New York, has recently, and quite independently, come to employ the term 'deviance' in a similar sense to our own. Specified items of behaviour, she concludes, should 'show differences from prevailing norms in a population; and . . . interfere with adequacy of adjustment, and of performance as measured by success in functioning at home, at school, and in the community'. These differences, we would add, should be defined in terms of intensity, frequency and association with other forms of deviant behaviour. When these characteristics are outlined the borderlands of morbidity can be approached and global concepts like 'adjustment' be more carefully examined. The usefulness of this procedure for screening purposes is demonstrated by the patent disturbance of our matched controls.

In addition, however, our data point to the necessity for taking account of the duration of deviant behaviour. The results of the follow up show that even extreme forms of behaviour can resolve without specific treatment. These represent, in all probability, no more than exaggerations of conduct in response to temporary life-situations, standing out in contrast to the deviant patterns of behaviour which remained unaffected over time. And they bring us back, appropriately, to the problems of the Underwood Report by lending support to the view expressed by Buckle & Lebovici (1960) that 'all children show signs of disturbed behaviour at some time or another, and professional intervention is justified only if the disorder persists long enough to authorize a prognosis of lifelong disorder, or when the disturbance is serious'. At the present time our understanding of the prognosis of most childhood behaviour disorders is handicapped by the small number of longitudinal studies. Clearly, however, such information should constitute an essential preliminary to the rational planning of medical services in this area. What forms of treatment should be provided, and how they can be best deployed, make up an important programme of clinical research which must be tackled in the near future.

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Psychiatric Disorder in 10- and 11-year-old Children

In presenting our findings on the prevalence of psychiatric disorder in 10- and 11-year-old children resident on the Isle of Wight we are chiefly concerned with problems of method and of definition. Two different approaches are possible. First, the prevalence and interrelationships of different behaviours may be studied without concern with the definition of pathology. Studies of this kind (Lapouse & Monk 1958) have shown that many supposedly pathological features are both very common and unrelated to any overall assessment of maladjustment. Only very rarely, if ever, can single behaviour items be taken as sufficient evidence of psychiatric disorder. In order to plan services, on the other hand, it is essential to have a wider estimate of functioning, and it is this approach we have followed in assessing the prevalence of psychiatric disorder among school children. In that we were concerned with the presence of suffering of the child or distress or disturbance of the community caused by the child's behaviour, rather than just deviant, odd or statistically abnormal behaviour, we have preferred the term 'psychiatric disorder' to more general descriptions such as behavioural deviance. Our use of the term does not presuppose any concept of illness; more simply it refers only to handicapping disorders of the type now usually cared for by psychiatrists dealing with children.

The role of research in the planning of services may be summarized under the following headings:
(1) The *size* of the problem, in which prevalence studies such as that reported here are relevant.
(2) The *nature* of the problem, in which the types of disorder are delineated and the overlap between different varieties of handicap determined.
(3) *Present services*, so that it is known how many handicapped individuals are at present receiving different kinds of care.
(4) *Attitudes of the population*, of which the desire or lack of desire for help of the handicapped person or family is one important aspect.
(5) *The longitudinal course of disorders* together with estimates of incidence and of response to different forms of treatment.
(6) The provision of a *blueprint* for rationally planned services in the light of the findings under the five headings above and in relation to local characteristics.
(7) The setting up of *experimental services* in which systematic evaluation of their efficacy is

'built in' from the first stages of their development.

(8) The *modification* of the experimental services in the light of findings about their value and in relation to changing estimates of incidence and of population attitudes.

In this paper we are concerned only with the first stages of this procedure, together with a few remarks about the types of handicap, present services, and the attitudes of the parents of the handicapped children.

METHOD

The population studied consisted of the children resident on the Isle of Wight who were born between September 1, 1953 and August 31, 1955, inclusive, with the exception of those who attended private schools. A two-stage approach was used. First, the total population was studied by means of multiple screening procedures, involving information from both teachers and parents. In addition, we selected all children in the age group who were under the care of any of the relevant services, all who had come before the Juvenile Court, all attending a psychiatrist on July 1, 1965, and all children who had been in care for six months or longer on that date, or who were in care for reasons which might necessitate care lasting that long. On this basis, children who might exhibit psychiatric disorder were selected for more intensive study, and again we utilized independent measures involving the parents, the school and the child.

Screening Methods

In June 1965 the teachers of 99·8% of the children, and the parents of 88·5% of the children, completed behaviour questionnaires about them. Children at home, those known to be attending schools on the mainland, those in hospital, at training centres or in special units were included as well as those attending maintained schools on the Isle of Wight.

The teachers' questionnaire was in the form of 26 behavioural descriptions producing a total score with a range from 0 to 52. The parental questionnaire was very similar, with 18 of 31 items identical with those in the teachers' questionnaire. The teachers' questionnaire has a re-test reliability over a two to three month interval of 0·89 with the same teacher rating on each occasion and 0·72 with different teachers (Rutter, in preparation). For the parental questionnaire the correlation between the ratings of mothers and fathers was 0·64, and the re-test reliability of mothers' ratings with an interval of three months was 0·74. The questionnaires have also been shown reliably to discriminate children under psychiatric care. A score of 9 or more on the teachers' scale selects 72–88% of clinic boys (using 2 samples) and 50–70% of clinic girls, compared with 9–11% of boys and 3–5% of girls in the general population (Rutter, in preparation). These findings have been cross-validated on further populations. The findings for the parental questionnaire, using a total score of 13 or more, are similar.

The questionnaires have also been shown to discriminate between children with neurotic disorders and those with antisocial disorders (using diagnoses based on clinic records as the criterion) with an accuracy varying between 72% and 92% on different samples. Thus, the screening instruments have been shown to be reliable and to discriminate well between clinic and nonclinic children and between children with different types of disorder.

Intensive Study

Children were selected for more intensive study if they were in any of the administrative categories already mentioned, or if their score on the teachers' questionnaire was 9 or more, or if their score on the parental questionnaire was 13 or more. The intensive study included an interview with parents, a report from the teacher, and a psychiatric examination of the child. The children were also seen individually by psychologists who administered the shortened version of the WISC and the Neale analysis of reading test.

Psychiatric examination of the child: The psychiatric examinations of the children were carried out by doctors working at the Maudsley Hospital all of whom had completed at least six months' training in the Children's Department of the hospital. The examination, which will be described in detail elsewhere (Rutter & Graham, in preparation), consisted of a half-hour interview with the child. Individual defined items were rated and an overall assessment of psychiatric abnormality was made on a three-point scale. When both of us examined the same children, with knowledge only of the child's name and age, and with an average interval of about two weeks between the examinations, we agreed completely on the overall assessment in 80% of the cases. The product-moment correlation between our assessments was 0·84.

Parental interview: One or both parents (in most cases the mother alone) were interviewed by a doctor or by a graduate in one of the social sciences, using a standard interview which lasted, on average, about one and a quarter hours. After eliciting the parents' perceptions of their child's behaviour, parents were asked to describe in more

detail any spontaneous complaints about the child's behaviour or emotions. Then, all parents were asked 36 standard questions about the child's behaviour and social relationships. The interviewers were instructed to probe for actual examples of the behaviour and to obtain information about the onset, frequency and severity of the behaviour in question, together with details about the circumstances and situations in which the behaviour was exhibited. They were warned against accepting generalizations or inferences about what might be going on in the child's mind. Rather, they were to concentrate on obtaining factual accounts of what the child said or did.

On completion, the interview schedule was rated by one or both of us for individual items of behaviour, for an overall assessment of psychiatric state and for diagnosis. A judgment was also made regarding the need for out-patient psychiatric services. Eighty schedules were rated independently by both of us. There was an inter-rater correlation of 0·81 on the psychiatric state using a four-point scale and 0·80 on need for services (again using a four-point scale).

To examine the reliability of the parent as an informant 36 parents were re-interviewed by a different interviewer ten to thirty days after the first interview. The interviews were rated by different raters so that both information gathering and rating was done completely independently on the two occasions. Correlations were again high; 0·67 on psychiatric state and 0·85 on service need. There were no consistent differences between the interviewers or between the first and second interviews.

Information from teachers: Finally, in November 1965 the teachers of the selected children completed a questionnaire identical to that completed by a different teacher in June, together with a form similar to that used in local authority child guidance clinics, asking for free comments under a number of headings. Inter-rater reliability of judgments of psychiatric state and service need based on the questionnaire and the free comments were high: 0·85 and 0·82 respectively.

Overall assessment: An overall assessment for each child was then made on the basis of all available information. The inter-rater reliability for 80 cases rated independently was 0·89 on psychiatric state, and 0·88 on service need. Thus, all measures used in the intensive study were shown to be highly reliable.

Diagnostic distinctions, using a classification described elsewhere (Rutter 1965) were made reliably at every level of enquiry. Complete agreement between two raters on diagnosis varied between 67% and 74%. The two largest diagnostic groups were neurotic disorder and antisocial disorder. When diagnosis was based on different parental interviews and rated by different psychiatrists (a harsh test) *no* children were placed in the neurotic category by one rater who were diagnosed antisocial by the other. Thus, it was shown that two psychiatrists could agree well on the diagnosis of children's psychiatric disorders.

Results

Initial screening: About 13% of the total population of 2,193, that is 284 children, were selected for more intensive study. The parental scale and the teachers' scale selected about the same proportion of children (6·0% and 7·1%) and in both cases the proportion of boys exceeded the proportion of girls; this sex difference was more marked on the teachers' scale. However, the overlap between the groups selected on the two scales was quite small (10 boys and 9 girls). This is about double the number expected by chance but the fact remains that to a large extent the teachers' scale and the parental scale select different children.

Intensive study: Of the children selected for intensive study, teachers' reports were obtained on all but 2 and other measures were obtained on 95% of the population.

Differences between the selection by teachers' questionnaire and by parental questionnaire: The groups selected on the two questionnaires contained about the same proportion of children with psychiatric disorder, as judged by an independent psychiatric examination of the child (48% possibly abnormal and 20% definitely abnormal among those selected on the teachers' scale and 43% possibly abnormal and 19% definitely abnormal among those selected on the parental scale). Furthermore, about the same proportion in both groups, 43% and 49%, were rated as having a definite psychiatric disorder on the final assessment based on all available information. Both scales were equally effective in the selection of children with psychiatric disorder but to a considerable extent they selected *different* abnormal children.

A number of possible biases existed in the differences between the school situation where the children were seen by teachers and the home situation where children were seen by the parents. Teachers might be expected to be more likely to note behavioural deviance in the dull or backward child. However, neither the girls nor the boys in the two groups differed in terms of intelligence. The girls selected on the basis of the teachers' scale were significantly more retarded in all aspects of reading, but no significant differences in reading were found for boys. As parents' judgments about the behaviour of children may

be largely based on their own children, family size might influence parental ratings. Children selected on the basis of the parental questionnaire were found to come from significantly smaller families than those selected on the basis of the teachers' scale. The mean number of children in the household was 2·93 for the parental group and 3·49 for the teachers' group ($P<0·01$). Interviews with the parents suggested that when there were several deviant children in large families, parents often regarded as abnormal only the child thought to be *most* deviant.

The two groups of children did not differ significantly in social class composition. Nor were there any differences in the proportion of children not living with both natural parents (that is from 'broken' homes).

It has been suggested in the past that teachers are most likely to note antisocial and problem children and to miss the less obtrusive neurotic children, but we did not find this. Of the girls in both groups who were finally diagnosed as showing a definite psychiatric abnormality the majority were neurotic and there was no difference in the proportion of neurotics between the two groups.

With boys, again, there was no difference in the proportion of neurotics, but there was a tendency for the group selected on the basis of the teachers' questionnaire to contain more antisocial children. The difference may be partly due to an under-representation of antisocial children in the children selected on the basis of the parental scale. Of the children for whom no parental questionnaires were completed, a high proportion were selected as antisocial boys on the teachers' questionnaires. Of the 251 children for whom no parental questionnaires were received 13·1% scored 9 or more on the teachers' scale compared with only 7·1% of the total population.

It is likely that, in part, the lack of overlap between the groups may be attributed to defects in the instruments, particularly the parental scale, as more detailed information from the *parents* suggested that many of the children selected on the teachers' scale were also disturbed at home. In addition, it was apparent from all sources of information that a number of the disturbances were situation-specific. Some of the children who exhibited abnormal behaviour with their parents did not do so when with other relatives or when at school. Similarly a number of the children who had shown some psychiatric disorder at school had improved markedly on changing schools between June and November.

Children with psychiatric disorder, excluding mental subnormality: On the basis of information from parents and teachers and from a psychiatric examination of the child, 124 children were finally selected as having some definite psychiatric disorder of slight or marked degree; of these, 48 had severe disorders. The teachers' scale and the parental scale contributed equally to the final selection, there were very few children picked up on administrative categories alone and the group without parental questionnaires and those selected on the basis of both scales contributed a disproportionately great number of children. In keeping with most other studies, there was a preponderance of boys (80 boys to 44 girls) among children with psychiatric disorder. The social class of the children with psychiatric disorder did not differ from that in a randomly selected group of children of the same age also resident on the Isle of Wight.

In addition to the 124 children diagnosed as having some definite psychiatric disorder there were an additional 14 children with trivial disorders who were thought for a variety of reasons to warrant out-patient psychiatric attendance for diagnosis or advice. There were, therefore, 138 children (89 boys and 49 girls) for whom it was felt psychiatric out-patient services could usefully be employed. This constituted 6·3% of the 2,193 children initially screened by means of the questionnaires. Of these, 48 were thought to need diagnosis and advice only, 46 possibly required treatment and 44 probably required treatment. Of the 90 children thought to need psychiatric treatment, 15 were attending the child guidance clinic. A study of 50 children of the same age with physical disorder, who had not been selected on either questionnaire, suggested that few children with psychiatric disorder were missed by the screening procedure. On the basis of comparable information from teachers and parents only one child in the 50 was diagnosed as having psychiatric disorder and needing psychiatric services.

There were important diagnostic differences between the girls and the boys with psychiatric disorder, the girls showing a preponderance of neurotic disorders and the boys an excess of antisocial conditions (Table 1).

That a psychiatrist considers a child might benefit from a diagnostic or treatment service does not mean that the parents view the problem in similar terms, nor does it mean that if services were fully available all the families who were thought to need help would avail themselves of the services. Only about 1 in 6 of the parents of children with psychiatric disorder but not having any specialist care stated unequivocally that they definitely wanted help, although rather more gave vague or indefinite answers such as: 'Well, he isn't getting any better, but what sort of help is there for this sort of thing?' Three out of 5 parents of children initially stated that they did not want help, but during the interview some of them appeared to change their attitude. However, it

Table 1
Final selection

	Boys	*Girls*	*Total*
Psychiatric abnormality			
None	39	27	66
Trivial	60	34	94
Slight	54	22	76
Marked	26	22	48
Out-patient service need			
None	90	56	146
Diagnosis/advice only	31	17	48
Treatment (possibly)	33	13	46
Treatment (probably)	25	19	44
Total	179	105	284
Diagnosis of children needing out-patient service			
Neurotic disorder	22	28	50
Antisocial disorder	33	10	43
Mixed disorder	25	6	31
Developmental habit disorder	6	1	7
Child psychosis	1	1	2
Hyperkinetic syndrome	1	1	2
Personality deviant	1	2	3
Total	89	49	138

seems that a substantial number of parents, perhaps half, would not want help now even if it were available. Changes in the provision of services are usually followed by changes in the attitudes of people towards them, so that the proportion not wanting help would be likely to change if services increased or became more effective.

DISCUSSION

We may have been rather conservative in our estimates of service need and other psychiatrists might have felt that more children needed help. Certainly other studies have tended to give similar or rather higher estimates; for example, figures of 5·4% to 9·7% in the surveys reported in the Underwood Committee report (Ministry of Education 1955), 8% reported by Ullman (1952) and 12% by Rogers (1942). Also not included in our figures are children with mental subnormality, educational problems, or monosymptomatic disorders, like nocturnal enuresis occurring in isolation, which, though not strictly psychiatric disorders, are frequently treated by psychiatrists.

There is limited evidence that when given for the appropriate diagnostic groups, short-term psychotherapy, drug treatment (Eisenberg *et al.* 1964) and conditioning techniques (Lovibond 1963) can all be effective, but our argument on the need for psychiatric services for these children does not necessarily depend on the ability of psychiatrists to *cure* the children of their disorders. Diagnosis, advice and opinions about prognosis are also important functions of the psychiatrist. Some of the selected children who were not attending psychiatric clinics had long-standing severe disorders associated with suffering or inconvenience for both themselves and their families, so that even in the absence of effective treatments these families will require help in coping with a difficult situation.

The finding that questionnaires completed by teachers and by parents tend to pick out different groups of children has already been discussed. Although in most respects the two groups were similar in terms of severity and type of disorder and in social background, it is important to note that if we had neglected to tap either source of information the number of abnormal children identified would have been almost halved. The reasons for the differences between the scales are certainly multiple and the final elucidation awaits further evidence.

SUMMARY

A study of the prevalence of psychiatric disorder in 10- and 11-year-old children on the Isle of Wight has been carried out using a two-stage procedure: (1) Screening questionnaires of known reliability and validity were given to the teachers and parents of 2,193 children. (2) Standardized clinical examinations of the 13% selected on the basis of screening procedures were carried out by psychiatrists and psychologists. The parents of these children were also interviewed using a standard procedure of tested reliability.

On the basis of all the information obtained, an estimate was made of the numbers of children with different types of psychiatric disorder. Excluding educational disorders, mental subnormality and some monosymptomatic disorders such as enuresis (which have not been considered in this paper) a minimal prevalence rate of 6·3% was obtained. The rate for severe disorders was 2·2%.

One-third of those diagnosed as suffering from psychiatric disorders were thought to require diagnosis and advice only, one-third possibly required treatment, while the remaining third probably required treatment. At present 0·7% of children are actually receiving treatment.

It is clear from our findings that there are many children with psychiatric disorder who are not under psychiatric care, but service needs cannot be estimated on prevalence figures alone. The inception rate for psychiatric disorder and the duration of disorders are also relevant. Many parents of abnormal children would not, on our estimate, use services even if they were freely available. The value of such services, and consequently the scale on which they need to be developed, depends on a number of other factors. The types of therapy available, the presence or absence of effective links with local health and education services on the one hand and general

practitioner and hospital services on the other, the availability of psychiatrists, psychologists and social workers, and the availability of adequate residential, educational and psychiatric facilities are all likely to influence the effectiveness of services and they need to be separately evaluated. Further studies of the natural history of these disorders and of the value of treatment in modifying this natural course are indicated before any firm assessment of service need can be made. Investigations of younger children and adolescents on lines similar to those sketched out here for 10- and 11-year-old children are also required. Finally, as indicated in the introduction, we regard the investigation of service requirements as complete only when experimental services have been established and evaluated.

Acknowledgments: This report forms part of a study of psychiatric, physical and educational handicaps among school-age children on the Isle of Wight which is being undertaken in collaboration with Professor J Tizard and Mr W Yule of the Institute of Education and Dr K Whitmore of the Department of Education and Science. The study was financed in part by the Department of Education and Science and by the Association for the aid of Crippled Children. We have throughout enjoyed the whole-hearted co-operation of the parents, schools, doctors and local authorities on the Island. We are particularly grateful to Dr R K Machell, Principal School Medical Officer, to Mr A L Hutchinson, County Education Officer, and to Dr G D Knight, the consultant child psychiatrist on the Island, and Mr L Rigley, without whose help these studies would not have been possible.

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In welcoming these papers as major contributions to child psychiatry, Dr Connell stressed the length of time and the hard painstaking work required to carry out such work.

Referring to Dr Rutter's paper, in which diagnostic categories were a feature, Dr Connell drew particular attention to the problems of picking up the over-conforming child who might later show overt psychiatric disturbance; also to the problem of applying the Isle of Wight incidence figures to industrial areas, and the need to undertake further studies of a similar kind on children of other age groups.

Dr Connell then turned to Dr Shepherd's paper, the second part of which might seem somewhat provocative.

Discussing the first part, Dr Connell referred to previous remarks (Connell 1961*a*) stressing the difficulty in evaluating childhood behaviour items and to the concept of spontaneous remission which might perhaps be due to the unsolicited removal of psychopathological factors in the environment. Dr Shepherd's findings concerning the incidence of behaviour items over such a wide age range would provide valuable basic data.

Turning to the second part, Dr Connell stressed that he did not wish to deal with recognized limiting factors in the follow-up study such as the small number of patients and the short follow-up period. Nor would he press the alternative hypothesis that effective treatment must have been provided if a group of children from homes with a high incidence of parental psychiatric illness did as well as a group of children from less disturbed families. Nor was the disappearance of behaviour symptoms necessarily to be equated with mental health. The inferred challenge to child psychiatrists relating to the effectiveness of treatment was nevertheless there and should be faced.

Dr Connell wondered how many child psychiatric clinics employed routine methods in which mother and child went weekly to a psychiatric social worker and a psychiatrist respectively.

How many clinics considered the multiplicity of treatments available such as intensive treatment, supportive treatment, pharmacological treatment, day-hospital treatment (Connell 1961*b*), behaviour therapy and so on?

How often was the mental state of the parents adequately evaluated? How often were depressive illnesses in parents adequately diagnosed and treated?

Were long waiting lists, inadequate numbers of trained staff and general pressure of demands on doctors really the limiting factor?

Dr Connell then drew attention to the vast sums of money spent in the field of child care with so little basic data to justify the methods used. He again (Connell 1961*a*) advocated the establishment of academic child psychiatry units and the active encouragement of research in service clinics.

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