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THE THIRTY-FIFTH MAUDSLEY LECTURE: "HYSTERIA 311"*

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PERMIT me to begin by saying how pleased and proud I am to have received the invitation to deliver this year's Maudsley lecture. This is, I think, one of the highest honours that our psychiatric confraternity can confer on any of its members, and is something that the recipient will treasure as an enduring reward.

Henry Maudsley, whom we commemorate today, advanced the psychiatry of his time by applying philosophical ways of thought to clinical observations on individual patients. Experimental and statistical techniques in his day were little understood, and psychiatry itself was not yet ripe for their application. The situation is now a very different one; and we have reached the stage where work which does not rely on one or more of the powerful techniques now available is likely to be received both by editors and by the generality of readers in a spirit of no enthusiasm.

It is, therefore, with some trepidation that I venture to offer you a discourse which is based on observational data of a solely clinical type. These data have, indeed, been accumulated on a genetical principle, the hypothesis that monozygotic twins offer a controlled experiment set up by nature. But the limitations which apply to all purely clinical studies still obtain. However, there are certain rather primitive questions for which clinical studies are still the appropriate instrument. Controlled experiment and delimited statistical survey are the methods needed for problems which can be isolated and precisely defined. Until we can say just what it is we want to know, exploration along a wide front is still the most promising approach. This is, I submit, still the case with the neuroses; and of all the neuroses perhaps to the greatest degree in hysteria. If I have to trouble you with case presentations, which will lend an anecdotal air to my remarks, I must ask for your indulgence; I know no other way to make my points.

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Collection of Material

The twins which are the subject of this report were collected, as part of a systematized unselected series of all twins with a neurotic or psychopathic diagnosis, from the in-patient and out-patient material of the Bethlem and Maudsley Hospitals between 1 March, 1948 and 31 December, 1958, and from Belmont Hospital between 1 November, 1950 and 30 June, 1953. The Bethlem-Maudsley group in the present study includes all those and only those twins, with a twin partner of the same sex who had survived into adult life, who in the records were at any time allotted the diagnostic classification number 311 of the International List of Diseases (1947), "Hysterical reaction without mention of anxiety reaction", with one further case (DZ 5) who had been given the number 320.7, "Pathological personality NOS" and specified as "hysterical". The Belmont diagnoses which were accepted for inclusion were those of "hysteria" and "anxiety-hysteria".

I would like here to express the gratitude of our Unit to both of these hospitals, and to all the many colleagues whose ungrudging co-operation has made this work possible. If at times I suggest corrections of their views, such as a revision of diagnosis, it must be understood that all I claim is the easy advantage of the observer who can be wise after the event.

The preliminary case-work on these cases was largely carried out by Mr. James Shields, my colleague in the Genetics Unit at the Maudsley. But for the last three years Miss M. Malherbe has undertaken a complete review of all the data obtainable on the neurotic twins, filling in gaps in our information and securing interviews with the surviving patients and their twins. Diagnosis of zygosity has been made on the basis of history, physical comparison, blood-groups, finger-prints and the P.T.C. test. In the series reported there is only one case (DZ 5) in which there is any material doubt that this diagnosis might be incorrect.

Concordance

The most striking of our findings is that, in the 12 MZ and the 12 DZ pairs, there is no single twin partner of all the 24 probands who has at any time received a formal diagnosis of hysteria. The nearest approach to such a diagnosis is found in one of the dizygotic pairs (DZ 9).

> The family background of this pair was a curious one. The father was a manic-depressive with several hospital admissions, and in addition a crank who ran an unsuccessful campaign for the revival of craftsmanship among country blacksmiths. The mother was his first cousin, with further manic-depressive illness on her own side of the family, and must have been as cranky as he was. When the Proband was taken to the Child Guidance Clinic at the age of 11, the psychiatrist noted that the little girl prattled to him about coprophilia and of her twin sister's inferiority complex and infantile attachment to the father. She was regarded as an anxious self-dramatizing girl, but was not then diagnosed as a hysteric. However, it was the Twin who was first taken to the CGC some months before her sister at the age of 11, and again later between 13 and 16. She was then regarded as "an unstable adolescent with hysterical and depressive traits, reacting to an abnormal environment"; but the depressive aspect was thought more important than the hysterical one.
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> The Proband was diagnosed as a hysteric when she was treated in the Maudsley at the age of 18. She had become depressed and unable to go on

with her studies at the university, and was self-reproachful and agitated, picking her hands and biting her nails. Several suicidal attempts were thought to be histrionic. Her illness was put down to a romantic attachment to a psychopathic criminal, who was shortly expecting release from prison. She was treated with psychotherapy and improved, but two years later was back again, now four months pregnant by a Ghanaian student. There is a suggestion in the case record that the earlier depression had been succeeded by a mildly hypomanic state, involving the patient in her pregnancy. If that is so the whole cycle may have been a cyclothymic one.

If we can accept this pair as a concordant one, we must calculate the concordance rate for hysteria as 0 per cent. in the MZ pairs, 8 per cent. in the DZ pairs, which is far from impressive evidence of any specific genetical causation. We may, however, cast our net somewhat wider, and consider whether there are further cases of neurosis among the twins. In fact, three of the MZ and one of the DZ twins have come under psychiatric observation for this cause (MZ 2, 10, 12, DZ 1). One of these (MZ 2) may be taken as an illustration.

This pair, also, come from a family in which endogenous depressions have occurred. From the beginning the Proband was a little behind his twin in development and vigour, but they were both forward children. They won scholarships to grammar school and university, and were on the point of starting at their universities in 1939 when the war came. Both registered as conscientious objectors, and were assigned to such duties as land drainage and civil defence. This was too much for the Twin, who according to his mother, decided he must get out and organized himself medical discharge on grounds of psychoneurosis. The patient might have had more cause for this. He had had a mild depression at the age of 16 after the death of his father, and another depression lasting three months in 1943. However, he stuck it out, and served his time.

After the war both returned to their universities. The Twin completed his three years, got his B.A., and through a varied and adventurous career, till recently in the theatrical world, has never had any later neurotic episode. The Proband, however, got behindhand with his studies, and as the finals approached began to fear he would not even get a good pass and would be left without means or profession. He could not concentrate, had difficulty even in talking, and had symptoms of depersonalization such as the feeling he was doing everything "second-hand". On the day of the finals he did not present himself, but had an amnesic fugue lasting six hours. A few days later he was admitted to the Maudsley, underweight and depressed, but without other abnormality. Psychotherapy and a modified insulin treatment brought improvement. After discharge he was recommended to come up for further psychotherapy, but did not, and improved to recovery without further aid. He went back to his studies for a time, but eventually gave up without taking his finals. Ever since he has been perfectly well.

In this case the hysterical dissociation seems to have occurred under psychogenic pressure, but also at a time when powers of adjustment were impaired by a state of depression. Dealing very briefly with the three remaining pairs in which there is technical concordance in respect of neurosis, we have (MZ 10) a pair of psychopaths with numerous hysterical personality features, of which the Proband has a long history of hospital attendances, the twin a single episode when he was invalided out of the Army for psychoneurosis, having lost his memory after a fall. The second (MZ 12) is a pair of boys, now

21, who from earliest years have been of dull intelligence, enuretic, truants, subject to a number of neurotic traits, and with long records of delinquency, and with hysterical symptoms such as faints, falls and visual hallucinations. Characterologically they are almost mirror images of one another, but it is only one who achieved a psychiatric diagnosis of hysteria. The third case (DZ 1) is one in which the Proband is a severely psychopathic woman, her twin much more normal with a single illness, with symptoms of an anxious and depressive type, from which she recovered spontaneously in four months.

So far, then, we have 3 MZ pairs and 2 DZ pairs concordant for neurosis, giving us concordance rates of 25 per cent. and 17 per cent. Neurotic states, however, are not infrequently handled entirely by the family doctor, with or without referral to general hospitals, and never reach the psychiatrist at all. In this series there are four cases in which this has occurred (MZ 6, 8, DZ 2, 3). In the first of these the Proband is a higher civil servant who, after many years of work and war service in the Far East, found himself at the age of 38 reacting badly to the stresses of a very responsible post. He complained of headaches, depression, inability to concentrate and a head that seemed full of cotton wool. He worried about a sister-in-law who had been under treatment for cerebral tumour, and the psychiatrist considered his illness hysterical, presumably on the basis that it was the product of suggestion. He arranged, himself, to get psychotherapy, but despite it remained ill for four years, having to be off work for 6 months three years after the first onset. Eventually he made a fair recovery. His less brilliant twin found himself a much easier and less ambitious life, but also had an unexplained illness which started about a year later than that of his brother. The main symptom was lassitude, but after a time he also complained of an unpleasant smell in the nose. Moving in less sophisticated circles than the Proband, he was satisfied with treatment along ordinary medical lines; but he remained ill until an antropuncture a year after the onset put an end to the smell in his nose.

The other monozygotic pair which falls into this group (MZ 8) is one in which the Proband had an industrial neurosis with difficulty in walking, which lasted about 2 years, and kept him off work for a year. His twin was a bus-driver, who was unable to walk for a fortnight after a road accident in which a man was killed.

If we are to include these cases also in our concordance figures, we have 5 concordant pairs among the MZ twins, and 4 concordant pairs among the DZ. The difference is still negligible, and again we are driven towards the conclusion that specific hereditary factors are not manifesting their presence. We have not entirely covered all the psychiatric abnormalities among the twins of our probands; the list is complete with mention of a schizophrenic (MZ 11), a mental defective (DZ 8), and a ne'er-do-well with a criminal record (DZ 11).

Family History

Our effort, then, to track down one type of aetiological factor, the genetical one, through the aid of concordance figures, appears to have taken us very little distance. Similarities of personality are often far-reaching, but are rather seldom brought to the fore in symptomatology. Furthermore, despite the totally different genetical situation in MZ and DZ twins, in this group there is little difference between the two kinds of twins, whatever the criteria we employ. There is one further step we can take along genetical lines, and that is an examination of the family history.

In his valuable monograph on Hysteria, Ljungberg (1957) calculated that the incidence of hysteria in the fathers, brothers and sons of hysterics was approximately 2, 3 and 5 per cent. and in their mothers, sisters and daughters 7, 6 and 7 per cent. For the general population he gives a morbidity risk of 0·5 per cent. The findings, he thought, supported the view that polygenic factors were responsible.

Ljungberg provides a life-table showing the distribution of morbidity risk of hysteria with age. Using this, we can calculate that in the 23 fathers, 24 mothers, 43 brothers and 29 sisters of our probands we have observed the equivalent of 96·31 life-times of risk. Among these first-degree relatives there is no single individual who has ever been diagnosed as having a hysterical illness. However, two mothers can be written down as having abnormal personalities of a hysterical kind, and one brother is an abnormal socially poorly adjusted individual who, I think, would have been classified by Ljungberg as a hysteric. The incidence of hysteria, on these criteria, is then approximately 3 per cent. This fits in fairly well with Ljungberg's own figures. Another way of putting it is to calculate that, if the incidence of hysteria among the relatives of my probands had been the same as in Ljungberg's group, I could have expected to find 4·2 hysterics among them, with which the observed 3 agrees fairly well.

Ljungberg found no significant increase in the incidence of other psychiatric disorders among the relatives of his propositi, but there was such an increase in the propositi themselves. Among his male hysterics he found 3 who were schizophrenic, and among the females 5. The incidence of schizophrenia in the propositi themselves was, therefore, 3·1 per cent. In addition there were 1 male and 4 female manic-depressives, i.e., 2·4 per cent.; and 4 male and 8 female epileptics (3·3 per cent.). All these figures are high, and although individually they are not very significant, together they are impressive. Ljungberg states that the total incidence of psychoses among his propositi, that is including schizophrenia, manic-depressive psychosis, presenile and senile psychoses, psychogenic psychosis and undiagnosed psychosis, is 9·9 per cent. for men, 9·5 per cent. for women, diverging significantly from the expectation for the general population of 3·1 and 3·2 per cent.

Among the relatives of my probands I found no schizophrenics, and only two epileptics, a brother and a sister. There was, however, a noteworthy number of manic depressive and typically endogenous affective psychoses. There were no fewer than 5 well-established cases, 3 fathers and 2 mothers; and in addition one mother and one brother are of cyclothymic personality, one sister possibly had a depressive illness, and one mother had a depression diagnosed as reactive, but quite probably predominantly endogenous. If we take the risk period as lying from 20 to 65 in the male and 20 to 60 in the female, we may calculate that 69·5 risk-lifetimes have been observed, against which 5 sure cases represents an incidence of 7 per cent.

Among his propositi Ljungberg found that nearly half of both the men and the women had shown abnormal personalities, hysterical, asthenic and psychoinfantile types predominating. However among the first degree relatives there was no great incidence of psychopathy, as judged by fairly strict criteria, 4·9 per cent. among parents and 2·6 per cent. in siblings against an expectation of approximately 3 per cent. Among the relatives of my probands 2 fathers, 4 mothers and 1 brother were personalities abnormal to the point of psychopathy; but 3 of these individuals have already been classified as hysterics, so that we are left with an approximately 4 per cent. incidence of non-hysterical psychopathy among the parents. In addition, one each of the fathers, brothers

and sisters, and 3 of the mothers, could be regarded as showing hysterical traits of personality within normal limits.

The findings are, therefore, largely what might have been expected on the basis of Ljungberg's work, with the single exception that in this series the cyclothymic constitution shows up in a remarkable way. There is no indication that hysteria (or 'hysteria 311') can claim the autonomy of a genetical syndrome.

Early Environment

Let us then turn to the environmental determinants, beginning with those that arise in infancy. There are two findings here which are interesting. In the dizygotic pairs, in all 8 cases where a difference in birth weight is known, it was the proband who was the lighter; and of the 6 cases where there was a noteworthy difference in health in childhood, in 5 cases it was the proband who was at a disadvantage. No such systematic difference shows in the MZ pairs. Both these findings suggest the significance of physical factors operating in early life; but as the differences between proband and twin are confined to the DZ pairs, we cannot exclude the possibility that these physical factors may have a genetical basis. Finally, a striking finding is that where there was a difference in handedness, in 3 MZ and 3 DZ pairs, it was the proband who was left-handed or ambidextrous. The probability of such a finding arising by chance is one in 64. This, too, is a feature which may be speculatively connected with an organic predisposition.

Sometimes, in the individual case, it is possible to be a little more precise. Thus in one of the DZ pairs (DZ 6), the proband at the age of 13 was away from school for a year, and in hospital for 4 months, with an illness involving jerky movements, provisionally diagnosed as chorea and finally as habit spasm. Recovery was very gradual when she was taken to the seaside to live with an aunt. The mother does not remember nervous traits before this illness; but according to another source both twins had neurotic symptoms before this age. In the Proband anxiety attacks started at the age of 19. A feature of her illness was that whenever she became emotionally upset, numbers of jerky and tic-like movements would appear. The development of the illness was most unfavourable, the patient ruthlessly exploiting her symptoms to dominate her environment. but it seems to me by no means out of the question that a post-choreic personality change of an organic type partly laid the ground for her hysterical disposition.

A diligent search for other factors which might have played a part, such as birth order, birth difficulties, differences in breast feeding, in early development, and in parental attitude, and twin leadership, etc., have brought no quantitative differences between proband and twin to light.

Bodily Health in Adult Life

We receive an indication that this may be of moment in the observation that in the MZ pairs 5 of the twins enjoyed rather better health than the proband, the opposite being seen only once. In the DZ pairs the difference is more striking; in 9 cases the twin had the generally better health, and there is no case where the proband had the advantage. One way in which physical illness may predispose to hysterical symptoms is illustrated by MZ 3. The only noteworthy difference between the twins in this case is the amount of illness suffered by the Proband, gastric and intestinal trouble, cystitis, etc., which seems to have had a genuine physical basis; when her physical health improved, the hysterical symptoms passed off. However, differences are more quantitative than qualita-

tive, and there is only one case (DZ 8) in which a physical factor played a recognizably decisive role.

In this case the Twin, who is a mental defective, has stayed at home and has had no physical illness. The Proband had otitis media and later mastoid disease. She had in all six mastoid operations, then a labyrinthotomy, and finally in 1953 at the age of 35 an operation for drainage of a tempero-sphenoidal brain abscess. There was delay in healing, and she was suspected of interfering with the ear and stirring up infection whenever her work as a nursing sister got beyond her. Her matron regarded her as having exhibitionist tendencies. She did her work well, but had too much sick leave. On one occasion she was found to have "large quantities" of barbiturate drugs in her possession, and was thought to be taking them to excess. Her neuro-surgeon referred her to a psychiatrist with a note that "although she recently had a brain infection with *B. coli* abscess in the brain, I think there is no doubt that many of her symptoms are not organic in origin". The psychiatrist thought she showed organic intellectual deterioration, with indications of a nominal dysphasia, also an absence of insight not wholly explained as a hysterical reaction. Psychometry confirmed impairment of memory, learning difficulties and some nominal dysphasia.

She was admitted to hospital in an excitable, talkative, emotionally labile and rather euphoric state. She felt that her condition had been neglected and was "self-righteous and sanctimonious, naïve and exhibitionistic". She rejected any suggestion of self-injury. The diagnosis was "Hysteria, ? self-injury". Two weeks after admission her ear began to discharge, and for an interim of a fortnight she was transferred to an E.N.T. hospital. After her return she continued to run an intermittent temperature. At times she seemed little bothered by her own illness, at other times she would complain of pain in the ear, and hint that more investigations should be done.

Perhaps the poor girl was right. She went home in September, 1953, and died a year later, the post-mortem revealing that a large abscess in the left temporal lobe had ruptured into the ventricles. There was very little infection in the middle ear.

In this tragic case there can now be little doubt that the whole of the illness was attributable to the chronic cerebral abscess, which was never effectively treated. The hysterical colouring to the case, which led to unworthy suspicions of the Proband's integrity both as a patient and as nurse, was presumably derived from the personality. Before her illness she was a rather over-enthusiastic humourless person, attracted into nursing by a genuine idealism. Brain changes in the temporal lobe probably made her more labile, sensitive and difficult. The bad relations which developed between the patient and her medical advisers seem a not unnatural result of pressure on her side to get more effective treatment, and despair on theirs about how that could be provided.

Epilepsy

Among his group of hysterics Ljungberg found 3 per cent. were epileptic. The suspicion that epilepsy has provided the basis of a hysterical predisposition arises in a number of cases in the present material. One of the most interesting is MZ 7, in which the Proband suffered from faints from adolescence onwards. One is tempted to regard them as having been vaso-vagal, since low blood-pressure runs in the family, and the Proband's blood-pressure has always been

very low, when taken in hospital 80/50, as against her twin's 115/70. Her psychiatric history is long and complex, with hysterical symptoms such as aphonia, talking in sleep and a trance state at different times. However, at the age of 44 at last follow-up, she was having attacks occurring almost entirely at night in her sleep, with bladder incontinence, and was being treated with epanutin.

Two of our probands had epileptic siblings. In one of these (DZ 1) the patient suffered from attacks of giddiness and faintness, but showed nothing else to suggest epilepsy. In the other (DZ 7) the patient had atypical fits at the age of 11, leading to an examination at the National Hospital and the conclusion that they were not epileptic. At 25 she had a severe anorexia nervosa, so intractable that after 3 years she had an anterior leucotomy. After this the fits recurred and persisted despite anticonvulsants. EEGs showed numerous slow and fast waves, but nothing specific of epilepsy. Some attacks were observed, and regarded as tetanic and produced by over-breathing. At the age of 31 she had a second leucotomy. At follow-up this year, aged 38, she is once again having fits about once a month. She has a walking disability of the grossest hysterical kind, but also a mass of obsessional rituals. Her state suggests a progressive cerebral process.

Apart from these cases, blackouts, attacks of going limp, dizzy attacks, faints, falling attacks, short lapses of memory, have been observed in 6 MZ cases (1, 4, 5, 8, 9, 12) and in 4 DZ cases (2, 4, 5, 10). In one of these (DZ 2), the patient was found to have a very unstable EEG, and metrazol produced a burst of typical spike and wave suggestive of epilepsy. In another case (DZ 10) the patient's illness, which was depressive in form, was preceded some months previously by the occurrence of two epileptiform attacks on the same night. The general practitioner was sent for, and found her semi-conscious, having bitten her tongue.

Not very many of these patients have had any EEG examination, and those that have showed only non-specific anomalies. However, considering how atypical a temporal lobe attack can be, and how much EEG investigation is often required to demonstrate a temporal lobe focus, it seems to me far from improbable that more thorough and systematic examination would have brought to light some unmistakably positive findings. One of the probands (DZ 12) was under my own care in the National Hospital with a state of agitation and depression, in which she complained of overwhelming sexual feelings and the continual recurrence of spontaneous orgasms. Though I was unaware of it at the time, the symptoms were very similar to those of the well-known case of Erickson (1945) of angioma of the paracentral lobule; and the temporal lobe epileptics of Van Reeth *et al.* (1958) had comparable sexual experiences.

SCHIZOPHRENIA

Among his 381 propositi, Ljungberg found 3 males and 5 females who were schizophrenic. In the present material there is also a schizophrenic (MZ 11) These twins were dull and backward boys who became schizophrenic within a year of one another between the ages of 22 and 23, in 1957. They are now both chronic patients in mental hospitals. When the Proband was admitted to the Maudsley Hospital he had shown a personality change and catatonic symptoms for three months, and had had delusions, such as that the sound of passing cars was that of aerial activity indicating the imminence of war. However, such symptoms were to some extent in abeyance while he was in the

Maudsley, and the foreground of the picture was taken up by a hysterical pseudodementia. Asked in digit retention to repeat 246, he gave 358. He said 2+3=6, 3+3=5, 4+2=7, that there were 13d. in 1s. and 21s. in £1. On a later occasion he denied all knowledge of his home address, his brother and his previous career, and even said he did not know his own name; but he now said there were 12d. in 1s. and 20s. in £1. Asked why he had got the answers wrong before, he said "Joking, doctor, just for a joke". Asked why he had been walking round with an empty wheelbarrow, he said, "An empty wheelbarrow is easier than a full one; I don't like heavy work." In short the picture, which was of very temporary duration, was that of a Ganser state or buffoonery syndrome. These states have attracted much psychiatric attention from time to time, and have been found to be of very various aetiology, schizophrenia accounting for a certain number.

Endogenous Depression

Ljungberg found 5 manic-depressives in his group, and in the first two case histories I quoted there are grounds for thinking that hysterical symptoms arose in the course of an endogenous depression. These are not the only ones. The illness of the proband in MZ 6, already quoted, was depressive in symptomatology, and the principal justification for a diagnosis of hysteria was the belief that the patient's headaches were the product of suggestion. A fourth case is that of DZ 10, whose illness, depressive in form, came on in the puerperium shortly after a stillbirth. A fifth case is that of MZ 4.

> In this case, the patient attended the Maudsley Out-Patient Department at the age of 34 with the complaint that every three or four months he would have 7 to 10 days in which he was dizzy, irritable and taciturn. The attacks came without precipitating cause, and between whiles he would be all right. His wife thought they had started after hearing that an acquaintance had been found to have cancer. Three weeks before attending, the patient had gone to work, had felt bad, and had collapsed at the First Aid post. He had had several slight turns of weakness almost daily since. He slept well, but woke tired, was constipated, got very depressed, and had fears of cancer. On examination, though he looked pale and ill, nothing abnormal was found but a numbness of the shoulder thought to be hysterical. He soon ceased to attend the out-patient department, but follow-up six years later shows that he made a spontaneous recovery and has remained well ever since; in the interview he showed nothing hysterical. The father of this man was admitted to Bexley Hospital with a depression at the age of 62, dying there five years later.

Personality

In his study, Ljungberg assigns a principal aetiological role in hysteria to deviations of personality, and in this he follows excellent precedents. Nevertheless he found that more than half of his propositi had shown no marked deviation of the premorbid personality. The commonest deviant types were the hysterical 21 per cent., the psycho-infantile 10 per cent., and the psychasthenic 8 per cent. Ljungberg further defines these types as follows. The hysterical type shows the suggestibility and distractibility postulated by Janet; he is quick to learn and to forget, with enthusiasm easily aroused but endurance limited; he has a pressing need of variety, and of being the centre of attention; he is subjective and egocentric.

The psycho-infantile type has a strong affective fixation and dependence on his relatives, and needs guidance and help; he shows traits of childishness, is credulous and easily led; under external pressures he is apt to react with a state of insufficiency.

The psychasthenic type easily becomes tired and suffers from anxiety. In order to compensate for a reduced supply of energy, the psychasthenic tends to avoid surprises and choice situations, and often subjects himself to a routine. He is shy, withdrawn, meticulous, dutiful, irresolute and vacillating.

In the present study, I have not subjected these cases to the same analysis. I have not attempted, in fact, to estimate any deviation from an imagined norm. Instead I have tried only to note the particular ways in which probands differed in personality from their twins. Nevertheless the results agree fairly well with those of Ljungberg. with the proviso that the main differences between proband and twin were along the psychasthenic and the psycho-infantile dimensions rather than the hysterical dimension.

The commonest and most consistent difference was for the proband to be the more anxious, worrying and tense of the pair, this difference being shown in 9 pairs in the one direction. It may be quite marked, even in MZ pairs, and then of course is not genetically caused. In one pair (MZ 6) the difference arises as the result of a polar development of the twins; in the rivalry in which they were involved the one who excelled became increasingly ambitious, serious and tense, while his brother gave up all lofty ambition and relaxed into a humdrum career. The important role which tendencies to tension and anxiety have played, not only in the personalities but also in the illnesses of these patients, is illustrated by the fact that two of them have each been submitted not to one but to two leucotomy operations.

Related to the anxiety tendencies, minor perfectionist and obsessional features were shown in 7 probands and in 2 twins; and there was greater social timidity and shyness in 11 probands to 1 twin. Differences in energy and initiative also showed a preponderance, the twin having the advantage over the proband in 11 cases to 4.

Traits which I should call hysterical—excitability, suggestibility, shallow affects, selfishness and self-will, histrionic traits—were about as common as in Ljungberg's material, and were more marked in the proband than the twin in a quarter of the cases (MZ 1, 10, 12, DZ 1, 6, 9). Some degree of hysterical disposition is, however, shown by 4 twins (MZ 2, 5, DZ 3, 10).

From the historical point of view, it was as a rule the proband who was the more neurotic in childhood, and who had more changes of occupation. There were also striking features about their sex lives which to some extent support Ljungberg's emphasis of psycho-infantile traits.

Taking the probands, there are only 3 men and 1 woman who have had fairly normal lives, with marriage to normal partners. Two male and 6 female patients have probably never had any sex relationship at all. Two other women have had difficulties in marriage, one being separated from her husband for a time. All the remainder have chosen odd partners. Of the men MZ 2 married a wife who had been hysterectomized; MZ 4 married a woman who was a chronic neurotic and hypochondriac; MZ 10 married a neurotic woman who later had a paranoid psychosis. Of the women MZ 3 first got engaged to a Canadian soldier who proved to have a wife already, and later married a man who had been in hospital with a schizophrenic illness. MZ 5 married a man who later went to prison for car frauds. Since her divorce she has cohabited with a man she refuses to marry, though she has twice been pregnant by him.

One of these pregnancies was aborted on psychiatric grounds; after the other she arranged to have the child adopted.

In the dizygotic series, DZ 2 married a man who had been deaf since childhood, and who later left her perhaps owing to her illness; this woman was also sterilized; DZ 3 married a man with chronic nephritis who soon became impotent; DZ 7 found her husband through a marriage bureau, a shy and nervous man who dotes on her; DZ 9 fell in love with a criminal psychopath twenty years older than herself, and later had an illegitimate baby by a black man; and DZ 12 married an unsociable rigid man, who is both vegetarian and valetudinarian.

The twins have been more fortunate, but in them too, sex interest which is late or feeble, and failure to marry is found in 10 cases; and two marriages have ended in divorce.

Psychogenesis

It is not easy to exclude the operation of psychogenic factors in any of our cases; but in about half of them it is difficult to put one's finger on anything very particular. If the proband has come under one form or another of psychological stress, the same has been no less true of the twin, and a differential incidence cannot be discerned. In a further 5 cases (MZ 2, 4, 6, DZ 3, 12), we find psychogenic factors obtruding, but with some doubt about the extent to which they have been effective. These stresses are of a banal kind; examination anxiety, an extravagant wife, responsibilities of an exacting post, an impotent husband, a rather unimportant love affair. In two further cases the psychogenic factor exercised a decisive role, but one which would hardly have been effective save for the pre-existing hysterical disposition. Thus the illness in MZ 8 was essentially in the nature of a compensation neurosis; and the repeated fugues of DZ 11 were precipitated by the most trivial embarrassments.

In one case (MZ 5) there was a stress situation of a truly drastic kind. The patient married a man of whom her parents disapproved, and even after the marriage they waged a long, ruthless and eventually successful campaign to part her from him. When she was in the Maudsley, the patient complained she felt in the middle of a battle that was tearing her apart, and that she was being asked to make decisions which were too difficult for her. However, the case was an exceedingly complex one. Both the patient and her unstressed monozygotic twin developed Graves' disease and had to undergo thyroidectomies; the Proband showed an EEG abnormality not shown by her twin; and during her illness she exhibited a depression with diurnal variation of endogenous type, obsessional features and depersonalization. Her after-history was very psychopathic for years after the solution of the acute conflict by divorce.

Four of the cases show a psychogenic situation of a particularly interesting kind, what one might call a form of folie à deux, since two people share the same delusion. We see, as it were, the sick patient on the obverse of a medal, on the reverse side of which is the face of a fellow-conspirator. This figure is that of a member of the family who is busily employed in fostering the illness. Where the patient is female, this individual is commonly a father or husband. Thus in MZ 1 the hysterical development of the Proband's personality can be traced to the father, who preferred her to her twin and after an appendix operation gave orders she was to do no more heavy work. In DZ 4 we find a husband who is dominated by the Proband's complaints, has to come home to comfort her in the middle of the day and is never allowed out in the evening.

In DZ 6 the Proband suffers from attacks of breathlessness, and has had almost continuous psychotherapeutic support for 9 years; the situation is made almost unmanageable by the fact that her father panics if she has one of her attacks, and feels he must be able to give her, at once, all the sedative tablets she wants. In the fourth case (DZ 7) the husband not only works for a living but also runs the house for the patient, looking after her in every way. He is repeating the pattern of behaviour of the Proband's own parents, since her father also did all the work for his supposedly crippled wife.

This situation is one which is commonly met in the cases one calls hysterical, though it is less frequently recognized. The supporting partner, when seen, makes a normal impression, and his attitude to the patient seems, at first glance, to be everything that is proper. The patient and her partner, however, make a closed circuit with one another, isolating them from other relationships, each supplying the other's needs. The effect tends to be very malign; the four cases quoted have periods of continuous and still continuing illness of 15 years, 7 years, 9 years and 11 years.

Course and Outcome

Such long illnesses are seen in only a minority of cases, but they are not uncommon. Ljungberg regards hysteria as a relatively benign condition, and reports that after 1 year only 38 per cent. of patients were still suffering from symptoms, after 5 years 23 per cent., and after 15 years 20 per cent. Looked at in another way, these results are not so encouraging: if 62 per cent of patients recover within the year, less than half the remainder can ever be expected to recover at all. The follow-up results in the present series are a good deal worse. Five of the probands recovered within a year, and a further 7 in periods of 2 to 7 years. To the present time half the patients are still suffering from symptoms, at a mean duration of 5½ years after the critical diagnosis was made.

It is often made a subject for wonder that the psychiatrist does not frequently see patients in middle life who have had hysterical symptoms for many years; and the comforting conclusion has been proposed that this is because the youthful hysteric nearly always gets better. Both Ljungberg's material and the present series show that this is not so. If the psychiatrist does not see these patients in later life, it is because the patients themselves have found out the hollowness of the hopes that he can offer. They have given up attendance at psychiatric clinics, and have learned to rely on the medicines they can get from their family doctors.

Perhaps the most surprising feature of the follow-up statistics is their lack of uniformity. Some patients do well, others very badly indeed; and good or bad outcome bears little relation to the nature, the amount or the severity of the hysterical symptoms. To get a clue to the prognosis, we have to look, not at the hysterical mechanisms exposed, but to their aetiological basis, whether this is a brain lesion, an endogenous psychosis, a deviation in personality development, a temporary stress situation, or a built-in self-perpetuating mechanism.

Conclusion

We have now reached the position when we are compelled to ask, what is the justification for regarding hysteria as a syndrome? The aetiology appears to be very various; and the hypothesis of a genetical basis of a specific or indeed important kind has had to be discarded. Among the hysterics of the present series we have found patients suffering from a focal brain lesion, also probably

from epilepsy, from schizophrenia, from endogenous depression, and from anxiety states falling more easily into the category of affective than hysterical illnesses. Comparative analysis of personalities shows the affected twin not so much more hysterical as more anxious than his partner. Both psychogenic and physical factors play a role in aetiology; but with some interesting exceptions they are of a varied and non-specific kind. The clinical picture is equally various; and the hysterical symptoms which are relied on for diagnosis are always accompanied by others of a different nature. No particular method of treatment seems to be of more general application than any other. Drug therapy, psychotherapy, E.C.T. and leucotomy have been tried, none showing any sign of being a specific remedy; patients get well or remain ill for reasons which are individual and often far from clear.

The one thing which is common to a large majority of the cases we have investigated is that they were very difficult problems clinically; even after prolonged follow-up many remain complicated and obscure. It is certain that some clinicians make the diagnosis of hysteria more readily than others. In some sense it is true to say that "hysteria" is a label assigned to a particular relationship between observer and observed; it appears on the case-sheet most readily if the doctor has found himself at a loss, if the case is obscure and if treatment has been unsuccessful. Of all diagnoses it is that which is least likely to be made in a spirit of detachment. There is a temptation to shelve further enquiry along aetiological lines, if the clinician sees or thinks he can see a histrionic quality in the patient's complaints, if some symptoms can be regarded as lacking genuineness, and if the patient demands rather than accepts treatment.

To be sure, the dissociative mechanisms of hysteria are known of old, and can lead to symptoms which deserve no other name. But the diagnosis of an illness as hysterical goes much further than the recognition of a symptom. The unreliability of the diagnosis indicates the unsatisfactoriness of a psychopathology which is based solely on a mental mechanism. In the past, delimited studies of such conditions as Ganser states and anorexia nervosa have repeatedly shown their heterogeneous nature. It seems permissible to suggest that this principle might be of wider application. The mere manifestation of a mental mechanism within the range of normal potentialities tells us little of consequence. If in our patient we find the signs of hysteria and no more, then these are signs that we have not yet looked deeply enough.

References

ERICKSON, T. C., "Erotomania (nymphomania) as an expression of cortical epileptiform discharge", *Arch. Neurol. Psychiat.* (*Chicago*), 1945, **53**, 226.

LJUNGBERG, L., "Hysteria. A Clinical, Prognostic and Genetic Study", *Acta. Psychiat. Neurol. Scand. Suppl.* 112. Copenhagen, 1957.

VAN REETH, P. C., DIERKENS, J., and LUMINET, D., "L'hypersexualité dans l'épilepsie et les tumeurs du lobe temporal", *Acta Neurol. Psychiat. Belg.*, 1958, **58**, 194.

TABLE I

			Hospital No.	Born	First Saw Psychiatrist	Became Proband	Last Follow Up	Photographs	Physical Comparison	Blood Groups	Finger prints	P.T.C.
MZ	1	f	B 0389	9. 9.06	11.47	5. 3.48	18. 9.58	+	+	+	+	+
	2	m	B 3091	2. 6.20	12.47	10. 8.48	18. 8.60	+	−	−	−	−
	3	f	B 8236	12.12.06	1.50	17. 1.50	22. 8.58	+	+	+	+	+
	4	m	D 0500	10.11.17	2.52	19. 3.52	14. 7.58	+	+	+	+	+
	5	f	D 1058	21. 9.30	3.52	16. 6.52	29.12.58*	−	+	+	+	−
	6	m	D 1345	11. 9.13	2.52	31. 7.52	6.10.58	+	+	+	+	+
	7	f	D 2030	21. 2.14	11.52	29.11.52	1. 3.58*	−	+	+	+	−
	8	m	4211 N	2. 6.15	1.53	19. 2.53	22. 6.60	+	+	+	+	+
	9	f	E 0649	30. 4.32	3.53	8. 4.53	1. 9.58	+	+	+	+	−
	10	m	E 1612	20.10.14	9.53	7. 9.53	3.10.58	+	−	−	−	−
	11	m	J 0121	1. 6.34	1.57	17. 1.57	1. 6.60*	+	+	+	+	+
	12	m	J 1477	30.10.39	1946	23. 7.57	18. 2.60*	+	+	+	+	+
DZ	1	f	B 5387	28.11.30	5.49	3. 5.49	14. 8.59	+	+	+‡	+	+
	2	f	B 6722	26.10.20	9.47	7.10.49	21. 4.60	−	+	−	+	−
	3	f	8247 G	9. 5.22	10.50	15.11.50	12. 9.60	−	+	−	+	+
	4	f	8330 G	21. 9.14	7.50	10. 1.51	29. 7.58	−	+	+	+	−
	5	f	A 7031	5. 1.17	10.46	18. 9.51	30. 9.58	−	−	−	−	−
	6	f	8765 G	22. 6.32	3.51	25. 9.51	4. 5.60*	−	+	+	+	+
	7	f	9543 G	6. 2.22	1949	18. 3.53	9. 5.60*	+	+	+	+	+
	8	f	9624 G	4. 8.17	4.53	12. 5.53	26.10.54†	−	−	−	−	−
	9	f	H 0074	25. 8.37	7.49	12. 1.56	2. 1.59	+	+	+	+	+
	10	f	J 0035	22. 5.32	3.56	7. 1.57	12.10.60	−	+	+	+	+
	11	m	K 0930	20. 2.26	10.55	8. 5.58	16. 4.60	−	−	−	−	−
	12	f	K 1409	8.11.18	7.58	14. 7.58	7. 4.60	+	+	+	+	+

* Still under psychiatric care.

† Died.

‡ Blood groups identical, P_{DZ} 0·06.

APPENDIX: CASE HISTORIES

MZ 1 (b. 9.9.06). F. d. 63, nephritis, n. M. d. 68, coronary thrombosis, n. Sibs: 1 m. a. 57, n.; 2 m. d. 40, dysentery; presumably neurotic (hysterical). 3 twin. 4 proband. 5 f. d. 2.

Full time, both over 7 pounds, Twin probably bigger. Birth difficult. Twin kept in hospital for 3 months. Both bottle-fed. Both right-handed. Twin nailbiter. Both top class at elementary school. Factory work and various jobs. Menarche: Twin first by 3 weeks; no evidence either has ever had sex relationship. Both have masculine appearance, Twin more so. Wechsler I.Q., Proband 84. Both same childhood ailments. Proband had appendix operation *aet.* 18, and after that father spoilt her, said she was not to lift weights. Twin appendix operation *aet.* 41. Proband always the leader, Twin content to fit in with her wishes and is devoted to her; Proband more obstinate, insists own opinions are right. Both home-bound but keen on church affairs. Both mainly domestic work, and now ward-maids in same hospital.

Proband started to have turns *aet.* 17, go limp, lie quietly, come round after an hour, headache till next day. Once was in a trance for 24 hours; doctor said her limbs would stay put in any position, and demonstrated it. Gradually attacks became less frequent, ceased after *aet.* 24. After appendix operation at 18, Proband developed many food fads. *Aet.* 41 aphonia after death of mother; later recurrence of blackouts, attended Maudsley Out-Patient Department. EEG not suggestive of epilepsy, Twin having much the same record but rather more delta. Improved with psychotherapy 1958. F.U.: 1951–2 for 7 months recurrence of aphonia. 1958 still many symptoms, times when all use goes out of her, headaches, insomnia, lucky if she gets an hour in the night; when seen, is blooming, could not possibly be having so little sleep. Twin in good health but having menopausal symptoms.

Conclusion: Difference between twins psychogenic, especially protective attitude of father and Twin to Proband: polar development of twins, Proband becoming psychopathic.

MZ 2 (b. 2.6.20). F. d. 46 "encephalitis"; *aet.* 45 had depression lasting 3 months till partial recovery leaving him still depressed; a brother suicide in 30s (endogenous depression). M. *aet.* 67, liable to spells of depression, n. Sibs: 1 m. *aet.* 45, irritable, difficult, many changes of job, n. 2 Twin. 3 Proband.

Full time, no difficulties, Twin 7½, Proband 6½ pounds, but Proband heavier by end of 1st year. Proband breast-fed longer. Twin a month ahead throughout infancy. Both right-handed. Proband thought more delicate. Proband a little behind all through school, 2nd or 3rd when Twin 1st. Both scholarships, Twin to Cambridge, Proband to London. Then war, both conscientious objectors, directed to non-combatant duties, Twin organized his invaliding

for psychoneurosis, Proband completed service. Both returned to University, Twin graduated, Proband had amnesic fugue and did not sit finals. Twin went to U.S.A. with teaching fellowship in dramatic art, later University appointment in South Africa, has finally taken post as personnel manager with manufacturer. Twin married 24, 2 daughters; Proband at 25 married a hysterectomized woman, physically rather masculine, but very happy with her. Health: Proband has had more minor illness. In personality Twin always more energetic, socially active and effective.

For history of illness, see text. Admitted Maudsley (In-Patient), 1948 for 1 month. After recovery, tried farming and other jobs; soon obtained post in large bookshop: now head of their classics department, and the job suits him very well. 1960 F.U. Both well.

Conclusion: Difference based on early constitutional difference, Twin tending more to hypomanic diathesis, Proband to depressive. Hysterical dissociation represented real failure of will, but occurred under psychogenic pressure probably during endogenous depressive phase.

MZ 3 (b. 12.12.06). F. d. 75, diabetes, n. M. d. 77, jaundice, n. Sibs: 1, f. *aet.* 54, n. 2. f. d. 49 cerebral embolism, nervous, highly-strung, worries, n. 3. Twin. 4. Proband. 5. m. *aet.* 49, n. 6. f. *aet.* 47, underweight due to nervous dyspepsia, n. 7. m. *aet.* 45, n. 8. m. *aet.* 43, n. 9. m. *aet.* 40, n.

Full term, no difficulties, Proband 7 pounds 2 ounces, Twin 7 pounds; both breast-fed. No differences in health, strength, development; both right-handed. Proband only had perforated ear-drum. Proband more sensitive about being scolded, more emotional. Both backward at school, left at 14 from standard 6. Twin worked as domestic, later as assistant nurse, steadily employed so to date. Proband many jobs as needlewoman, domestic, assistant nurse, factory worker; housewife; now full-time tailoring. Menarche at about same time; Proband always more interested in men, Twin resigned to be single. Proband during war got engaged to Canadian who proved to be married; *aet.* 41 married a man two years younger who had had schizophrenic illness with recovery when 26. One miscarriage; s.i. unsatisfactory. Twin has had no serious illness, though she has had many minor accidents. Proband has had hospital treatment on many occasions 1936–1956 for intestinal trouble, appendicectomy, cystitis, stomach trouble, removal of foreign body, ear trouble.

Proband to Maudsley Out-Patient Department, *aet.* 43, referred by hospital where treated for incomplete abortion. Had a host of complaints, garrulous, talking beside the point, tense, fidgety. On follow-up 1958 found in blooming health, animated, dressed in bright colours, florid gestures and expressions, affect rather shallow. She said that after illness in 1950 she had decided it was up to her to keep cheerful and had succeeded in doing so. Neither the death of a sister in 1954, nor the menopause in 1956 had got her down.

Conclusion: The querulous hypochondriacal state in which the Proband came under psychiatric observation seems most easily accounted for by a considerable amount of bodily illness which preceded it. It is possible that a cyclothymic factor has played a part, contributing to the depressed state of 1950 and the euphoric state seen in 1958.

MZ 4 (b. 10.11.17). F. d. 67, cancer, since *aet.* 62 in mental hospital (endogenous depression). M. *aet.* 73, n. Sibs: 1 and 2, twins, m., f., d. at birth. 3. f. d. 34, asthma, n. 4. m. d. 24, septicaemia, n. 5. f. d. 43 asthma, highly-strung and domineering, n, ? hysterical personality. 6. m. *aet.* 49, n. 7. f. *aet.* 42, n. 7. Proband. 8. Twin.

Full term, no difficulties, Twin lighter and in childhood less robust, but development equal. Both breast-fed. Both right-handed. Both very naughty, nightmares of very similar kind. Both did well at school, Proband slightly cleverer, but Twin was away from school for 5 months, ? T.B. hip. Twin had steady jobs, cable hand; reserved till 1942, then A.B. in Navy, not much action, 1945 machine operator. Proband had great variety of temporary unskilled jobs, 1939–45 in Navy, P.O., now machine operator. Twin married *aet.* 30, 1 son; Proband married *aet.* 25, 2 daughters; wife hypochondriacal, extravagant, poor housekeeper, counters Proband's complaints with her own. Twin liable to headaches, occasional giddy spells (? vaso-vagal), but no psychiatric illness. Proband saw much action in Navy, at Dunkirk, later twice torpedoed, once adrift for 2 days; served his time. Little difference in personality, Twin the more quick tempered, Proband the more adventurous and active. Proband became of more worrying disposition with illness.

For account of illness, see text. Attended Maudsley Out-Patient Department, 1952.

Conclusion: The Proband had much more stress during the war and later had to carry the weight of an inefficient wife. This latter factor may have helped to precipitate an illness which has many of the marks of an endogenous depression. Proband also had turns similar to those of Twin.

MZ 5 (b. 21.9.30). F. *aet.* 54, avoids responsibilities, n., hysterical personality. M. *aet.* 48, domineering maladjusted personality, had untreated nervous breakdown *aet.* 46, insomnia, irritability, hypochondriacal rumination. (Abnormal hysterical personality, menopausal neurosis.) Sibs: 1. Proband. 2. Twin. 3. m. *aet.* 18, asthma, truant, poor adjustment (abnormal personality).

Full term, no difficulties, Proband 3½, Twin 5 pounds. Both bottle-fed and mild feeding problem. Early development equal, later Twin taller, plumper, more attractive; Proband extremely dependent, Twin less so and always preferred by parents, especially mother. Proband left-handed, Twin right-handed. Twin only was liable to screaming fits. From 10–15 twins cared for by strangers in Australia. Twin slightly ahead in education. Both poor work record 17–19; Proband gave up on marriage, after break-up of marriage intermittent work as barmaid. Menarche Twin 15, Proband 17. After thyroidectomy Twin worked fairly well till marriage which proved stable.

The Twin's thyroid trouble began at 18 with loss of interest, irritability, lassitude; hyperthyroidism was only diagnosed after some months. After treatment for 4 years with iodine, thiouracil, etc., she was admitted to hospital in 1952, exophthalmic and 2 stone underweight. Since the operation she has remained well, though still subject to moods of depression and irritability. She worked well till marriage *aet.* 22, which has proved stable, one son. Proband married *aet.* 20, against wish of mother, miscarriage 6 weeks later. She soon started to have faints, visited cardiologists, etc., to no avail. Husband was in R.A.F., and when he was posted away Proband lived with maternal grandmother. When husband visited her he found his letters were being intercepted and determined efforts were being made to separate them.

Proband became pregnant on medical advice, bore daughter January, 1952. While pregnant had screaming attacks, faints, amnesia, aphonia, made threats of suicide. In private hospital, complained of depersonalization, passivity, diagnosed schizophrenic, had 18 deep insulin comas. She returned to live with mother, husband not being allowed into the house. A hysterical fugue led to admission (in-patient) 1952, to Maudsley for 13 months. There bright, cheerful, co-operative, but described diurnal fluctuations of mood, and unreality: things looked two-dimensional and she felt her arms and legs did not belong to her. EEG showed large amount of generalized slow activity. Sleeping pulse-rate 96, B.M.R. + 18 per cent. Her marriage now broke up and she went to live with parents. Thyrotoxicosis definitely diagnosed January, 1954, and in May thyroidectomy. Re-admitted Maudsley (in-patient) 1954 2½ months. Subsequent history stormy; 1955 serious attempt at suicide after unhappy love affair; 1956 treatment with thyroid; obsessional fears of killing baby daughter; rupture with mother to leave home and work as barmaid; 1958 now living with a man whom she refuses to marry; her daughter is being brought up by Proband's mother; has had 2 further pregnancies (illegitimate), one terminated on psychiatric grounds, after the other, 2nd daughter adopted. On follow-up 1958 more mature, obsessional fears of harming daughter only persisting symptom. Twin reported well.

Conclusion: The difference between the twins, both developing Graves' disease but only the Proband showing a severe and lasting hysterical personality development, can be largely attributed to psychogenic factors, especially the attitude of the psychopathic mother.

MZ 6 (b. 11.9.13). F. *aet.* 78, fussy, over-serious, n. M. *aet.* 84, n. Sibs: 1. maternal ½-sibling, f. d. 24, n. 2. Proband. 3. Twin. 4 and 5. twins: 4. m. *aet.* 44, life-long bad stammer, n.; 5. m. d. at birth.

Full term, birth difficult—no details. Both 8 pounds, Proband heavier. Both breast-fed. Both precocious, no difference in early development. Both ill as babies with bronchitis, Twin only just saved. Both right-handed. Both stammered, Proband worse and into adolescence. Both good at school, Proband slightly ahead. Proband with scholarship to Cambridge, 1st class honours arts; Twin scholarship to London, science for 1½ years, but broke off to take examination and enter Civil Service; during war P.O. in R.N.; returned to Civil Service post but in the 40s took technical managerial position in agricultural firm. Proband went to Far East, manager of timber firm, joined Territorials, war service, rapidly promoted to Lt.-Col. in Intelligence; after war by special vacancy into higher Civil Service. Twin always much more keen on girls, married 24, 4 children; Proband married 36, no children. Health: despite amoebic dysentery, also a tendency to headaches, Proband has had better health; Twin pneumonia and pleurisy, many minor complaints, health conscious, afraid to take coat off in garden in case he sweats.

1958 follow-up by letter: Proband returned to duty 1956, at present serving abroad, Twin remains in good health.

For history of illness, see text. Attended Maudsley Out-Patient Department 1952.

Conclusion: Difference between twins due to polar development; Twin finding himself consistently excelled by Proband from early years, soon gave up trying. Proband became artistic, idealistic, austere, teetotal, serious; Twin mundane, cynical, self-indulgent, placid, less worrying. Owing to greater ambitions, Proband subjected himself to greater stresses. Both are hypochondriacal, and illness in both is affective (anxiety-tension state) rather than hysterical.

MZ 7 (b. 21.2.14). F. d. 75, heart, n. M. d. 75, stroke, highly-strung, irritable, n. ? hysterical personality. Sibs: 1. Proband. 2. Twin. 3. m. d. 34, ? cause, easily worried, emotionally labile, goes white with anger, n.

Two months premature; very difficult birth, especially for Twin nearly strangled by cord. Twin liable to cyanotic fits for some months. Proband 3½, Twin 2¼ pounds. Twin remained smaller, more delicate. Development equal. Proband left-handed, Twin right-handed. Both

stammered from 9 into adult life; Proband screaming attacks, Twin fear of dark. Proband ahead at school but later slipped behind, graduated English and French; Twin qualified in medicine and in steady salaried posts since. Proband after some years as clerk eventually qualified as social worker. Neither ever any interest in men. Health: at adolescence Proband grew fast, became tall, stooping, leptosome; Twin grew more slowly, never so tall, more pyknic; septal heart defect; successful cardiac operation *aet.* 43. Proband very low blood pressure all life, in Maudsley 80/50; Twin normal, when measured 115/70, after adolescence much more energetic. Proband 15 pneumonia, 30 appendicitis, 31 breast abscess and septicaemia, 40 leaking duodenal ulcer, 44 nocturnal fits with incontinence. In personality both very home-bound but Proband completely dependent on family, especially on Twin. Proband shy, reserved, worrying, no friends, quick-tempered. Twin more energy, vivacity, interests, self-reliance.

Proband admitted to Maudsley (in-patient) 29 November, 1952 for 7 months; depressed for 3 months; had had faints for 18 years, at times up to 2–3 a day, once free for a year. Attacks preceded by nausea or flushing, feels hot and sweats, falls but may break fall, has hurt herself, said to be unconscious up to 2 minutes, has had attacks on own and in company, usually sleepy after attack, no incontinence or tongue biting; has worried whether she had epilepsy. 1951 aphonia for 2 days. Nightmares all her life. Tall, stooping, tic movements of face, neck, trunk. Had 91 hours psychotherapy. Left improved but nightmares continued. 1954 haematemesis and melaena, treated for ulcer. Renewed breakdown when mother had stroke: faints, lethargy, talking in sleep; temporary cessation after laying-on of hands by minister. 1958 follow-up by letter, having nocturnal attacks with incontinence, being treated by epanutin. Twin well.

Conclusion: Difference between twins due to acquired constitution, especially low blood pressure; Twin's higher blood pressure possibly connected with her congenital heart lesion. There is a possibility that throughout the Proband may have been epileptic as well as a severely hysterical personality.

MZ 8 (b. 2.6.15). F. *aet.* 74, dull, paranoid, n. M. d. 32, influenza, Proband being then *aet.* 2, invalid since his birth, n. Sibs: 1. m. *aet.* 54, n. 2. f. *aet.* 51, n. 3. f. *aet.* 49, n. 4. Twin. 5. Proband. Paternal ½-siblings: 6. f. *aet.* 41, n. 7. m. *aet.* 34, n. 8. f. *aet.* 28, n.

Difficult instrumental delivery; Twin heavier. Not breast-fed. Twin always stronger, Proband "consumptive bowels". Both right-handed. Twin headaches as child. They were separated and brought up in different homes. Twin's home happy; Proband very unhappy, cruelly treated, locked in dark room without food; described as sullen; 2 attempts to run away at 14; 17, ran away. At school equal. Both mainly labouring jobs, Twin eventually bus-driver, Proband clerk. Both married at 24, Twin no children, Proband 2 daughters; both rather dominated by their wives. Health: Twin nothing serious, Proband malaria, repeated attacks appendicitis. When measured 1954 Twin 185·5 cm., 13 stone 3 pounds, androgyny 97·2; Proband 166·8 cm., 8 stones 6½ pounds, androgyny 91·5. In personality Twin placid and easy-going, Proband anxious, much pre-occupied with childhood unhappiness; Twin more initiative and more effective. 1960 F.U. Both well; Proband now 10 stones 2 pounds.

For illness see text. Admitted Belmont (in-patient) 1953 for 3 weeks.

Conclusion: Differences between twins essentially psychogenic, leading in Proband to development of an anxious personality.

This case awaits publication in greater detail by Mr. James Shields.

MZ 9 (b. 30.4.32). F. *aet.* 59, n. M. *aet.* 53, n. Sibs: 1. Twin. 2. Proband.

Three weeks premature; no difficulties; Twin 4½, Proband 4 pounds; both bottle-fed. Proband ahead at milestones. Twin right-handed, Proband left-handed. Both delicate, overprotected. Both tutored at home. Both to grammar school, Proband scholarship, Twin fee-payer. Twin first to study music, but Proband followed. Both school-teachers, and now in same secondary modern school, sharing a flat. Neither has ever had any boy friend; Twin was more accessible, but Proband would always intervene. Health: Twin more trouble with discharging ear than Proband, at 19 pleurisy and "spot on the lung". Proband jaundice and bronchitis in childhood, all life liable to faints. Proband dominant in twin relationship, but Twin more out-going and accessible; both wrapped up in each other. Strikingly similar personalities, intense, anxious, humourless, though they think they are very different.

Proband attended Maudsley Out-Patient Department a few days before she was 21. Since at 18 she had seen a girl faint in class she had started to faint herself—feel dizzy, sight black out, lose consciousness and fall; attack witnessed, not epileptic; EEG normal. Two sleep-walking episodes. Never disabled or off work for more than a day. Twin says she never faints, but fainted when her blood was taken. 1958 (follow-up by letter) *aet.* 26, Proband's faints still continuing, notably after recent operation for slipped disc. Twin well.

Conclusion: Difference quantitative only, and cause obscure; essentially a case of vasovagal instability.

MZ 10 (b. 20.10.14). F. d. 42, chronic nephritis; hypochondriacal self-observer, domineering, could not bear contradiction, outbursts of temper (abnormal personality).

M. *aet.* 63, must have own way, likes to surround herself with admiring subservient men, n, hysterical personality. Sibs: 1. Proband. 2. Twin.

Proband probably heavier; early development equal; Twin regarded as less strong; both right-handed; no neurotic traits recorded. Public school, Proband took lead, Twin sometimes truanted. Proband went to two theological colleges, but gave up; taught in private school where his mother headmistress; later civil service clerk. Twin many jobs, for years shop assistant in jewellers, latterly teaching in mother's school. Proband married *aet.* 28, wife Russian by birth, 1 son. Wife's nervous illness began with air-raid anxiety 1944; by 1949 paranoid, accusing Proband of homosexuality, incest, etc.; subsequently improvement and relapse; marriage continues unhappily. Twin married *aet.* 25, wife plain, from labourer's family; couple ill-matched and marriage unhappy till it broke up. While in army 1940–1946, Proband had much illness including bacillary dysentery and ? malaria; war pensioner.

Attended Maudsley Out-Patient Department *aet.* 38 when sick leave had run out; wife says he is ill often only to get his own way. Since then has had episodes of "pyrexia" (not confirmed), haemoptysis, alimentary disturbances, dizziness, weakness, no energy to work. Very detailed somatic investigations invariably negative. Twin invalided from army after 18 months for psychoneurosis, loss of memory after a fall. He tells fabricated stories of commando trips and strange adventures, made up a document to substantiate his statements. Has added to his names to total of 5 with duplication and hyphenation. Proband regards himself as fey, claims to know when other people are going to die, has the power of hypnosis, once hypnotized himself by mistake by looking in mirror. Both have literary and artistic leanings.

Conclusion: With far-reaching similarities of character structure, twins show sharp superficial difference, Proband being chronic intractable malade imaginaire. The main cause for this difference most plausibly seen in the different health records. Proband having had much genuine and severe physical illness.

MZ 11 (b. 1.6.34). F. no information. M. *aet.* 41, half Chinese, n. Sibs: 1. Twin. 2. Proband. Illegitimate.

Difficult labour, lasted 2 days, Twin first by 1½ days; Proband forceps. Proband immediately to babies' home, from 7 with maternal grandmother. Twin in various foster-homes, adopted at 7. No differences in development known. Both right-handed. Twin walked in sleep, truant, enuretic till 14, set gorse on fire; to C.G.C., *aet.* 10 to E.S.N. school. Proband enuretic till 12, truant, talked in sleep, stole, set fire to papers in cupboard, to neighbour's curtains, to paper tied to dog's tail. Proband in approved school, Twin in probation hostel for stealing; neither can write. Both unskilled labourers. Neither any relationship with women. Both became schizophrenic at 22–23. 1960 F.U. Both still in hospital.

For account of hysterical aspect of Proband's illness, see text. Admitted Maudsley (in-patient) 1957 for 2 months.

Conclusion: Hysterical symptoms in Proband essentially accidental, i.e., product of schizophrenic illness on the one side and intensive psychological investigation while in hospital on the other.

These twins await publication in greater detail by Mr. James Shields.

MZ 12 (b. 30.10.39). F. *aet.* 51, emotional, quick-tempered, somewhat of a dodger, inconsistently thrashes or ignores twins, n. M. *aet.* 59, very short-sighted, indifferent health for 15 years, slow, rigid, dull, passive, ineffectual, fusser. (Abnormal personality, probably mentally retarded.) Sibs: 1. m. *aet.* 29, n. 2. f. *aet* 27, grammar school and teacher, n. 3. Twin. 4. Proband. 5. m. *aet.* 19, n. 6. f. *aet.* 15, n. All children left home immediately on completing schooling.

Two months premature; Twin 4½, Proband 4¾ pounds. Both breast-fed 3 months. Twin walked first, else development equal. Both right-handed. Both enuretic till 7, nail-biters, blinking tic, health-conscious. Both backward in all subjects, Proband slightly ahead, bottom of an A class, Twin bottom of a B class; both disciplinary problems. Both many changes of job, Proband the more and often out of work for minor illnesses. Both eventually found girl friends, but sex interest late and feeble. Health: both very short-sighted, many minor ailments; Proband "loves hospitals", daily on sick parade at detention centre; Twin numerous somatic complaints at Borstal, produced blood in his urine. Offences: Proband 3 times larceny; drunk and disorderly, misuse of phone and public nuisance (feigned he had been attacked); Twin 5 times larceny; false fire alarm, taking and driving away, twice arson. In personality Twin readier to fall in with a group, Proband more individualistic, yet Proband only joined local gangs. Twin did, Proband did not, maintain contact with family. Both very alike, lie and cover up for one another, noisy, untidy, irritable, destructive, a passion for knives and matches.

Both referred to C.G.C. at 7, "no treatment required". 1952 Twin referred to Children's Out-Patient Department, I.Q. 78, diagnosed "juvenile delinquency", home environment regarded as "non-traumatic", 60 therapeutic attendances; subsequently many delinquencies. 1959 seen again Maudsley Out-Patient Department by psychiatrist "hearing voices", plausible, evasive, unconvincing; later to Borstal. Proband attended Maudsley Out-Patient Department 23 July, 1957 for fits, sudden falling, no aura, no unconsciousness, etc. Has had attacks in which he had "seen" his father. I.Q. 75. Belle indifférence, shallow promises. Left leg found

slightly weak. On follow-up 1960, Proband is coping moderately, not self-supporting, often on Assistance, attends other psychiatric out-patient department. Twin at Borstal.

Conclusion: Differences between these mentally subnormal and psychopathic twins are quantitative and of minor degree; the more energetic Twin is a good deal more troublesome.

DZ 1 (b. 28.11.30). F. d. 58, cancer; unstable, bad tempered, heavy drinker, promiscuous, eventually deserted family (psychopath). M. *aet.* 64, n. Sibs: 1. f. *aet.* 41, n. 2. f. *aet.* 38, n. 3. m. *aet.* 37, grand mal attacks since 24 (epilepsy). 4. f. *aet.* 35, n. 5. Twin. 6. Proband.

Full term, difficulties—no details; Twin 4, Proband 3 pounds. Both breast-fed, Twin for 6, Proband for 15 months. Development equal. Both right-handed. Both temper tantrums, Proband worse—difficult, jealous, easily bored, quarrelsome. School: Proband a class behind, lazy, uninterested; at 12 Twin won place in technical school, took commercial subjects till 15. Both many jobs, Twin more stable record, Proband 28, unskilled jobs in 4 years and at age 20 on Disabled Persons Register. Menarche: Proband 11, Twin 12; both many boy friends but prefer making a foursome. Health: Proband slightly more minor illness. Twins very dependent on one another and in constant conflict with rest of family. Twin more placid, Proband excitable, unstable, violent tempered, lazy, idle, selfish, avoids helping in house.

Proband admitted Maudsley (in-patient) at 19 for 3½ months; ill for 3 years, fears of death, of enclosed spaces, very many somatic complaints, giddiness, faints, pains, breathlessness; shouts and screams in quarrels. EEG "mild paroxysmal dysrhythmia". Re-admitted 1957, *aet.* 26, for 6 weeks; similar symptoms, hypochondriacal, depressed, 6 E.C.T. without improvement. Twin attended Maudsley Out-Patient Department 10 December, 1954–8 March, 1955, *aet.* 24; depressed, loss of interest, poor appetite, difficulty getting off to sleep and early waking; worry over spots on skin. Diagnosed anxiety state and reactive depression. Treated by psychotherapy, discharged no change. Twin attended another hospital, recovered in 4 weeks after 5 E.C.T. Follow-up 1959, twins now only ones still living with mother. Twin has remained well, steadily at work, got engaged, but decided fiancé not the man for her a few days before wedding. Proband mopes at home, unable to work 1957–59, constantly complaining and discontented. Pressure headaches continue. 3 December before F.U. started office job. Is courting, reluctant Irish commercial traveller 5 years younger.

Proband is psychopathic in many ways, perhaps predominantly hysterical.

DZ 2 (b. 26.10.20). F. d. 80+, stroke, n., possibly slightly cyclothymic M. d. 62, cancer, liable to rages, mistreated F, constantly quarrelling (psychopath). Sibs: 1. f. d. 40, cancer, n. 2. m. disappeared to join Navy *aet.* 15. 3. m. missing presumed dead 30, n. 4. f. *aet.* 50, n. 5. f. *aet.* 48, erratic, excitable, sought limelight, n., hysterical personality. 6. m. *aet.* 36, n. 7. m. *aet.* 44, marked mood variations, n. 8. Twin. 9. Proband. 10. f. *aet.* 36, n. 11. m. *aet.* 34, reserved, shy, ? slightly obsessional, n.

The twins were 2 months premature, Proband's birth more difficult, breech; both blue and had to be revived. Twin 5½, Proband 5 pounds. Both bottle-fed. No difference in early development; Twin several times in hospital before 2 for operations on naevus. Twin right-handed, Proband left-handed. Proband more docile, fears of dark, etc., scared to do wrong; Twin nail-biter, but more sure of self. Proband 1 class ahead, A stream; Twin C. Proband scared of games, Twin tomboyish. Both domestic work till marriage; since marriages broke up, Twin cashier, Proband part-time waitress. Menarche both at 15. Twin liked boy friends, Proband scared and shy. Twin married 22, 2 sons; Proband 23, 4 pregnancies: 1. female died in infancy; 2. female hemiplegic, E.S.N.; 3. male attends C.G.C.; 4. terminated. Proband's husband left her 1950 for 3½ years. Health: Twin had chronic ear trouble as child and adult; Proband severe influenza at 7, with subsequent eye trouble and glasses; shingles at 12. Proband anxious obsessional worrier, perfectionist, socially retiring; Twin complete opposite, nothing worries her.

Proband after mother's death in 1943 complained of fears of falling, darkness coming over eyes; 1947 treated by psychotherapy, later by E.C.T. 1949 admitted (in-patient) Maudsley for 3½ months, tense, fidgety, weeping; EEG very unstable, metrazol produced burst of typical spike and wave; 40 psychotherapeutic sessions. 1950 obsessional fears of hurting child. 1951 depression, fear of harming children, in other hospital, E.C.T. improved. 1952 termination of pregnancy and sterilization, anxieties somewhat relieved; later more E.C.T. 1953 cortical undercut; 7 months later second operation, cut deepened; remained depressed, apathetic, black-outs. 1954 began to improve, family reunited. 1960 on follow-up no complaints, no fears, can go out, shop, etc., affect rather flat; unpredictable and rather irresponsible. Twin never under psychiatric care, but *aet.* 39 received treatment from family doctor with sedatives and tranquillizers; 1958 husband left her. 1960 on follow-up fairly well, at full-time work, divorcing husband.

Proband shows chronic primary tension state, much benefited by leucotomy.

DZ 3 (b. 9.5.22). F. *aet.* 74, quick tempered, n. M. *aet.* 75, n. Sibs: 1 m. *aet.* 56, n. 2. m. *aet.* 55, n. 3. m. *aet.* 54, n. 4. m. *aet.* 52, n. 5. m. *aet.* 50, n. 6. m. *aet.* 48, n. 7. f. *aet.* 46, n. 8. f. *aet.* 44, n. 9. Twin. 10. Proband. 11, 12. Twins. 11. f. *aet.* 36, n. 12. f. *aet.* 36, n.

No difficulties, Proband smaller and remained so. Development equal. Both right-handed. Proband lived with childless aunt between 2 and 4, much petted, well fed, well dressed; found

adjustment difficult on return. Neither neurotic traits. Both average at school till 14; Twin studious, a reader, Proband fonder of physical and social activity. Both trained as telephonist: Twin so employed in intervals of childbearing, Proband after psychiatric illness rose to senior secretarial position in charge of investment company office. Both married at 17, Twin to husband 5 years older, normal, 5 children; Proband to husband 10 years older, chronic nephritic, later impotent, no children. Health: despite urticaria better in Proband. Twin peritonitis, pyelitis, no allergy. Proband tense, efficient, driving, prone to mood changes, likes responsibility, few friends; Twin cheerful, easy-going, good contacts, liable to minor depression.

Proband admitted Belmont (in-patient) for 2½ months, *aet.* 28. For 2½ years tense, emotional, cries, heart pounding, stomach churns, feels distant and depersonalized, feels she is acting, marital worries; treated with psychotherapy. Follow-up 1960 now well, has had no recurrence, still many problems, still tense. Twin *aet.* 18 badly upset by air-raids; *aet.* 35 upset over pregnancy and advised to see psychiatrist ? termination, but improved with sedatives; six months after birth, depression, loss of appetite, insomnia; 1960 again depressed when pregnant, again recovered.

Proband's illness affective, anxiety-tension state largely environmentally determined: husband's prolonged and serious illness, financial problems and nursing elderly bed-ridden mother-in-law; twin liable to react to stress by depression.

DZ 4 (b. 21.9.14). F. d. pleurisy, 35, n. M. *aet.* 70+, irritable, possessive, worrying; *aet.* about 45, had nervous breakdown for 2 years, fits of depression, would wander round the house at night (menopausal depression). Sibs: 1. m. *aet.* 52, n. 2. f. *aet.* 50, possibly had depressive illness. 3. m. *aet.* 49, n. 4. f. *aet.* 45, n. 5. m. *aet.* 44, n. 6. Twin. 7. Proband.

Full term, no difficulties, both breast-fed, early development equal, Twin thought to be stronger, both right-handed. Twin, no nervous traits. Proband afraid of dark, sucked thumb, bit nails, food fads. Proband much brighter at school, also more conscientious and worrying, left from top standard at 14, where she had been 4 years. Twin from top standard at 13, where for 1 year. Twin many friends, Proband did not mix well. Twin hospital ward-maid till marriage at 22, Proband in grocery store before and after marriage, rose to manageress. Menarch Twin 11, easy, Proband at 17, periods always painful. Twin married 22, 2 children Proband 26, no children. Twin, no significant illness.

Proband nervous breakdown at 33, no treatment. Relapse at 36, multitudinous conversion symptoms, irritability, had had symptoms since childhood, never really adjusted, avoided difficult situations. In first hospital had 6 E.C.T. without benefit; after admission (in-patient) to Belmont, when 36 for 7 months, depressed, tense, agitated or unduly calm, histrionic, complaints of headache, fainting, memory lapses, fears, depersonalization, palpitations, loss of 3 stones weight. On follow-up 1958, since discharge has kept away from psychiatrists, G.P. gives sedatives, sleeping pills, frequent talks, no worse no better than 7 years ago; had had operations for hysterectomy (*aet.* 39) and hernia (*aet.* 41) physical symptoms related to operations. In interview, looks older than her years, sallow, wrinkled, expression in repose, pouting in discontent, affect shallow, tense, bored, unhappy. Husband is dominated by her symptoms. Twin flourishes.

Proband's symptoms are based on personality deviations existing from childhood.

DZ 5 (b. 5.1.17). F. d. by "old age", n. M. d. 65 "seizure", n. Sibs: 1. m. *aet.* 55, n. 2. f. *aet.* 52, n. 3. f. *aet.* 50, n. 4. m. *aet.* 47, n. 5. m. *aet.* 44, n. 6. Proband. 7. Twin. 8. f. aet. 38, n. 9. f. *aet.* 36, n. 10. f. *aet.* 33, n.

No information *re* birth, etc. Development equal. Equal average at school. Both stage dancers. Both married at 21, each 2 children. Twin, said to have been promiscuous, divorced and married again. Health: Proband operation for twisted ovary *aet.* 17, at 34 therapeutic abortion; Twin one minor gynaecological operation. Twin the more vigorous personality, very sociable, attractive to men, has had affairs; Proband more sensitive, reserved, prim. Proband refused to co-operate with investigation or allow us to see twin.

Proband attended Maudsley Out-Patient Department *aet.* 29, unreality feelings and somatic anxiety coming in attacks followed by headache and irritability. Recommended for psychotherapy, did not attend. *Aet.* 34 re-attended, out-patient department, headaches, irritability, two months pregnant. Recommended for psychotherapy, went elsewhere and pregnancy miscarried. 1958 follow-up, husband reports her well, regards her symptoms as no more than part of her personality.

Proband's symptoms appear to be very superficial manifestations of temporary discontents, based on personality deviations.

DZ 6 (b. 22.6.32). F. *aet.* 71, very conscientious and interfering, n. M. d. 66, stroke; anxious, n. Sibs: 1. Twin. 2. Proband.

Seven-months, artificial induction, no difficulties (Mother 40 when twins born); Twin 4, Proband 3½ pounds. Both weak babies; bottle-fed. Proband ahead in early development; Twin bronchial asthma. Twin right-handed, Proband left-handed. Twin asthma, severe till 11, occasional since. Proband at 13 had illness with jerky movements, provisional diagnosis "chorea", final diagnosis "habit spasm"; in hospital 4 months, not back at school till a year later. Proband was taller and stronger and ahead in development till then, afterwards was set

back; selfish, inconsiderate, difficult, obstinate, changeable, fears. Proband overshadowed at school, more fitful, less persevering, stayed on till 18 to train for librarian but failed exam. Twin steadily employed typist since 16; Proband one job as counterhand, left before 19 and has not worked since. Menarche: Proband 13, Twin 14. At 28 Twin is now engaged; Proband has never had any relationship with a man, in interview gives impression of homosexual potentialities. Twin much more social, though interests serious and much connected with local church; Proband never any friends.

Proband first admitted Belmont (in-patient) *aet.* 19, 25 September, 1951, for 10½ months; fear of blushing and of men; had a panic attack going home at night and fabricated story of having been attacked by a man. Panics continued, so father began meeting her. Proband soon unable to work, go out anywhere, eat, sleep. Father devoted his time to her, tried to organize her breathing, held her hand when she took her tablets or went to door for air. Out-patient psychotherapy failed. On admission tense, asthenic, jerky movements, gasping breathing. Discharged improved 9 August, 1952. Subsequent hospital admissions 26 May, 1953–5 November, 1955; 3 August, 1956–13 August, 1956; 13 February, 1957–14 August, 1958; 30 January, 1959–9 February, 1959; 6 March, 1959–13 March, 1959; 22 December, 1959–15 January, 1960. On follow-up, 1960, still under out-patient care, complains of intolerable tension, glib, histrionic, "too ill" to return to work or do any housework; interests: only reading novels, hospital attendances and relationship with therapist. Still taking large quantities of drugs.

Proband's long intractable illness appears to have begun as simple anxiety state but to have developed into an extreme dependence as result of over-permissive attitude towards her by others.

DZ 7 (b. 6.2.22). F. *aet.* 66, n. M. *aet.* 71, exaggeratedly invalided by rheumatism, irritable, n. Sibs: 1. Proband. 2. Twin. 3. f. *aet.* 36, epileptic from 9 to 14 (epilepsy).

Full term. difficulties, Proband instrumental; both about 6 pounds. Development equal. Both right-handed, Proband many neurotic traits, shy, serious; Twin lively, high spirited, normal. Proband better at school. Twin in shop or factory till birth of son, Proband many posts as clerk, etc., mostly held for fair periods. Menarche: Proband 11, Twin 16. Twin married a man soon killed in R.A.F., *aet.* 25 married again happily—2 sons. Proband had many inhibitions about marriage, at 33 found husband through marriage bureau, no children. Health: Twin obese and ? arthritic; Proband with menarche onset of atypical fits, ceasing with amenorrhoea of anorexia nervosa, recurring with return of periods after leucotomy. Repeated EEGs showed slow and fast dysrhythmia, nothing specific for epilepsy; clinical observation showed tetanic nature precipitated by overbreathing. 1960 fits continue 1 per month. Personality, Proband shy, reserved, conscientious from earliest years, Twin much more extraverted, sociable at very superficial level, vigorous, generous appetite.

Proband first admitted *aet.* 27 with severe anorexia nervosa, periods having ceased *aet.* 25, weight 6 stones 3 pounds: modified insulin, etc., no improvement, actively uncooperative; anterior leucotomy 18 July, 1950, improved, placid, gained weight, menstruation returned December, 1950. Fits then recurred, anti-convulsants ineffective. 1952 hysterical wrist-drop, then left hemiplegia, later hysterical gait; sullen, depressed, resistive; 8 E.C.T. ineffective. Admitted (in-patient) Belmont, March, 1953–June, 1954, psychotherapy, second leucotomy October, 1953, improved. Re-admission to first hospital January to March, 1956, grossly hysterical gait; modified insulin and chlorpromazine, gained 2 stones, gait persisted. 1960, follow-up, looks 10 years older than age, listless, affectless, rapid talk, gets up and down stairs on left knee and right foot; day completely filled with obsessional rituals, lists everything, all actions catalogued and timed, must count everything. Husband indulges her, frequently does all housework himself. Twin well.

Proband's illness is obscure; birth trauma, atypical epilepsy, eventual presenile dementia not easily excluded; husband has played a part in prolonging and promoting disability.

DZ 8 (b. 4.8.17). F. *aet.* 70, n. M. *aet.* 62, histrionic, voluble, aggressive, sentimental, selfish, n., hysterical personality. Sibs: 1. m. *aet.* 48, n. 2. m. *aet.* 40, n. 3, 4, 5. triplets. 3. Proband. 4. Twin, mentally retarded (mental defect). 5. f. d. infancy. 6. f. *aet.* 32, n. 7. m. *aet.* 30, n.

Full term, no difficulties. Proband ahead in development. Both right-handed. Proband no neurotic traits, but happy, generous, enthusiastic, liable to "crazes". Twin has always stayed at home. Proband trained as children's nurse, later S.R.N., ward sister, home sister, assistant matron. Never any love relationship of any kind. Proband happy, cheerful, generous, from childhood liable to enthusiasms, conscientious, energetic, obstinate; as sister in children's ward would spend up to £50 of own money on toys for children at Christmas; absolutely no sexual interests.

For history of illness, see text. Admitted Belmont (in-patient) 1953 for 4 months.

DZ 9 (b. 25.8.37). F. *aet.* 50, several times in mental hospital with hypomanic and depressive states (manic-depressive). M. *aet.* 56, she and father, children of DZ twin sisters;

aet. 52 attended Maudsley Out-Patient Department with anxiety-depressive state, diagnosed reactive, but she had previous illness at 17 and her father twice treated for depression (endogenous depression). Sibs: 1. Proband. 2. Twin. 3. f. *aet.* 13.

Full term, no difficulties; Proband 4 pounds 14 ounces, Twin 5 pounds. Breast-fed, Proband 10 weeks, Twin 9 months. Proband slightly behind in development and less strong. Proband ambidextrous, Twin right-handed. Proband thumb-sucker, nail-biter; *aet.* 12–14 treated for acidosis; pains and stiffness in legs, difficulties in walking, considered psychogenic (? rheumatism), 12–15 attended C.G.C. "anxious and self-dramatizing". From 11 to 20 severe dysmenorrhoea. Twin at 11 fits of violent rage, destructive, screaming, attacking mother and siblings; attended C.G.C. and again at 13 when depressed following jaundice. Both grammar school, O and A level passes, Proband arts, Twin science. Both to University, Proband English, Twin physics and electronics. Proband's 3rd year interrupted by illegitimate pregnancy. Menarche in both at 11, on same day, both much dysmenorrhoea. Both fell in love with 40-year old lodger ex-Rampton (pyromaniac), but Twin's attachment soon waned. Twin favours masculine dress, pursuits, hair style, manners, rides powerful motor-cycle, at ease with men if talking electronics, etc. Proband kept attachment to her criminal friend for 2 years visiting him after another offence had landed him again in prison. Parents felt it would have been "outrage to her loyalty" to object. Personality, Proband immature, bland, shallow, insincere, anxious, gushing, no friends outside family, intolerant, critical, striving for effect; Twin difficult, violent tempered at home, much better away, sensitive, immature, introverted, inclined to the masculine, but much more insight than Proband.

For history of illness, see text. Admitted Bethlem (in-patient) 1956 for 3 months. Attends Maudsley Out-Patient Department for 1 year. Re-attends Maudsley Out-Patient Department 1958 for 1 month.

Illness of Proband probably cyclothymic.

DZ 10 (b. 22.5.32). F. *aet.* 63, quick tempered, n. M. *aet.* 58, had gall-stones; was irritable and depressed and made family miserable for 1 year until operation (reactive depression). First 3 siblings died in succession *aet.* 3. 4. f. *aet.* 38, n. 5. f. *aet.* 36, n. 6. f. *aet.* 34, n. 7. m. *aet.* 32, n. 8. Proband. 9. Twin. 10. f. *aet.* 26, n. 11. m. *aet.* 24, n. 12. m. d. 2.

No birth difficulties. Twin always bigger and stronger and a little ahead in development. Proband timid and shy as child. Both had poor education, Proband behind Twin. Twin started work *aet.* 13 in factory and later a variety of other unskilled jobs, leaving when pregnant. Proband started as domestic at 14, later in factory and office jobs, with one firm for 8 years till marriage; returned to work when baby died leaving when again pregnant. Twin married at 18 a packer, has had 6 pregnancies, including miscarriage of twins. Proband married at 20 a machine operator, 2 pregnancies, some marital difficulties. Physical health: Twin good, Proband in hospital 4 times with septic leg, confinements, gynaecological operation. Twin, sturdy, vigorous, slapdash and slovenly, never worries. Proband always shy, food fads; but at F.U. shows herself brisk, competent, actively sociable, somewhat perfectionist, affect tepid.

Proband attended Maudsley Out-Patient Department once only *aet.* 24, complained of blackouts, headaches, depression; had been seen by G.P. after 2 fits, semiconscious, disoriented, having bitten tongue. Hospital investigation negative. Seen by psychiatrist, domestic difficulties disclosed, fits regarded as almost certainly hysterical. On F.U. 1960 describes symptoms of past illness as coming on after death of first baby at birth, depression, loss of interest, initiative, appetite and weight, headaches, insomnia, tension, irritability; had improved slowly, and got well after being reunited with husband in Council flat. 1960, Twin well.

Proband's illness mysterious, with possibilities of epilepsy and of endogenous depression.

DZ 11 (b. 20.2.26). F. *aet.* 60, drinks, n. M. *aet.* 58, short-tempered, drinks, n. Sibs: 1. Twin. 2. Proband. 3. m. *aet.* 32, n. 4. m. *aet.* 23, liable to headaches, attempted rape (criminal psychopath), 5. f. *aet.* 19, n.

Full term, no difficulties, Twin 7½, Proband 6½ pounds. Later twin smaller. Proband nail biter. Equal achievements at school, left 14 without exams. Proband steady worker in mines, Twin work-shy, miner when working, for years on Assistance, has been in prison for shop-breaking. Twin not known to have had any relationship with a woman, lives with family. Proband married 30, no children. Twin no important illness. Proband bronchitis, anaemia, pneumonia and pleurisy four times 20–27; occupational accident. Personality, Twin little known, never liked work; Proband quiet, few friends, moods of depression, *aet.* 24–25 heavy drinker.

Proband *aet.* 26 wandered from home, found self 20 miles from home 4 days later. *Aet.* 27 industrial accident, tore muscles of right arm, compensated and job guaranteed. *Aet.* 30 married, on honeymoon money ran out, wandered off, found one week later. *Aet.* 32 another fugue when on point of taking test for promotion to mining deputy. Found 1 week later in London. Admitted then (1958) Maudsley (in-patient) for 7 weeks. Unwilling witness, dull, apathetic, disinterested. Discharged to out-patient supervision at local hospital. On F.U., 1960, Proband working, no longer under care. Twin well.

Hysterical symptoms based on personality much liable to dissociation.

DZ 12 (b. 8.11.18). F. d. 76, thrombosis, n. M. *aet.* 72, all her life malade imaginaire, complaining of heart, uses symptoms in moral blackmail (abnormal hysterical personality). Sibs: 1. f. *aet.* 45, n. 2. Proband. 3. Twin.

Full term, no difficulties, Proband 3½, Twin 6½ pounds. Throughout infancy Proband smaller, more delicate, had pneumonia, tonsils, etc. Development equal. Proband occasional faints, all life nail-biter, afraid of dark, difficulties in coping with tension; Twin afraid of dark as child, nail-biter till 30s, tense. Both grammar school (fee-paying) till 17; Twin a class ahead in all subjects. Both typists with steady record till marriage and first babies. Menarche Twin 15, Proband 16; mother prudish, no information, Proband very upset, periods scanty, dysmenorrhoea till first baby born. Twin's marriage normal; m. DZ twins. Proband married unsociable, rigid vegetarian and valetudinarian, never at ease with him, 2 sons. Personality, Proband a worrier, painstaking, energetic, tense, insecure, throws herself into strenuous activity, best in situations of crisis (as when serving with Free French during war), minor obsessional traits, very active socially; Twin more poised and easy, extravagant, occasionally depressed and irritable.

Proband noted increasing libido from January, 1957. Early July, 1958 family doctor called at midnight on account of a "stroke" found her with left hemiparesis and left extensor plantar response. Attended Maudsley Out-Patient Department 14 July, 1958, excited and agitated, having in past weeks indulged in sex play with an older married man; he had stimulated her much more than her own sexually uninterested husband could ever do. Guilt and agitation unrelieved by measures advised (e.g., confession to husband). Intense lasting sexual excitement and spontaneous orgasms led to admission to National Hospital, treatment by tranquillizers and E.C.T. Went home less depressed, still tense. 1960 follow-up, still extremely tense, very high libido inadequately controlled by masturbation. Twin well.

Proband's illness is quite obscure but its nature strongly suggests a physical basis. Nothing hysterical was observed at the National Hospital.