaneity or emotional response. Her WAIS IQ on the performance scale was 49.

### (d) Ritualistic and compulsive behaviour

Most of the psychotic children tended to become more adaptable and malleable as they grew older, and *marked* protest at environmental change was less common at follow-up. However, although resistance to change, abnormal preoccupations, morbid attachments or collections and other obsessive phenomena tended to diminish somewhat by adolescence, in only a minority of the children had the characteristic gone altogether. Furthermore, in a substantial minority of the psychotic group these characteristics developed for the first time during the follow-up period (see Table IV)—usually about the age of 6 or 7 years. As might be expected there was also a tendency for ritualistic and compulsive phenomena to become more complex as the children grew older. In most cases, although obsessive characteristics often increased in middle childhood, there was usually a diminution again in adolescence.

### (e) Aggression and self-injury

Many younger psychotic children were aggressive, and a few were admitted to hospital in middle childhood primarily because of a concern over possible (never actual) injury to brothers or sisters. Aggression towards a parent was also a concern in a few psychotic children about the age of 11 or 12 years. The problem at that time was usually related to the children becoming bigger, with a consequence that childish aggression was more difficult to control, rather than to any significant increase in the frequency or severity of aggressive behaviour. Aggression was really serious in only two of the older children; both were fairly intelligent girls who were admitted to hospital in early adolescence because of aggressive behaviour. One of

these girls had severely frightened her mother by threatening behaviour but had not actually hurt anyone. The other girl had attacked other hospital patients and is still in a maximum security hospital. In both children the aggression diminished after a year or so and neither is aggressive now.

A tendency to self-injury often diminished as the children grew older, but just as often it increased in the early teens and it was a severe problem in a few adolescents. Self-injury, together with other symptoms, sometimes got worse about the time of puberty only to improve again in later adolescence.

### (f) Sexual difficulties

At the time of follow-up no psychotic children had yet shown any mature heterosexual interests, and there were very few sexual difficulties of any kind. A few of the older children were beginning to show some interest in the opposite sex, but many appeared to have no interest.

Three children exhibited childish sexual difficulties when they were first seen (masturbating other children and taking off their trousers to examine their genitals) but none of these three children had sexual problems at follow-up when adolescent. Two other adolescents (both in long-term institutional care) showed sexual problems at the time of follow-up —one masturbated in public and the other boy caused difficulties by homosexual advances to other patients.

### (g) Delusions and hallucinations

Several adolescent children continued to have childish fantasies, but all distinguished between reality and make-believe and no child was thought to have delusions. A few children behaved in an odd manner which gave rise to the suspicion that they were having hallucinatory experiences, but in none was there convincing evidence of hallucinations, and no child with speech described sensations or happenings which were hallucinatory.

### (h) Hyperkinesis

Marked hyperkinesis was a common feature of both the psychotic and non-psychotic dis-

TABLE V

*Activity Level: Initial and Follow-up (Psychotic Children)*
(Children aged 13 years or more at follow-up)
Activity Level at Follow-up

|  |  | Hyperkinetic | Hypokinetic | Mixed | Normal | Total |
|---|---|---|---|---|---|---|
| Initial Activity Level | Hyperkinetic | 3 | 13 | 4 | 4 | 24 |
|  | Hypokinetic | 0 | 2 | 1 | 3 | 6 |
|  | Mixed | 0 | 1 | 0 | 0 | 1 |
|  | Normal | 2 | 5 | 0 | 12 | 19 |
|  | Total | 5 | 21 | 5 | 19 | 50 |

TABLE VI

*Activity Level: Initial and Follow-up (Control Children)*
(Children aged 13 years or more at follow-up)
Activity Level at Follow-up

|  |  | Hyperkinetic | Hypokinetic | Mixed | Normal | Total |
|---|---|---|---|---|---|---|
| Initial Activity Level | Hyperkinetic | 3 | 10 | 0 | 6 | 19 |
|  | Hypokinetic | 0 | 0 | 0 | 1 | 1 |
|  | Mixed | 0 | 0 | 0 | 1 | 1 |
|  | Normal | 5 | 7 | 0 | 19 | 31 |
|  | Total | 8 | 17 | 0 | 27 | 52 |

orders and it followed a similar developmental sequence in both groups. Usually the severe overactivity shown in early and middle childhood was gradually replaced during middle and later childhood by a mixture of over- and under-activity and finally by an inert *under*-activity in which the children appeared markedly lacking in any drive or impetus to do anything. They tended just to sit unless constantly prodded to continue with their tasks. However, when they did move they moved at a normal pace—thus it was an underactivity rather than any slowing of movement. This underactivity, lack of drive and lack of initiative was perhaps the most prominent of all the problems of the adolescent psychotic children and was often the chief factor preventing employment.

Of 24 psychotic children hyperkinetic at the time of first hospital attendance and aged at least 13 years at follow-up, 13 had become hypokinetic and 4 were in a state varying between hyperkinesis and hypokinesis. Of 19 children originally normokinetic only 5 were hypokinetic at follow-up. A similar trend was seen in the control group, where 10 children out of the 19 originally hyperkinetic had become hypokinetic at follow-up, in comparison with 7 out of the 31 initially normokinetic children. The sequence of hyperkinesis to hypokinesis is even more marked if only those children markedly hypokinetic at follow-up are considered. Pooling both groups, there were 19 children markedly hypokinetic at follow-up, and of these 13 had been hyperkinetic initially.

(i) *Epileptic fits*

Of the 63 psychotic children, 10 developed fits for the first time during the follow-up period, many years after the onset of psychosis. Fits began at 6–7 years in two children, 11–13 years in four children and at 16–19 years in another four children. None of these 10 children ex-

hibited neurological abnormalities when first seen, but it was noteworthy that these children were mostly mentally subnormal as well as psychotic; 8 had an IQ below 60 when tested on first referral to hospital. One of the two more intelligent children regressed in speech, intelligence, and behaviour at about the time fits began, but the other child has continued to do well and is making good progress in school. Altogether, in 3 of the 10 children who developed fits the onset of fits was associated with a marked deterioration in speech.

All the fits were major in type, and in all cases the fits were relatively infrequent so that most of the 10 children had only four or five attacks in all.

Nearly as many control children (7) also developed fits during the follow-up period, and again this was more frequent among the control children of low intelligence.

### (j) Other behaviour

In general, most children became more adaptable and were easier to deal with after adolescence, although the children were sometimes temporarily more disturbed during early adolescence. Of all the symptoms, anxiety, fears, eating and sleep disturbances improved most markedly, and in the majority of cases these symptoms were a real problem only during infancy and early childhood. However, as with other behaviours, occasionally they increased in severity, and in a very few cases they appeared for the first time in middle or late childhood.

### 4. General course of psychotic disorder

Although there was a variability in the child's progress at different times, with plateaus, peaks and troughs, it was quite rare to see marked remissions and relapses as in adult psychotic illnesses. From middle childhood onwards the course was usually fairly regular (apart from an occasional disturbance about the time of puberty), with a continuation of the improvement or deterioration evident by then. Nevertheless, there were some exceptions. The late deterioration associated with the onset of fits has already been mentioned. In addition there were two or three children who regressed

long after the onset of psychosis and who had never had any fits.

One of these was 'C', who was first seen at the age of 4 years and in whom the psychosis appeared to have a somewhat later onset than usual. Some behaviour difficulties were apparent from age 1 year, but these became more marked when he was 2½ years. He became quieter, talked less and developed numerous fears. His relationships were autistic, there were various obsessive rituals and preoccupations and he had a habit of smelling objects. There was some echolalic phrase speech, he was considerably hyperkinetic and showed some aggression towards other children. His IQ on the Merrill-Palmer was 59. At 6 years he started school, and at the age of 9 years his WISC IQ was 52. Up to then his speech and interpersonal relationships were improving and behaviour difficulties had diminished. Then, about the age of 10 years he became noisy and excitable and a year later quiet and underactive. He lost interest in things and showed increasing obsessive questioning and touching. He was readmitted to hospital at 12 years, being then isolated, ritualistic, manneristic, and echolalic; phases of withdrawal alternated with restlessness and aggressive behaviour. He was untestable on the WISC. A year later he was transferred to a mental subnormality hospital. At 16 years his IQ on the Binet was 38. On follow-up at age 17 years, he was detached, emotionally flat, remarkably hypokinetic, manneristic and with only a little echolalic speech. His Vineland SQ was 28 and his WAIS Performance IQ was 39.

If marked improvement was to occur it was usually evident by the age of 6 or 7 years, but occasionally important changes took place later, such as in 'D', a boy who first began to talk at the age of 11 years. He first attended the Maudsley Hospital at 5 years, having failed to develop speech and having shown 'autistic' withdrawal from early infancy. He showed a marked lack of response to sounds and had been thought deaf. Paradoxically he also appeared distressed by loud noises and put his hands to his ears. He had a habit of touching people's eyes and had periods of special attachments and preoccupations (e.g. collecting cans). His IQ on the Merrill-Palmer test was 85. About the age of 6

years he became more restless and overactive and was constantly in trouble for meddling with things (playing with petrol pumps, flooding a farm by turning on all the taps, etc.) and he had a phase of constantly opening doors. He attended a training centre from age 7 years and started being treated by an 'osteopath' shortly after that. There was a gradual improvement from about that time; he became more responsive to sounds, would follow instructions, made better relationships with people and ceased to have any behaviour problems. When seen at follow-up, aged nearly 11 years, he was still at a training centre, without any abnormalities of behaviour but still without any speech. He was bright, alert, observant, friendly and responsive and communicated remarkably well by gesture. There was no trace of autism, although he was still without friends of his own age. In the next year he began to have intensive speech therapy and started at school. When seen again at 12 years he was talking, using sentences and had a fair vocabulary. Although still considerably retarded in speech he was making rapid progress.

### 5. Factors related to outcome

There were four main variables which showed important associations with outcome in the psychotic group. These were IQ, speech, severity of disorder, and amount of schooling. The IQ was chiefly of value in distinguishing the children with a 'poor' or 'very poor' social adjustment at follow-up, whereas the other variables were more useful in differentiating those with a 'good' adjustment from those with a 'fair' adjustment. Among the major variables which were *not* related to outcome were the sex of the child (although there was a slight tendency for girls not to fall into either the 'good' or 'very poor' adjustment groups), the presence or absence of a period of normal development prior to the onset of psychosis, evidence of brain injury, and the family situation. Children in whom there was evidence suggesting the probable presence of brain injury made as much (or as little) progress as children in whom there was no evidence of brain injury. However, there was a slight (but non-signifi-

cant) tendency for children who developed fits in adolescence to fall more frequently into the 'very poor' adjustment group at follow-up.

Unfortunately it was possible to consider only limited aspects of the family situation in relation to prognosis. Neither a history of mental illness in a parent nor the presence of a 'broken home' (i.e. the child *not* living with his natural parents) bore any relation to outcome. However, parental attitudes and behaviour towards the child were not measured, and it may be that these would have been found to be of prognostic value. It should also be noted that the majority of the children were cared for in residential schools or in long-stay hospitals so that there was only a limited opportunity for the family characteristics to impinge on the child.

Of all the items related to outcome, the most important was the child's response to IQ testing. Of the 63 psychotic children, 19 were completely untestable on any IQ test even after several sessions and the use of several different tests of cognitive function. Of these 19 untestable children, 18 were very poorly adjusted at follow-up, thus constituting over half (60 per cent.) of the 'very poor' adjustment group. The association between no scorable response to an IQ test and social outcome is statistically significant (e.g. critical ratio for difference between proportions 'poor' versus 'very poor'=3·05, p<·01). The only untestable child to have a better outcome was also the only untestable child to have a Vineland social quotient of over 60.

There was a significant trend (among the testable children) for a higher IQ (or SQ) score when first seen at the Maudsley Hospital to be associated with a better social adjustment at follow-up, the range extending from a mean IQ of 45 for the 'very poor' adjustment group to a mean IQ of 83 for the 'good' adjustment group. The difference in mean IQ between the 'good' and 'fair' adjustment groups was not significant, and the difference between the 'fair' and 'poor' and the 'poor' and 'very poor' groups fell just short of significance (t=1·82 and 1·79 respectively, p<·10), but the difference between the 'fair' and the 'very poor' groups was highly significant (t=6·3, p<·01).

A sharper differentiation was possible when the initial IQs were split into those above and

## TABLE VII

*Factors Related to Social Adjustment at Follow-up*

| Item | Social Adjustment at Follow-up | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Good | | Fair | | Poor | | Very poor | |
| | No. | %* | No. | %* | No. | %* | No. | %* |
| Sex: proportion of girls | 0 | (0) | 6 | (38) | 3 | (38) | 3 | (10) |
| Parental mental illness or 'broken home' | 3 | (33) | 4 | (25) | 1 | (13) | 8 | (27) |
| Normal Development prior to onset psychosis: | | | | | | | | |
| Definite | 1 | (11) | 5 | (31) | 1 | (13) | 6 | (20) |
| Possible | 2 | (22) | 4 | (25) | 3 | (38) | 7 | (23) |
| Probable 'brain damage' | 3 | (33) | 3 | (18) | 2 | (25) | 10 | (33) |
| Late onset of fits | 1 | (11) | 0 | (0) | 1 | (13) | 7 | (23) |
| IQ less than 60 | 0 | (0) | 1 | (6) | 6 | (75) | 25 | (83) |
| Untestable | 0 | (0) | 1 | (6) | 0 | (0) | 18 | (60) |
| Mean IQ (of those testable) | 83 | | 74 | | 59 | | 45 | |
| At least 2 years' schooling | 9 | (100) | 10 | (63) | 3 | (38) | 6 | (20) |
| Marked lack of response to sounds | 0 | (0) | 8 | (50) | 2 | (25) | 14 | (47) |
| Useful speech at 5 years | 9 | (100) | 9 | (56) | 5 | (63) | 8 | (27) |
| Retardation of speech at least moderate | 4 | (44)† | 7 | (78)† | 4 | (80)† | 6 | (75)† |
| Echolalia | 4 | (44)† | 8 | (89)† | 4 | (80)† | 7 | (88)† |
| Autism: moderately severe | 3 | (33) | 10 | (63) | 8 | (100) | 26 | (87) |
| any | 7 | (78) | 13 | (81) | 8 | (100) | 29 | (97) |
| Withdrawal: moderately severe | 2 | (22) | 5 | (31) | 3 | (38) | 6 | (20) |
| any | 2 | (22) | 6 | (38) | 3 | (38) | 8 | (27) |
| Disturbed relationship: peers: | | | | | | | | |
| moderately severe | 6 | (67) | 14 | (88) | 8 | (100) | 29 | (97) |
| any | 9 | (100) | 16 | (100) | 8 | (100) | 30 | (100) |
| Rituals or compulsions: moderately severe | 2 | (22) | 9 | (56) | 4 | (50) | 15 | (50) |
| any | 5 | (56) | 13 | (81) | 8 | (100) | 25 | (83) |
| Hyperactivity: moderately severe | 2 | (22) | 3 | (18) | 4 | (50) | 13 | (43) |
| any | 4 | (44) | 10 | (63) | 6 | (75) | 21 | (70) |
| Mannerisms: moderately severe | 1 | (11) | 6 | (38) | 3 | (38) | 18 | (60) |
| any | 6 | (67) | 7 | (44) | 5 | (63) | 26 | (87) |
| Aggression: moderately severe | 4 | (44) | 10 | (63) | 5 | (63) | 11 | (37) |
| any | 5 | (56) | 13 | (81) | 8 | (100) | 23 | (77) |
| Anxiety: moderately severe | 1 | (11) | 4 | (25) | 3 | (38) | 7 | (23) |
| any | 5 | (56) | 9 | (56) | 5 | (63) | 17 | (57) |
| Eating disorder: moderately severe | 1 | (11) | 5 | (31) | 2 | (25) | 10 | (33) |
| any | 2 | (22) | 8 | (50) | 5 | (63) | 15 | (50) |
| Sleeping disorder: moderately severe | 0 | (0) | 3 | (18) | 4 | (50) | 4 | (13) |
| any | 2 | (22) | 7 | (44) | 4 | (50) | 10 | (33) |
| Mean Symptom Score | 14 | | 24 | | 28 | | 25 | |
| Total number of children | 9 | | 16 | | 8 | | 30 | |

* The % figures refer to the proportion of children in each social adjustment category having the item in question (listed on the left-hand side of the table).

† % of children with some speech.

those below 60. Whereas the great majority of the 'poor' group (75 per cent.) and the 'very poor' group (83 per cent.) had an IQ below 60, only one child in the 'fair' group (6 per cent.) and no child in the 'good' adjustment group had an IQ as low as that. Thus the IQ very sharply differentiated between the children with either 'poor' or 'very poor' adjustment and those with 'good' or 'fair' adjustment (critical ratio=3·68 comparing 'fair' and poor' groups, p< ·001).

A lack of response to sounds so profound that at some time it had been suspected that the child was deaf, and a lack of useful speech by age 5 years, were both of prognostic significance.

There is a moderately strong association between these two variables, and it is probable that both are measures of the severity of language disorder. Whereas IQ was the most efficient predictor of poor outcome, the speech variables more effectively distinguished between children with a 'good' adjustment at follow-up and those with a 'fair' or worse outcome. No child in the 'good' adjustment group had shown a profound lack of response to sounds, compared with between a quarter and a half the children in the other groups (the difference between the 'good' and 'fair' groups is statistically significant, C.R.$=2 \cdot 57$, p$< \cdot 02$). Similarly the difference between the 'good' and 'fair' groups with regard to the proportion lacking useful speech at 5 years was also statistically significant (C.R.$= 2 \cdot 34$, p$< \cdot 02$). Although there is a fairly close association between IQ and level of speech development, it is unlikely that IQ differences can account for these findings, as the difference in IQ between the 'good' and 'fair' groups was small and not statistically significant. Furthermore, the association between IQ and speech was most marked in the under 50 IQ group, which was unrepresented in either the 'good' or 'fair' adjustment groups. On the other hand, the nearly significant difference (C.R.$=1 \cdot 90$, p$< \cdot 06$) between the 'poor' and 'very poor' groups with regard to the proportion without useful speech at 5 years is more likely to be merely a reflection of the demonstrated IQ difference between these two groups.

With all the major symptoms, there was a tendency for the symptom to be less frequently exhibited and less severely exhibited in the group of children with 'good' adjustment at follow-up. None of the differences between the groups concerning individual symptoms were statistically significant, and apart from the lack of response to sounds and the presence or absence of speech at 5 years already mentioned no one symptom appeared to be more related to outcome than the others. However, summating the major symptom ratings (each symptom was rated on a 5-point scale) to obtain a total symptom score, the difference between mean total score of the 'good' adjustment group (14) and the 'fair' adjustment group (24) was statistically significant (t$=3 \cdot 4$, p$< \cdot 01$).

The amount of schooling experienced by the child was the only other item related to outcome. All the children in the 'good' outcome group had attended school for at least two years compared with only 63 per cent. of the 'fair' group, 38 per cent. of the 'poor' group, and 20 per cent. of the 'very poor' group. In view of the association between a child's IQ and the likelihood of his receiving schooling, this association must be regarded with caution. However, as already noted, several intelligent children did not attend school for as long as two years, and the IQ difference between the 'good' and 'fair' adjustment groups was small and not significant. Thus it appears that schooling probably did have some effect on the child's social adjustment in adolescence and early adult life—at least in so far as it influenced the likelihood of the child having a 'good' rather than a 'fair' outcome.

## DISCUSSION

The overall outcome of infantile psychosis in the present study of Maudsley Hospital cases was closely similar to that found in the follow-up of Kanner's cases (Eisenberg, 1956) and of Creak's cases (Creak, 1962; 1963a and b). Only a minority of psychotic children reach a good level of social adjustment by the time of adolescence, and very few enter paid employment. About half remain incapable of any kind of independent existence and most of these are cared for in mental subnormality hospitals.

Although the generally poor prognosis for children with infantile psychosis has been amply demonstrated, there are also grounds for a limited optimism. In particular, it was notable that there were some psychotic children who made substantial progress. The progress made must be regarded as a minimal estimate of what progress *can* be made, since the provision of education and treatment was often very inadequate, and there was evidence that the amount of schooling received by the child influenced his later social adjustment (as well as his educational attainments).

A quarter of the psychotic group were able to read at an 8-year level or better. It was

especially striking that the scholastic attainments of the psychotic children were as good as those of a control group of children of similar age, sex and IQ, but with non-psychotic disorders of emotions or behaviour. Few psychotic children progressed as well as might have been expected on the basis of their IQ level, but nevertheless two boys achieved 'O' levels and another boy is expected to do so. It should also be noted that two of these three children had been regarded as mentally defective when young (although this was not confirmed by psychological testing at the Maudsley Hospital). It must be emphasized, however, that in spite of the comparable scholastic progress of psychotic and control children, the overall social adjustment of the psychotic group was considerably worse, and very few psychotic children were in paid work. In part this was related to the continuing behaviour problems of the psychotic child—in particular his inactivity, inertia, poor concentration and poor work habits, but to a considerable extent the rather disappointing work record of the psychotic group may be attributed to the grave deficiency of training facilities for the handicapped school leaver. Of course, it remains an open question how far the inertia and poor work habits of the psychotic child can be overcome by a suitable training programme.

Less than half the group of psychotic children received as much as two years' schooling, and many received no schooling whatsoever. It is probable that some of those who did not attend school were so severely handicapped that it would be unreasonable to expect appreciable scholastic progress. On the other hand, among those who did not have schooling there were several children within the normal range of intelligence and with only mild behaviour difficulties. There can be no doubt that these children should have received education. But, also, most workers would accept that even markedly retarded schildren should receive a substantial trial period at school before it is concluded that they cannot benefit from the usual educational measures. This was rarely available for the children in the present study. In addition, it has been previously demonstrated that the quality of care provided for even the severely

subnormal child makes a considerable difference to his social and intellectual progress (Tizard, 1965).

It has been shown that the amount of schooling received by the psychotic child is related to the level of his social adjustment when he reaches adolescence. In part this association may be merely a function of the relationship between a child's IQ and the likelihood of his receiving schooling. On the other hand, several intelligent children did not go to school, and the main effect of schooling seemed to lie in the differentiation of the 'good' and 'fair' adjustment groups—groups which did not differ significantly in mean IQ. Further indirect evidence in favour of the beneficial effects of schooling is provided by comparison of the present study with that reported by Eisenberg (1956). The two studies are closely comparable in nearly all respects, the one important exception being that, whereas the children in Eisenberg's investigation who were not speaking at 5 years had a very poor outcome, in the present study there were several examples of children who gained speech after 5 years and made fair progress. In all cases the late acquisition of speech occurred at a time when the child was receiving good schooling and/or speech therapy, and it appears likely that the somewhat better results in this respect in the present study may be due to better schooling.

It was found that the psychiatric and psychological assessment of young psychotic children can provide data of considerable prognostic importance. Of all the items, the child's response to IQ testing is probably the most important. The child who is untestable (provided that he is tested by a psychologist experienced in the testing of psychotic children, that several sessions have been given to testing and that suitable tests have been used) has a very poor prognosis, and the child with an IQ below 60 is also unlikely to have a good outcome. Unfortunately, the relationship between IQ and outcome was not reported in either the Eisenberg study or the Creak study, the two investigations which concerned children most comparable to those in the present series. However, three other studies which include cases of infantile psychosis provide some support for the present findings. Mittler,

Gillies, and Jukes (1966) found that no psychotic child with an IQ below 50 or untestable on admission to the Smith Hospital later attended any school within the educational system. Brown (1960), in a follow-up study of 'atypical' children, found that 'little appropriate use of toys' (an item which probably reflected a low IQ) was the variable most strongly associated with a poor outcome. In a follow-up study of a heterogenous group of psychotic children, Annell (1963) found that stereotypies and an IQ below 80 were indicators of poor prognosis.

The prognostic significance of the severity of language disturbance has been mentioned by several writers. Eisenberg (1956) found that children without useful speech at 5 years had a much worse outcome than those with useful speech at that age, and Creak (1962) commented on the bad prognosis associated with a prolonged failure in speech development. Brown (1960) found that when atypical children 'excluded stimuli', especially acoustic stimuli, the prognosis was poor. This item appears comparable to the item 'profound lack of response to sounds' which was related to a poor outcome in the present study. Brown (1960) also found that children who remained without speech after the age of 3 years did less well than other children. In the same study, children with a severe disorder did less well than those with a milder disorder. Accordingly, other studies, although not always comparable in methods or diagnostic criteria, provide support for the finding that the most important prognostic factors are the child's response to IQ testing, his response to sounds, his level of speech at 5 years, the overall severity of the psychosis and, probably, the amount of schooling he receives.

The findings are also relevant to a consideration of the nature of infantile psychosis. The high frequency with which the psychotic children developed fits during adolescence strongly suggests the importance of 'organic' neurological factors. It should be noted that none of these children had any abnormality on a neurological examination when first seen at the Maudsley Hospital. The development of fits was particularly common among the children whose IQ was below 50 or 60. It is well known that many mentally subnormal children become epileptic, and indeed the control children (in whom overt brain damage was common) developed fits almost as frequently as did the psychotic children. Thus the development of fits does not differentiate the psychotic child from the child with severe subnormality or with brain 'damage', but it clearly distinguishes him from the child with a psychogenic disorder.

Severe hyperkinesis was found to be a symptom with a particularly characteristic developmental course. Children *hyper*kinetic in early childhood frequently became *hypo*kinetic in adolescence. Hyperkinesis is known to be common among children who are mentally subnormal, and it is much more frequent in boys than girls (Birch, 1964). These facts, together with the fairly consistent progression from hyperkinesis to hypokinesis, suggests that this behavioural feature is linked with physiological rather than psychological variables—perhaps with some aspect of brain maturation.

It has often been thought that the psychotic child's intellectual and speech difficulties are secondary to his autistic withdrawal—that he *can* speak and function efficiently but doesn't because of profoundly impaired interpersonal relationships. However, it was found that when the children ceased to be autistic they did not necessarily show improvement in other handicaps; in particular, they did not show any marked improvement in intellectual functioning. Also, there were several children who, in spite of great improvement in behaviour and in social relationships, still remained without speech. Therefore it seems improbable that the psychotic child's handicaps are due mainly to social withdrawal.

The importance of IQ and speech development in relation to prognosis suggests that cognitive and language defects may also be basic in the development of infantile psychosis. Stronger evidence in favour of a basic language defect is provided by the patterns of cognitive functions in psychotic children. This issue has been briefly considered in previous papers (Rutter, 1965, 1966b) but will be more fully discussed in papers to be published on the psychological findings in this group of children with infantile psychosis.

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## SUMMARY

The 63 children with infantile psychosis who attended the Maudsley Hospital between 1950 and 1958 were individually matched for age, sex, IQ and year of attendance with a control group of children with non-psychotic disorders of emotions or behaviour. Both groups were re-examined by the authors in 1963/64 and given individual psychiatric, neurological, social and psychological assessments. The social outcome at follow-up of the psychotic children was significantly worse than that of the control children, especially with regard to the proportion in paid employment. The developmental course of autism, speech, ritualistic and compulsive behaviour, aggression and self-injury, hyperkinesis and other behavioural characteristics of the psychotic children are described. The general course of infantile psychosis is outlined and it is noted that 10 of the 63 psychotic children developed fits in adolescence. Children who were untestable on any IQ test or had an IQ below 60 had a poor outcome. A severe disorder, and particularly a severe retardation of language development as shown by a profound lack of response to sounds and lack of useful speech at 5 years were also indicators of a less than good prognosis. The amount of schooling received by the psychotic child was related to the level of his social adjustment at adolescence. The often inadequate treatment and education provided is noted and it is suggested that there are grounds for a limited optimism that with better facilities somewhat better results might be obtained.

## ACKNOWLEDGMENTS

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