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Original Articles

THE NEUROLOGY OF SCHIZOPHRENIA

By

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DURING the two and a half years from May, 1953, sixty-one cases of schizophrenia, none of whom had been leucotomized, were studied by me at St. Ann's, a 69-bedded subsidiary hospital of Holloway Sanatorium, Virginia Water, which has been available for the treatment of psychoneuroses since the end of 1946 and where at any one time a large majority of the patients are psychoneurotic. Except that patients are normally expected to be in by 10 p.m. it is as open as any hotel, there is no sex distinction in any of the sitting and games rooms, the dining room, the occupational therapy department and so on and where the 'male side' and the 'female side' meet the rooms may be occupied by men or women, so that men may have to pass women's rooms on the way to the toilets and vice versa. The hospital is mainly an 'amenity bed' one with charges of 2 to 4 guineas a week and although no policy of exclusion exists the bulk of patients are from 'lower middle' or 'upper lower' backgrounds. Treatment is based on careful history-taking and investigations of various kinds, with explanatory and supportive psychotherapy, but E.C.T. always with pentothal and scoline, modified insulin, modified narcosis and other physical treatments are available although they are strictly limited by the small nursing staff. Remembering that there are only three doctors, one of whom is partly taken up with administrative duties, both for in-patients and for a reasonably active out-patient service which includes the use of all the daytime hospital facilities, an exercise in simple arithmetic will make it clear that the forms of psychotherapy used are also strictly limited.

Admission is by simple arrangement, there is no voluntary form and no right exists to detain an unwilling patient for a single minute. This situation has provided an opportunity to study schizophrenics away from the atmosphere of a mental hospital; it is hardly an exaggeration to say away from any kind of hospital atmosphere. Of course they have come for medical help, but most have been sufficiently stabilized for treatment to be based on general psychotherapy. For all that, some very advanced and chronic cases are included and there has been no selection except the qualifications that every patient must have been interviewed in the usual quiet, consulting room manner on at least three occasions each lasting about three-quarters of an hour and must have exposed unequivocal delusions under these conditions of calm friendliness. Thirty more probable cases of schizophrenia were observed during the same

period but they are excluded in order to ensure as far as possible that the diagnosis is unquestionable. The accent in this paper is very much on the facts observed during the period mentioned while the patients were composed and in a suitable state for psychotherapy, but reference will be made to their histories and to their progress out of hospital and especially to the 'acute' symptoms which are prone to develop and which, although this applies to none in this group, sometimes dominate the clinical picture for years on end.

Forty-six of the 61 had been in mental hospitals previously with a diagnosis of schizophrenia, 15 of them twice, 4 three times and 1 patient on six occasions. Of the other 15, in only one had schizophrenia been suspected and in only 3 more was the diagnosis made at the first interview, so that 11 patients were under observation and usually in hospital under treatment for psychoneurosis while the diagnosis gradually or suddenly became clear and 4 of these 11 were among the 12 patients who have since gone on to mental hospitals. Eight of this 12 are now back at home.

In the matter of diagnosis, information gained from the psychiatric social worker, the nursing staff and particularly from those relatives most affected by the symptomatology of patients was invaluable in providing leads for clinical enquiry. A helpful relative may direct attention in a few minutes to symptoms which would be missed during interviews spread over months. In this paper double inverted commas are restricted to patients' statements as near verbatim as I could take them down, or to extracts from patients' letters.

There were few communal difficulties despite the complete absence of segregation and restraint, although psychoneurotics are more susceptible than healthy people to any evidence of 'insanity'. A few schizophrenics were solitary and some showed unusual behaviour, and two patients had to be quickly certified and sent elsewhere after developing acute phases. In the social life of the hospital, including the dances and games, the schizophrenic women were rather more solitary than others, a difference not noticeable among the men, largely because they stimulated the motherly interest and encouragement of older women.

Although schizophrenia is the subject of enquiry, as a contrast and comparison all cases of anxiety state or anxiety psychoneurosis in the same age group, acute or chronic, admitted or seen as out-patients by me during the same period, excluding those with decidedly-worded qualifying diagnostic tags such as 'with marked depressive features', 'in a strongly obsessional personality' and so on, have been analysed in so far as clinical facts are presented concerning the schizophrenics. The same minimum of three interviews was demanded, but otherwise there was no selection. The fact that the total number is exactly sixty-one is a coincidence. There is no demonstrable difference in the social background of the two groups.

Of the schizophrenics 35 were female, of the anxiety cases 29. Forty-three schizophrenics were in-patients compared with 53 anxiety patients, the age range in schizophrenia was from 18 to 54 with an average of 31·4 years, of the anxiety cases 20 to 54 with an average of 37·8. All 122 patients had a negative W.R. and differences in haemoglobin level, E.S.R., blood urea and blood pressure were negligible except that the male schizophrenics had an average blood pressure of 132/81 and the anxiety cases of 145/85, but even this difference disappears if the 3 patients with a sustained systolic blood pressure of 180 or over (all anxiety cases) are excluded. A large number of histamine skin tests and white cell counts were recorded but showed no differences, and the urine of every patient was examined, repeatedly if necessary, with only a handful of

each group showing sugar on the first examination. Six of each group were recorded as exhibiting marked physical signs of anxiety, and 4 of each group showed distinctly cold extremities or complained of chilblains. Three of the anxiety patients had had treatment in mental hospitals and one is known to have gone to a mental hospital for treatment since the period of observation.

Recalling the opinion of Gaw *et al.* (1953) that more schizophrenics than psychoneurotics are seen as psychiatric out-patients, it should be pointed out that no deductions concerning incidence can be made here because cases are sometimes referred from Holloway Sanatorium for after-care and we admit a little more boldly than would otherwise be justifiable in such a hospital because we have Holloway Sanatorium behind us.

The Basic Symptoms of Schizophrenia

The following five symptoms were present as changes in every case of schizophrenia and no such adverse changes were found in any of the anxiety group. The defects which they imply were a matter of degree, so that as clear information as possible was sought of each patient's earlier level of achievement; three patients in this series were under my continual observation for more than a year before the defects became distinguishable. In every case the defects were recognized only in the absence both of nervousness in the patient-doctor relationship and of clouding or excitement however mild; the standard situation achieved was that an easy relationship had been established, improvement had been followed by apparent stability and the patient's remaining problems and especially the future were being discussed.

1. *Difficulty in Thinking and in Expressing Thoughts*

The early patient has the greatest difficulty in describing his symptoms, he is often perplexed and bewildered and as a rule he knows that some inexplicable thing has gone wrong and the experience is agonizing. "I can't sort my ideas out", "I can't get my thoughts straight", "I get so muddled", "I cannot arrange my ideas", "I should be perfectly happy if my mind would only work", "My thoughts won't work", "Thinking is so difficult", "I get so mixed", "However long I take I can't get ideas", "My brain isn't working properly", were statements made by ten different patients, some speaking with tears in their eyes. Failing insight reduces and finally abolishes such complaints and the defect may be more difficult to detect because of this and other reasons to be described.

The difficulty in thinking was frequently so severe that even simple history-taking was extremely laboured. Information given was sometimes like flight of ideas in slow motion except that the words or ideas of association were missing. The understanding of relevancy was defective, the ability to convey feeling was inadequate, the sequence of thought was often broken and there was from time to time an inability to follow the simplest threads so that the doctor certainly, and sometimes the patient as well, had the feeling that the interview was getting nowhere apart from the important evidence to the patient of interest and sympathy. Such interviews tended to peter out, especially when a patient's vocabulary was poor, unless determinedly kept going.

Quite often the defect could be made obvious by changes in direction and new approaches during interviews and the less affected patients recognized the difficulty they experienced on the shifting ground of lively group conversation, a potent cause of social withdrawal, "I used to be an easy, pleasant

companion. I should not talk about myself like this, I know, but people used to like me, but now I cannot keep up a conversation, even with people I used to think were dull." Time after time I saw protective aloofness disappear in the non-demanding and non-competitive hospital atmosphere, although schizophrenic patients continued to prefer individual contacts, which can include dancing and table tennis, to the cross-talk of a common room. Insight existed almost uniformly only in the presence of a measurable intelligence well above average, often associated with an extraordinarily good memory and with appropriate anxiety and depression.

Sometimes, and much more frequently in young women than in older women or men, the difficulty in thinking was hidden by flightiness and garrulity, but the flow of words was like water running into hot sand. With or without such over-talk several showed a manneristic affectation of superiority with pompous speech, possibly not recognizable as a change unless one had discussed it with the relatives. Unusual answers and remarks were common: it was not so much that the answer to a comment on improved appearance was "I really don't know how you tell" but the oddly serious perplexity which was apparent and the conversational vacuum which followed; not that "I had a breakdown following the death of a dog" or "I accepted religion to make myself work better" were so peculiar as that they needed no further explanation. The more chronic cases showed something approaching chaotic thinking or were painfully limited to simple concepts.

2. *Reduction in the Ability to Plan*

The division into symptoms which has been adopted is clinically convenient but not scientifically exact, for instance the inability to cope with shifting problems already mentioned is brought out most fully and most obviously by the patients' declining ability to plan ahead, because the possible future can change as often as one cares to take a new look at it and the schizophrenic patient tends to find increasing difficulty in focussing a particular picture in this kaleidoscope. As with other symptoms, the defect is a matter of degree measured against previous capacities, and varies from a painful uncertainty sometimes saved by guidance to a catastrophic disappearance of the future. It is the commonest early symptom which leads to a breakdown.

This future-planning defect must not be confused with the failure to plan which must be involved in every active psychosis and in most incapacitating psychoneuroses; the defect was most obvious when the patient had become apparently well, was in good physical health complemented often by a high measurable intelligence, was not expressing delusions or worried by hallucinations and was happily integrated into hospital life; but he remained all at sea when discussing the future and could not get beyond vague remarks like wanting "something to do with art" or "something concerned with my original plans". Excluding the very inadequate and the lonely, financially embarrassed spinsters, it was the schizophrenics to whom time meant nothing who would be willing to settle in hospital indefinitely.

During acute phases, even if the defect is not masked by clouding or excitement it may not be apparent because of an intense concentration on the present which may at first appear quite natural, or the defect may be hidden by a calm acceptance of a vague, incapacitating illness, and this was so in several in this series although they had casually left jobs and even homes or had behaved in ways solely determined by immediate considerations. During convalescence it was revealed. With declining ability to plan for the future and an increasing

failure to assess the past (see later) it becomes more and more difficult to interest the patient in anything but immediate matters. Nothing could be discussed but a hostile husband or a marriage question which had to be settled or some unspecified arrangements for leaving at once, or minor working difficulties demanding instant solution, "But I must know whether to allow my mother to visit or not", "It is my spine, it is not straight", "I was sexually excited and now something must happen" and despite persistence concerning wider issues one got nowhere. Patients were strangely indifferent or dull and lacking in ideas, or restless and anxious to get going but to no particular purpose. Sometimes there was a sanguine, mildly grandiose assumption that everything would be all right, with the expression of wishes as substitutes for plans, for instance, a gay, high-spirited girl with a good school and immediate post-school record who, since her acute illness, had twice lost her place in a shorthand and typing course because of her inability to learn and her cavarlierly inconsequence said "I am going to get a job that's exciting, private secretary to a big business man who travels the world, preferably by air", the wife of a man with a meagre income and limited prospects wrote "When we get a beautiful home, with plenty of horses and good riding country and good servants, after all, you can't bring up children without a cook and nannies, then I shall return to my husband. Of course I shall help in every way"; and an alert, intelligent schizophrenic young man said, referring to another patient, "You don't mind if I fix him up with a job, my firm will do anything for me" although in fact the firm in question would not re-engage him under any circumstances. Many such patients are anything but withdrawn and introspective.

The phrase "I won't decide until I'm better" can be used indefinitely and six patients calmly persisted with vague physical residues which had to be put right. Other patients threw decisions completely on to the doctor, quite separately from any general dependence upon him, simply accepting that he would, like a mother, decide what was best. In nearly half the patients there was unalterable indifference, efforts to get down to the problems ahead brought only vague, slow smiles and the expression of evasive generalities and it is not difficult for the psychiatrist to give encouraging directions and to assume that they are being noted whereas in fact they are not being absorbed at all. The complete acceptance of a very limited life is of course an everyday matter in mental hospitals.

The future tends to fragment and crumble. In 25 patients there was a complete inability to discuss possible variations in the future at all, thus a youth seen as an out-patient, whose adolescence had been complicated by homosexual experiences but who had a good school record, lost all interest in any kind of sexual activity at 19, but during the next four years completed his Army service successfully and did well as a trainee accountant, supplementing his training with extra correspondence courses. He suffered an acute schizophrenic breakdown and went to a mental hospital for E.C.T. When I saw him he had been at home for three years eating and sleeping well, somewhat effeminate in manner and fond of good clothes, no problem at all to his mother who lived with him—unless she became exasperated with his only response to any discussion of the future, that "Certain news will be coming".

There is often insight into the defect at first, a torturing situation until the patient loses it and levels out enough to accept his problem in understandable terms and to go on with his life. "The future is black and terrifying", "I am terrified of the unplanned future", "I can't see the future of anything, the future is such a threat", "Please let me die, my life is so useless", "I just

don't know what to do", have all been written or spoken spontaneously by different patients, spoken sometimes through streaming tears. A patient wrote "I have had to realize that my future is unknown and I am left with a frightening and unstable present without being able to know what to do except to move from instant to instant in the best way I can". That was in 1953 and he has moved to a mental hospital where he carries on quietly with the same philosophy. "The basis of my problem is my inability to consider the future" said a twenty-year-old university scholar and another young man who, after a brilliant performance with his O level examinations had declined into a failure at his A level subjects said, "I know in my heart that I shall never be able to do anything worth while" and this before he developed false ideas of disease and of hostile environmental forces.

The absolute necessity to plan anew will sometimes make the disease apparent. Two women in this series had broken down following the deaths of husbands. They had led supported lives and for some time after their losses were carried along by the helpful arrangements of friends and relatives and I was unable to find any evidence that the deaths as such had produced any great reaction. It was not until they moved into a vacuum that ideas of reference and of bodily changes and finally delusions of hostility developed. Schizophrenic housewives may continue to buy in supplies for the preparation of meals, make appointments and keep them and generally carry on, usually with diminishing effectiveness, until the husband threatens to leave or does so, or until they are faced with the organization of a new home, when the defect becomes apparent as something quite different from say, a reactive depression. Of course this particular sequence easily develops in senile patients whose ability to plan is also reduced. Young people at school often follow very set patterns, but the preparation for or the actual transition from school to work or university may precipitate a breakdown. Those who are obsessional by temperament fall easily into doubts of such severity that a false diagnosis of obsessive-compulsive psychoneurosis may easily be made.

3. *Difficulty in Separating Past Thoughts from Past Events*

There was a reduction in the ability to sort out from memory what had actually happened from what had only been thought, and early cases frequently recognized this difficulty, "I get confused between false and true memories", "I cannot remember whether things which have happened have really happened or not", "The real becomes apparently unreal and the unreal apparently real, how can a madman sort the matter out?"; the mistakes which such a defect favours added to the patient's guardedness during interviews; early cases and some whose illnesses were of longer duration but who were mildly affected often picked their way cautiously over the uncertain ground of the past. In several patients in this series I was able to observe the identification of very recent thoughts with 'real' events and to discuss contradictions and impossibilities at a time when the truth could be re-established; such patients never appeared to be 'caught out', only perplexed. This inability to sort out facts from fancies adds to the stress of the patient's social life and makes accurate history-taking difficult and sometimes impossible; thus a practical and out-going woman successfully earning her own living described in detail how her husband used to masturbate in public, and one could only note a possible delusion and without further evidence a diagnosis could not be made.

As the disease progresses and as insight lessens hesitation diminishes and sentences like, "My mother gave me plenty of hints concerning the truth of

my birth but like a fool I took no notice", "My mother used to confide things to me which were not true but which I believed at the time", begin to appear more frankly and finally the failure to recognize that the day-dreams of yesterday have no reality permits the development of delusions of love and power, of hate and danger.

This defect can exist when the memory is excellent and several patients had unusually accurate recording memories, but it makes recall less and less reliable as a guide to future conduct; emotional charges can be equally attached to the real and the imagined and there is an increasing tendency to select unconsciously items from memory which appeared to meet a present situation and to reinforce them with suitable emotional tension. Such false emphasis means that the true emotional significance of the past is lost and the sense of personal awareness reduced. For instance, one patient suggested as a possible cause for her predicament that "There was that frightful bazaar, no-one knew how much was taken".

4. *Failing Ability to Recognize Absurdity*

Since every schizophrenic in this series has expressed delusions in the absence of clouding and excitement this heading may seem redundant, but the failing precedes the development of delusions, is frequently recognized before they develop and is often clearly present in patients who apparently have become free of delusions. For instance, an out-patient, a man of 45, had a brilliant school career and was regarded as a reasonable certainty for an Oxford scholarship in classics; he had held a junior clerical post for more than twenty years interrupted only by one period of a few months in a mental hospital, but obsessional doubts and compulsions had forced him to 'go sick'. While improving with simple interviews he received a letter from an early nannie much older than himself and he at once replied suggesting marriage. She wrote back hastily but in a kindly way saying that she had been married for many years. This is not a simple return to childhood; the same man is single and runs a little home of his own well enough to keep himself physically healthy, has a standing arrangement with a nearby widow for mutual sexual gratification, is reasonably integrated into his community except that he rejects as a snob anyone who has been successful and finds his pleasures with the handicapped and the lowly. He exhibits no withdrawal as such in the face of simple relationships, provided that his once excellent brain is only called upon to function at a comparatively low level. Again, a youth saw no reason at all why his decision to lie in bed for six weeks should need any explanation and certainly he was unable to provide one. Another woman patient assumed that I would arrange with an acquaintance of hers, now "somewhere in Africa" for the advance of several thousand pounds to set her up in business, and two young women suggested their adoption into my family, in each case before delusions were recognized.

5. *Failing Insight*

When considering insight it is important to exclude that lack of vision which follows an inability or refusal to face a very painful situation, which expresses itself in terms of glossing over or of denial and which if successful enables the patient to make a further adjustment to life. Despite the existence of this lack of vision, there are people with the clearest conception of what their cancer, heart disease or disseminated sclerosis implies and in most of those who fail to see the picture clearly there is nothing wrong with the ability

to do so; there is a decision, which may be partly unconscious, to avoid it. The failing insight to which reference is made here is more akin to the failure which eases the approach of death.

For a patient to see his own schizophrenia with absolute clarity would be a greater agony than that produced by any other disease, however terrible, and the desire to turn away from it would be overpowering, but in the early stages there is sometimes a nearly complete view of imminent catastrophe and for a time the patient is held by the prospect in a state of fascinated terror before he either breaks down into a state of clouding or takes refuge in some mental mechanism which reduces the pain. There is always some impairment and the unbearable is usually made bearable, although sometimes only just. An acute illness can subside so that there is something approaching a complete recovery and the loss of insight may be just enough to allow of an interpretation which is acceptable to the patient, but in the long-term case when the disease is that much more extensive insight is considerably reduced, and in several of the patients in this series one could as easily persuade a lovable spaniel of the importance of the hereafter as get them to comprehend the true gravity of their disability; in fact, because simplicity of direction is essential to their welfare one can strike them with the most flinty truths without raising a spark of insight or response in any true sense.

The following table gives as accurate a picture of the insight of the patients in this series as is possible of a scene the parts of which overlap and which is constantly changing. Generally speaking insight becomes less from 1 to 5 and changes are usually in a downward direction. In other groups with more severe and chronic cases there would be more included under 3 to 5, whereas the more mild and early cases seen the more there would be under 1 and 2. It is not suggested that patients go through this series regularly or that the level of insight corresponds exactly with the severity of the disease, although there is a rough correspondence, for sometimes advanced cases had a dim, pathetic recognition of their helplessness.

TABLE I

"Insight"

The patient considers the illness:	
I.1 As a grave mental illness	6
I.2 As a milder nervous, psychological or mental illness	16
I.3 As a reaction to hostile environmental stresses	21
I.4 As a physical illness needing treatment	5
I.5 As non-existent	13

Concerning I.1, patients were always early or recurrent and it was most commonly found during adolescence associated with considerable distress, although some young patients had lacked insight from the beginning and never appeared to suffer unduly, the defect and the inability to recognize it having marched together and only the relatives having been alarmed at the change. Two patients in this series had diagnosed themselves as suffering from a 'split mind' and one of them had read the subject up fairly deeply. Another patient said "I know I'm mad and the humiliation of it!", and another, tortured by a certainty of insanity, said "If you had known me two years ago you wouldn't recognize me now I am not the same person".

Re I.2, this covers a diversity of patients, but all recognized the need for psychiatric treatment. Generally speaking there was a rough correspondence between the degree of insight retained and the fear expressed as denial, "But

I'm not really mad, I know that", "I know I'm neurotic but I do my best", or the rejection of madness may still include a fear that the children may be tainted.

There was occasionally a searching self-analysis, a hunt for a cause linked with sexual, familial, social or working problems. The problems concerned, especially if sexual, might still be powerfully suppressed, as if the patient were saying 'You can treat me but you mustn't ask questions' but much more commonly patients moved easily into a discussion of their difficulties, compulsive thoughts, impulses to perversion and so on, and could be greatly helped by sympathy and understanding. More frequently than not patients in this sub-group at first had been accepted psychiatrically as suffering from an anxiety state, a depression, and so forth. (This applies to the early history of the whole group.)

Most of the patients in this group complained of the results of the very difficulties from which they suffered but without understanding their seriousness, they were worried by the loss of friends, by failure at work and by the difficulty of deciding future aims. Commonly such patients are thirty or older and some had asked for psychiatric help, but a few were very young; thus a perplexed girl said, I think accurately, "But the others taking the course are much less intelligent than I am and they manage all right", and another high-spirited young woman said, "I have lots of interests and I love life but everything is stuck".

Re I.3. This is the most typical, and as a rule is accompanied by diminution of insight into communal and ethical demands. Illness and incapacity are seen as a result of tensions and pressures created by a hostile environment and especially the personal hostility of those who should be most loving, husbands, wives, parents, children, etc. Some see life as a struggle to attain freedom from domination and often such a convincing account is given and the reaction seems so appropriate that a false diagnosis is made. There is no recognition of internal failure, even immediately following an acute episode with clouding, delusions and hallucinations. Sometimes there are odd flashes of insight, one youth said after E.C.T., "For a short time after treatment life seems to be spontaneously self-satisfying but I get clogged again" and when 'clogged' he returned to his belief that his illness was a natural sequel to parental domination and misdirection.

Sometimes a patient appears extraordinarily evasive and it may be a long time before it is appreciated that the patient is not avoiding the point, it is just that he cannot keep to it and that there is an absolute inability to grasp the position in terms of personal inadequacy or of the problems which the history and the information from relatives have exposed.

One girl wrote "I believe I have a lot of intuition as exhibited by my feeling at once of intrigue, jealousy, wickedness, etc., but I often do not know what course to take. Certain amount of physical courage, but I lack moral and spiritual courage. Mental courage, fair. Have above the average intelligence, usually good spirits and love. Confidence in myself doing various things. I have weak lumbar vertebrae. The insulin has completely cured me." The writer believed that her mother cursed her when she died, "with a split mind or something like that" and that her sister poisons her father's mind against her. She had an excellent working record for a few years but since has repeatedly failed to achieve any working or training success or to consider this as important. Quite frequently there was recognition of moodiness, impulsiveness and dramatic conduct, often with suitable apologies but not with real insight.

Re I.4. Two of the five patients in this group were mildly bewildered although otherwise complacent at being sent to a psychiatrist, the other three saw no contradiction and therefore had rather more insight than was apparent. Two of these patients actually had ulcerative colitis which formed the basis of physical complaints but neither saw anything contradictory in treatment by a psychiatrist. One of the group who was "terribly run down" came for treatment of her "rheumatic heart" as an out-patient but the consultation passed easily into a discussion of her homosexual difficulties and of her cooly expressed passion for me ("I thought perhaps you wouldn't encourage it"), and of other problems, especially the difficulty of earning a living. Mostly they expressed their feelings in such phrases as "I shall be all right after a rest", or "I need more interests I know".

Re I.5. There is no insight in this group except that implicit in suspicion and hostility towards almost everyone, including sometimes the psychiatrist. "Naturally I am suspicious and hostile because I was once shut up and I distrust everyone", said a patient who had been equally suspicious before certification some years before. More often a complete absence of insight concerning any kind of illness is accompanied nevertheless by a calm acceptance of the attitude summed up by 'The doctor knows best'.

Other Findings

A. Measurable Intelligence

The main and invariable symptoms which characterized the disease have been described and they involve a very serious reduction in intelligence although not necessarily in measurable intelligence. To repeat, if insight is not seriously impaired the patient often recognizes this, "I am definitely less intelligent than I was" said a patient with a 95 percentile Matrices, a 14+ Kent Oral and an excellent Mill Hill vocabulary score. We have no psychologist attached to the hospital, so that intelligence tests are limited to the Kent Oral and a series of nine fables to test the power of generalization, which are performed in the consulting room when rapport makes them reliable; besides this the hospital occupational therapist arranges for everyone, in groups of six, to spend an hour with Raven's Matrices. Both the Raven's Matrices and the Kent Oral are well standardized, the latter taking 5–15 minutes to carry out.

The fables are taken from Aesop but the 'morals' are omitted, in fact this series of nine were chosen so that repeats can be carried out if necessary and in each set the fables become longer and more complicated from No. 1 to No. 9. I began to use them in the belief that the poor power of abstraction so often noted in schizophrenia would be brought out by the test, which takes up to twenty minutes to perform. In the test, the patient is given the first card to read together with a full explanation of what is wanted, i.e. some generalization (G) which could follow, preferably as applied to human beings. After the first card, if the patient has failed or there is any doubt at all about his understanding, examples are given in illustration and this process is repeated as necessary within the limits of leaving confidence unchanged. For the purpose of this paper only the ability to generalize has been scored, e.g. concerning the fable.—A vixen sneered at a lioness because she never bore more than one cub. 'Only one,' she replied, 'but a lion',—the standard answer is "Quality but not quantity" given by about a half of those tested. Less satisfactory answers. "One good one is worth a half-dozen mediocre ones", "Better do one thing well than a lot badly", "Nothing but the best", all scored one. Difficulty occasionally arises with an off-centre answer such as "If you cannot have what

you want, be content with what you have" for which a half was given. The answer: "The ridiculous suggestion that things are only good in large quantities or if they are big" also scored a half. The answer "Even if only one, it is one of the major animals" is only a comment in which the person tested cannot get away from the literal story (C), sometimes the patient can get no further than to repeat the story in his own words (R) and occasionally he cannot even do this (N).

No healthy person I have tested has scored less than G.4, with a Kent Oral of 14 and a 90 percentile in the matrices and the commonest score with 14 or 14+ and 90 or 95 percentile is G.6 or 7, but to my surprise the results, although showing the loss of schizophrenic superiority (see table), showed that the anxiety patients were hardly any better than the schizophrenic, and sometimes, taking extreme examples, one might get in schizophrenia 14+, 90 percentile and G.6 on one occasion and 14+, 75 percentile and G.5 on another, whereas a smart and superficially intelligent young man shortly before returning to clerical work after an anxiety illness scored 14+, 90 percentile and a G.0, in other words, with every kind of encouragement, help and praise he could not generalize at all, while a recovering and discharged anxiety patient, an alert shorthand-typist who was being seen as an out-patient, scored 14, 90 percentile and G.1. This is in line with the large proportion of young adults unable to assume the abstract attitude, including some with average verbal ability, reported by Hopkins and Post (1955).

TABLE II

	Schizophrenia	Anxiety
Average Matrices Score	79	57
Numbers with 95 percentile	12	7
Numbers with 90 percentile	2	6
Numbers with 75 percentile	7	8
Numbers with 50 percentile	5	3
Numbers with 25 percentile	1	3
Average Kent Oral	14·2	13·9
Numbers with 14+(=15)	16	9
Numbers with 14	3	12
Numbers with 13	6	2
Numbers with 12	2	3
Numbers with 11	0	1
Average Fables Score	2·5	2·8

Only 27 of each group are included because that is the number for which all results are available, chiefly because the fables were introduced late.

At first sight it might appear as if schizophrenia does not affect measurable intelligence, but these figures do not indicate the common brilliance of schizophrenics which has subsided (see later) and even more the deterioration with time which is usual although not invariable and which is brought out in the next table (Table III), where Schizo. 5Y− refers to schizophrenics with a history of

TABLE III

	Schizo. 5Y−	(No.)	Schizo. 5Y+	(No.)	Anx. 5Y−	(No.)	Anx. 5Y+	(No.)
Average Matrices Score	90·5	(18)	53·3	(36)	73·1	(36)	82·3	(22)
Average Fables Score	3·9	(8)	1·9	(19)	2·9	(20)	2·5	(9)
Average Kent Oral Score	14·3	(16)	13·5	(31)	14·1	(35)	14·1	(21)

symptoms of less than 5 years and Schizo. 5Y+, schizophrenics with histories of longer than 5 years, and similarly for the anxiety patients (Anx.).

In schizophrenia, measurable intelligence is reduced roughly in proportion to the duration of the illness, in this series the patients with outstanding intelligence were almost uniformly young and some of the chronic patients scored hardly better than feeble-minded persons, particularly if one ignores the Kent Oral results which are based on knowledge acquired.

Among the young ones of high intelligence several appeared dull and stupid when discussing their plans and difficulties. Failure of abstract thought occasionally becomes revealed accidentally, one girl failed completely to comprehend the possibility of composing a crossword, i.e. of putting words in without the clues, and a young male student when asked, following up his own line of religious discussion, what would have been his religion had he been born in India, replied "I should have grown up in the Church of England faith of course".

One has to be cautious with anything so many-sided as measurable intelligence. Hebb (1949) has pointed out that about half the English-speaking American adults who earn their living and conduct their own affairs cannot complete analogies like 'Foot is to ankle as hand is to ——?' but these results confirm those of earlier workers using a variety of tests. Gibbs (1923) described scholastically competent young schizophrenics who suddenly began to fail with their studies as a first symptom. Cameron (1938a and b and 1939), Kasanin and Hanfmann (1938), and Hanfmann again in 1939 reported most convincing evidence of the development of a peculiar form of mental defect in chronic schizophrenia, since all three took the greatest care to exclude any results not obtained with the co-operation and friendliness of the patients. They found grave mental deterioration, loose thinking with loss of exactness and clarity, a surprising inability to assess relationships despite the preservation of considerable knowledge, either in the presence of partial insight and sensitivity or, worse, in the complete absence of either. I have been struck in this series by the inability of schizophrenics to organize and utilize retained knowledge. The investigations followed Goldstein's demonstration of poor concept formation and failure to solve problems, the 'concrete attitude' found in seniles and schizophrenics (1936, 1939a and b) but Cameron showed that the formality, perseveration and restriction shown by senile patients were missing and that the profound lack of self-criticism and understanding made the defect totally unlike anything seen in normal childhood. Levy and Southcombe (1952) with the Wechsler-Bellevue Intelligence Scale and Burstin (1954) with the Rorschach have further confirmed the intellectual loss.

Moreover Potter's (1933) original observation that a good many institutionalized mental defectives are infantile or juvenile schizophrenics who have run their course early has been confirmed several times (Richards, 1951; Raub *et al.*, 1952; O'Gorman, 1952 and 1954) and Richards demonstrated that these schizophrenics lack a quality which makes them more difficult to rehabilitate than are ordinary defectives and Hilliard and Mundy (1954) have commented on this special, extensive defect. The schizophrenic defective can be kept in good health, he lacks tension and drive and has simple wants, reads very little if at all, but likes the movement of films although he cannot grasp any but the simplest stories. He may retain woolly delusions but is in no need of restraint, rather he sadly wants the ability to take full advantage of possible freedom, so that Bickford (1955), following Rees at Warlingham Park, can report a parole record of over 90 per cent. at a mental hospital.

B. Learning

More than intelligence, the ability to learn is reduced, as indicated above. This has been shown repeatedly by the failure of patients in this series to tackle further courses and it is also brought out by their histories.

Five schizophrenic patients were never much good at school, and several more became unstable with examination nerves and ducked the actual sitting, in four cases there is a record of faints or blackouts when the examinations were approaching and such emotional attacks make an estimation of any learning failure impossible. In ten cases however the examination results were inexplicably poor and there were fifteen in this series who eventually failed badly after earlier outstanding examination achievements. Several patients made spontaneous complaints that they had found learning difficult since becoming ill, "I find it such a strain to keep up a high level of work", "Fellows I used to beat easily are now ahead of me", although more often there was an easy confidence about work, in a job or in the home, together with ample evidence from relatives not only of a reduction in ability to learn but of an increasing failure to cope with tasks previously managed. I tried hard to coach one improving nurse in the elements of nursing, using a simple nurses' text book, but failed badly.

C. Use of Words

Several patients appeared to have difficulty in finding words and some showed perseveration. Words were commonly omitted in speech and letters and sometimes at least I think this was an expression of organic defect since explanations like the denial of self for the frequent omission of the personal pronoun 'I' soon wear thin. Prepositions, adverbs and verbs all suffered some degree of omission. A mother said of a gifted engineering student who had levelled out as a permanent junior in an electrical laboratory after several years of illness, "He only became so pedantic in his talk from the time of his illness", and this man's intelligence scores were matrices 95 percentile, Kent Oral 14+, Fables G.1 and Mill Hill Vocabulary 3−. Comments by the family such as "She speaks in such a funny way now" were frequent. The following extracts are from one short letter from a schizophrenic in this series, "May I please to develop on the matter", "My husband has been most reckless on a capitalizing basis . . . he has played on the advantage over my ignorance to some unfair degree", "I have great agitation in continuing to keep a pedigree dog . . . my hands are bursting to be free. The two budgeries also are a load of mess and an imposition on me in the dining room." Certain mental hospital patients go on to jargon aphasia.

D. Loosening of Repression

(*i*) *Sexuality*. Schizophrenics, as compared with anxiety patients frequently exhibited a flood of easy sex talk. At the level of psychotherapy possible at St. Ann's anxious patients gave more or less direct answers to direct questions and there was commonly discussion concerning sexual difficulties, masturbation, seduction, disappointments, inadequate or over-demanding spouses, etc., and recognition of a need for changed attitudes, but the discussion was plain and practical.

Fifty-three of the schizophrenics discussed sexual matters more freely than any of the anxiety patients and quite often very much more freely. The following arrangement of sexual topics overlaps in practice, and patients by no means

keep to the order in proportion to the severity of their illness but it is a reasonable picture of increasing clinical deterioration. The order may be biassed towards Freudian psychology, since this appears to me to offer the best explanation, in fact I know of no more striking evidence available to a non-analyst than the ideas expressed by schizophrenics. Not infrequently the luxuriance of sexual pre-occupation was an antithesis to the patient's otherwise very limited ideas.

S.1. Guardedness, with obvious tension, fear, guilt and hostility, to a degree not seen by me in anxiety states. Two young women could not be brought to discuss sex at all by any means within the bounds of the existing doctor-patient relationship. Three women and one man were disturbed by compulsive obscenity in a manner reminiscent of some tense obsessionals.

S.2. Hardly more than half a dozen spoke of sex more or less in the same way as anxiety patients. One woman and three men seemed always to have been completely indifferent to actual sexual experience. Two girl friends interviewed me asking specifically for advice and help because of the utterly disappointing behaviour of the men with whom they were concerned.

S.3. Otherwise, there was free and easy discussion of sexual experience and ideas, of needs and wishes, of masturbation and of the milder perversions; a large number were casual and offhand. Speaking generally this was the standard pattern, sometimes coloured by previous psychiatric experience. "The child in me must be reassured that nothing terrible will happen if I do take things by sexual means", "I want to be castrated to free me from the Freudian drive". One man was obsessed by his failure with women and with the guilt he experienced at the consequent impairment of *their* health. Two women were moving constantly from job to job because of imagined interference with their genitals. Confined to the schizophrenic group was the conviction held by parents and relatives that the patients' expressed need for sexual satisfaction was in fact the cause of the illness and I have been urged by relatives of two of the patients to arrange means for helping them in this essential way. One sister of a naturalized alien wrote, 'There are things which it is natural to do, cannot she be helped?'

The profusion of sexual ideas was commonly associated with the certainty of disease, decay or distortion of the penis or of unnatural changes in the testicles or in the semen. Women were often concerned about drying, shrinking and disease of the genitals.

Particularly at this level the patient can be helped considerably, especially when failure to control sexual thoughts co-exists with tension, fear, guilt and hostility, "I have always known that I shall be punished for my thoughts", "Hell for me is quite certain", "Someone whispered 'I wonder if she knows the colour of a period'." Many patients gradually became easier with their problems as they stabilized and were able to return to ordinary activities although almost always at a lower level of general achievement.

Three heterosexual women and two men who discussed homosexuality quite freely made overtures to me, quite simply in words, but I had the impression that the possibility of any active response on my part was not included in their train of thought. There was no difficulty in management, a striking contrast to the transference situation in analysis with more complete patients. One woman was extremely frank in her assumption of a love relationship with me in letters only, at interviews she made only oblique references to what she had written. Two women indicated that they would not develop a sexual relation with me out of respect for my wife. Two others, both married, spoke as if I had had sexual intercourse with them, one developed acute clouding and was transferred to Holloway Sanatorium and the other steadily improved

and returned to her husband and child. Three of the women were attractive and flirtatious and talked freely of sex but in fact an underlying fear of pregnancy made them reject any physical contact with men.

On the other hand five women and three men had had illicit love affairs under circumstances which suggested that their moral standards had declined during the illness. One of the men and three of the women had attacks of acute sexual appetite. Two further men, both single, had regular intercourse with a woman friend and a homosexual had frequent sexual experiences in the belief that this was essential to his health. A charming well-preserved girl had found difficulty in benefiting as much as she would have liked from psychotherapeutic interviews with previous doctors because of compulsive ideas of cunnilinctus concerning them. This information was volunteered easily at the first interview; in psychoneurosis such frankness is almost inconceivable. Although many were utterly or relatively indifferent to sex experiences this was by no means universal, and some advanced and chronic cases regularly enjoyed normal sexual intercourse. This is in line with the ordinary mental hospital observation of the shameless eroticism with which one is sometimes confronted in disturbed wards especially on the female side and with the continuation of frequent masturbation.

S.4. Homosexual preoccupation. Seven men expressed distress at homosexual ideas, one was almost distraught. Four more men spoke easily of homosexual experiences or preoccupations as did three women. Two men were regularly practising homosexuality, one strictly on the grounds of health only, and two women, one married with two children, were actively homosexual. Two more men had had a revulsion against homosexuality which had gradually lessened until the practice was accepted and one of these had finally lived as the home partner of a professional prostitute who got his living widely elsewhere, but the patient was finally thrown out by the professional because of his dirty ways and obscenity. A further man had been a practising passive homosexual between the ages of fourteen and nineteen but for several years had been asexual as far as could be told. One man believed himself to be a woman. Another man wrote "I created out of some ectoplasmic substance (Lodge's *Aether Analogy*) a female body, a definite projection of myself. Upon this I lay face down. Link this with what I know, admittedly little, of homosexuality. I have also turned the body round and have had normal relationships with it."

It will be clear that the profusion of homosexual ideas in this series was heavily weighted on the male side.

S.5. Bestiality and the grosser perversions. Animal life in connection with sex almost uniformly concerned dogs, although one patient felt her illness was due to swallowing spiders and another to swallowing flies, and there were also many dreams of a sexual nature involving lions, horses and other animals, which might express terrifying situations or great attachment, e.g. one of the young schizophrenics who never could be brought to any recognition of sex as a reality even in thought dreamed of sleeping with her horse in a small place off the kitchen; she had previously dreamed of being attacked and mutilated by wild animals but the gentlest attempt to associate "animalism" with these dreams was met by complete non-understanding and blankness until we moved on to some other subject.

Three men and two women felt that dogs recognized and exposed their sexual abnormalities, another woman said, "I'm afraid of dogs, they excite me sexually". Two women and one man had masturbated dogs and one of the

young women had sat up through the whole of one night repeatedly masturbating her dog and she volunteered this information without embarrassment. Some felt that people made animal noises and gestures at them and two men and one woman had been "followed into hospital" by dogs. One said "Dogs are purposely made to do things for my benefit", and another, concerning a mental hospital in which she had recently been, "People were turned into animals, I saw it with my own eyes".

S.6. Gross obscenity colouring fantastic delusions.

(ii) *Hatred for the Parents.* A brief description of the commonest hatred will illustrate this emotion in schizophrenics, so rarely exposed in anxiety patients.

It was common enough among the anxiety patients to hear criticism of the parents but at the level of enquiry possible it rarely went beyond such facts as "They were both unstable", "My parents were completely cold to us", "My mother had dreadful tempers", "My mother ran the show, she was very domineering", "My father was always complaining of something". In 37 patients there were no strong feelings either way and there was nothing of the intense hatred expressed so often by the schizophrenics. The degree of emotional intensity varies: in well preserved paranoid patients the hatred may be terrific; one man keeps himself near wasting point in order to deny his mother the vampire sustenance that she needs to survive, he recognizes that her vampirism is a mental process but sees no contradiction in this concretization. A quiet self-possessed man, who had come to hospital straight from a responsible post, was finding difficulty in keeping his dead father separate from an avenging God and believing himself to have been rejected by his father for his disobedience and hostility he believed Hell was certain, "My father cast a spell on me, there is no escape, I am doomed". Five patients believed themselves to be actively and maliciously persecuted by their parents. On the other hand, remarks like "My mother left a curse on me to spoil my father's life, she was jealous", "I hate my sister, she is jealous of my father's love for me", "My parents have always hated me", may be accompanied by no obvious emotion. The same female schizophrenics who were completely blank concerning sex also avoided absolutely any discussion of parental relationships.

Ten female and three male schizophrenics hated the mother, who was generally alive but sometimes dead, and attributed much of their predicament to her. Three men and two women hated their fathers to a pathological degree. Three daughters had a pathological attachment to the father and two sons to the mother. Two of the female patients had slept with the father in the mother's absence, without actual intercourse I think, but with considerable emotional stirring and one of them developed tremendous tension, guilt and hostility concerning her father.

As long as insight is preserved the situation is controllable by ordinary methods and the intensity of emotion often died down with improvement in the total picture. Insight may diminish without lessening of the emotional tension and conduct then becomes grossly abnormal.

It would probably be justifiable to add the two further symptoms, a reduction in general intelligence and a loosening of repression, to the basic five already listed, but they are more often not discernible in the early stages.

E. Emotional Disturbances (see 'Reactions' later)

Anxiety symptoms indistinguishable from those of an anxiety state are so common as to be almost uniform in patients seen early, but in several patients

in this series the anxiety symptoms progressed to a state of emotional tension producing torment beneath a frozen exterior or pallor, sweating and an appearance of suffering and exhaustion even more disturbing to witness than the ordinary acute signs of anxiety. There was another difference, that the expressed terror of imminent catastrophe, of an explosion into uncontrollable violence, of impulsive suicide, nymphomania or senseless screaming was much more vehement: one patient was terrified of sleep not because of the association with death but lest control should be lost, another made a propitiatory offer to take a sedative in the morning, when she felt she could hold off its effects, instead of at night, another was afraid to eat or to take medicine lest the satisfaction they produced might remove control long enough to cause disaster.

The external rigidity may be such that one is surprised to find on what a volcano the patient is living, "I am terrified I shall strike out and smash", "I know something terrible is going to happen", "I do not feel insane at all, only ill", "Tell me how to handle the dreadful waves of tension and how to stop wanting to scream and smash", "I feel I am losing control, things are getting beyond me", "Something is going to explode", "It comes when I wake, it is indescribable", one patient begged for intravenous pentothal because of the relief it had given him previously, another for intravenous methedrine which had enabled him to throw off a terrifying sense of hopelessness. Where struggles to control awful thoughts or tension were not observed in hospital there was often evidence in the history of such early experiences. In 45 cases there was a history of excitement and abnormal behaviour, by no means confined to those who had been in mental hospitals, often with violence but seldom with dangerous violence. In ten there was a history of frightening rage attacks. There were no episodes of catatonic stupor in this series either during the period of observation or in the histories, although several had suffered what can be described as catatonic excitement. That the basic symptoms of schizophrenia are developing would be enough to produce this reaction, but it does seem to me so different in quality from even intense anxiety and so colossally threatening that I think it is a manifestation in its own right.

If the disease progresses there is a continuing reduction in emotional response and, together with other mental changes, this leads on to the special form of quiet mental defect already mentioned; in several chronic cases in this series previous turbulence associated with considerable competence had subsided into quiet ineffectiveness and they were left with simple, superficial minds dressed in the faded finery of old and decorative delusions. Some of the patients in this series retained partial insight into the quiet phase and expressed perplexed recognition of their own lack of warmth. Two patients described spontaneously their inability to share the pain suffered by relatives and friends. (It will be known of course that the continuous, continual, spasmodic or occasional heightening of emotional tension can go on for many years in certain patients, especially in many who are in mental hospitals.)

Coincident with the reduction of emotional tension there is a striking reduction in the need for sedatives, forty patients in this series were taking no sedative whatsoever at the time of the review and four more only needed them very occasionally. Of the remaining sixteen alive, eight were taking barbiturates, three of them in large doses, and eight were taking largactil only. Three patients who had been on barbiturate and largactil had given up the barbiturate spontaneously but continued with the largactil. Of the anxiety patients, 51 had more or less integrated sedation into the pattern of their lives.

Between intense emotion and extraordinary apathy there is every degree

of loss. It is typical of the illness that arrest, at least for long periods, can occur at any level, and often there are varying degrees of emotional response in the same patient. One young woman with a history of symptoms extending over several years became a mother and champion (and was quite willing to be the lover) of a male patient, and several more were known for little kindnesses done here and there although they tended almost uniformly to lose the sense of emotional perspective concerning past events.

Several patients stated that they remembered clearly that as children they were struck by the happiness and spontaneity of other children and that even then they had recognized that there was a lack of emotional response towards their parents. Some of these were temporarily in the intense state of emotional disturbance to which reference has been made and this phase of emotional flare is matched by the period of intellectual brilliance which is often a feature of the disease (see later).

F. Hallucinations

These were not prominent in this series during the period of observation and when they occurred they were largely in terms of ideas (Messimy, 1953). "My own mind seems to talk to me", "It seems as if I am talking to myself all the time", and even when more obviously hallucinated, "I heard people ridiculing me", the details of sensory experience are vague, and the same applies to a dead father's voice saying "You are doomed", and to a message "You must leave your husband". Pressed about words addressed to her by a known but unseen man, a patient said, "I cannot remember the exact words but I know what was in his mind". In other words such hallucinations merge into false memories and delusions.

If one confines the term hallucination strictly to a false experience in terms of sensation, even where it is absorbed into a delusional idea, the rarity is striking. Twenty patients who had been in mental hospitals with the diagnosis of schizophrenia, and in each case in my opinion the diagnosis was unquestionable, had never been so hallucinated, although several of them described ideas of persecution in terms which could loosely be called hallucinatory. A further eight who had not been in mental hospitals had never been hallucinated. Nevertheless periods of active hallucinosis either in the history or during observation were more common than not and were usually associated with acute attacks, developing when the basic symptoms had already rendered life difficult and often associated with acute clouding and leading to urgent hospitalization. One patient in this series had gone into a state of excitement, tension and clouding leading to certification on three occasions, each attack beginning with florid visual hallucinatory experiences of lights which tormented her and seemed to become directed at her in a purposeful, hostile way, but these attacks occurred against a background of quiet, almost languid ineffectiveness out of keeping with her successful school life.

I have studied cases whose first complaint was of hallucinosis, the patients being adequately descriptive and perplexed but mentally sound, the basic symptoms being delayed for a year or more, but such cases are rare and there was none in this series.

Of the 61 patients in this group and during the period of observation auditory hallucinations and hallucinatory somatic experiences each occurred in seven. The somatic hallucinations all occurred in females, six of them had a strongly sexual colouring and in four vaginal penetration was concerned. Of the auditory hallucinations two heard actual whispering but there was little

clarity in the sounds heard or ability to describe them in detail, possibly a fusion of illusion and idea. Two of them had had "special experiences". Two patients attributed hallucinatory remarks of a hostile nature to other patients. Four complained of smells, one concerning himself and three concerning others. Two complained of visual hallucinations concerned with spiritual experiences. The hallucinatory experiences were prone to develop at night, preceded by increasing fear and tension.

G. Clouding of Consciousness

The basic symptoms already described tend to confuse the patient; at least forty-four of the schizophrenics being reported upon suffered at some time from a vague but sometimes urgent sense that something was wrong, associated with bewilderment and perplexity, during the early stages of the disease.

In proportion to the preservation of insight and to the intensity of the struggle to keep going, to the acuteness of the attack and to the pressure of extraneous circumstances, the patient is liable to fail to maintain his integration with his environment and to become acutely clouded, with the development of panic, misinterpretation of reality, false recognition of people, sounds and sights and of unpredictable conduct. This can be purely a 'mental' phenomenon (Devine, 1929; Parfitt, 1932) and in schizophrenia it usually is, although possible toxaemias may facilitate the process (Parfitt, 1934). The tension may increase or diminish. Frequently such a patient has lost weight and looks ill. This typical manifestation is uncommon in the slowly deteriorating patient who develops the basic symptoms without insight and in the chronically deteriorated patient, so that its presence improves the immediate and perhaps the final outlook (Parfitt, 1938). At least twenty-six patients in this series had had one or more attacks of acute clouding although it was rare during the period of observation. Twelve schizophrenics were admitted to mental hospitals during or after the period of observation and several of them because of the development of acute clouding. Two were sent directly from St. Ann's to Holloway Sanatorium, one of them broke down following E.C.T. and the other appeared to be gradually worn down by increasing hallucinosis with which she could not cope. The phenomenon of clouding is common in organic brain disease, e.g. in senility when the tenuous threads binding the patient's reality situation finally snap.

The dramatic development of clouding and of gross failure of insight are often mistaken for the beginning of the illness and are responsible for such headings as 'Duration six months and under', 'Duration one year and under', which I have found increasingly meaningless as one learns more and more of the history.

Consequences of the Illness

There are three main consequences of the illness, working failure, failure of social relationships and dependence.

C.1. *Working Failure*

Many patients in this series might seem at first sight to have done fairly well following hospital treatment, but their progress must be viewed against previous promise and in general the reduction is saddening. It is well known that brilliant students sometimes are shown eventually to lack some special quality so that the prospective professor or leader in his field becomes only a reasonably

adequate practitioner in his profession, but the schizophrenic anti-climax is something considerably more serious, the prospective professor is an unstable and problematical junior clerk, if he is not out of work or supported by some family arrangement.

TABLE IV

Follow-up

	Schizophrenia	Anxiety
1. Status improved	0	4
2. Coped with further difficulties	0	5
3. Successful return to work	5	34
4. Changing jobs frequently	0	10
5. Not doing well at work	10	4
6. In protected employment	16	0
7. Unemployable	26	4
8. Undetermined as yet	3	0
9. Dead	1	0
	61	61

Notes

(1) e.g. Expanded business or started a new one, promotion at work, etc.

(2) e.g.The death of a husband, desertion by the husband, completed training for a new job, etc.

(3) Includes domestic management. Three of the anxiety cases have returned to both housework and an extra job and several are planning to some purpose, e.g. one young woman in the Civil Service is taking an extra qualification to avoid the 'black mark' of her illness.

(4) Most of these are hunting for more appropriate employment, a few are symptomatically restless.

(6) By this is meant that without considerable family support or a job made specially undemanding, the patient could not cope. The number includes five housewives.

Of the schizophrenics, 54 have unquestionably fallen from a higher standard, often disastrously. Nine patients had insight into this inability to cope with their work, in general those who knew that for some reason the brain was not doing its job.

TABLE V

Examples of Schizophrenic Job Changes

Senior chemist (Established).	Occasional work as chemist.	Laboratory assistant.	
Teacher.		Farm worker.	Home help.
Teacher.		Unskilled labourer.	
Teacher.	Occasional jobs.	Failed training.	Unemployable.
Secretary.	Kitchen worker.	Unemployable.	Hospital.
Secretary.	Nursing assistant.	Odd jobs.	Hospital.
Executive secretary.	Shorthand-typist.	Domestic.	
Secretary.	Simple shorthand-typing.		
Clerk.		Unskilled labourer.	
Senior saleswoman.	Shop assistant.	Home help.	
Shorthand-typist with languages.		Domestic.	
Manageress.	Shop assistant.		Unemployable.
Successful W.Op. Air Crew.	Failed student.	Work with father (P).	
Tailoress.		Domestic.	Unemployable.
Regular Army Officer.			Unemployable.
Regular soldier.	Odd jobs.		Unemployable.
Nurse.	Receptionist (P).	Unemployable.	Death.

(P)=Protected employment.

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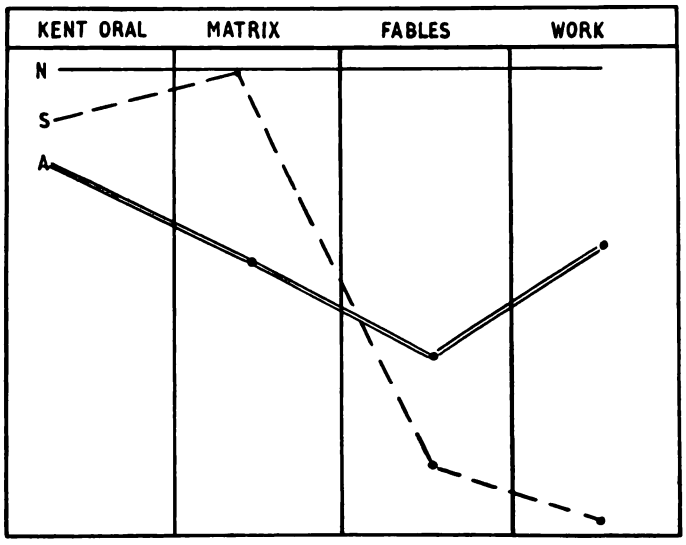
A further woman of good family, education and adequate intelligence acted as a companion-help until increasing difficulties and poor performance led to the projection of hostility and then to clouding and delusions with admission to hospital, following which the process was repeated several times between the ages of 18 and 48, before hospital settlement. Another woman is on relief after gradually frittering away an adequate inheritance and finally buying and failing to run a boarding house. Several more had been making ordinary advances in business posts or as shorthand-typists but have slipped quietly into inferior positions in which they are solitary and disgruntled.

Eleven patients did good work after schizophrenia was diagnosed, in two cases work of a distinctly creative order, two took university degrees. Of the five who made a successful return to work two are holding high-grade posts. Nevertheless only three can be said to have advanced in anything like accordance with expectations after the first diagnosis and in each of these the advance has been disappointing.

The following graph shows the schizophrenic decline, adding work results to the tests already described. The precipitate decline associated with long duration of the illness is not shown. The best intelligence test is of course the actual problem of living.



C.2. *Failure of Social Relationships*

This is one of the gravest sequelae, the lack of resilience in thought makes friendly intercourse unpleasantly difficult, "I can see that people shun me because I have nothing to say", "I am not too bad with one, but when there are several people I cannot keep up with the conversation". There may be a life-long history of aloofness or clear evidence of an abnormality dating from childhood, "This is an accentuation of my normal personality. I find all outside influences distasteful and difficult to cope with", but in ten cases at least there was a clear-cut change from an averagely or more than averagely out-going

personality to one exhibiting marked withdrawal or a sustained, stiff pomposity which was quite out of character. Equally frequently, especially in chronic cases, there was a change from reserve to superficial social ease or to tactless exhibitionism and in these patients at any rate any explanation in terms of intense preoccupation or of being 'shut-in' would be a flat contradiction of the facts. The relatives often report an inability to continue co-operative planning, "Nowadays she won't go along with me at all", "She just does not bother about anything", two perplexed husbands said of their wives.

In the early stages withdrawal is accentuated by partial insight, it is a more or less recognized escape from the pain of exposure, but later on it is increasingly dependent on sheer inability to develop social relationships and this is completely additional to the social isolation inevitably associated with acute episodes. The fact is underlined by the good relationship which can be developed when the doctor makes all the running, when he is aware of the patient's limitations, lack of resilience and inability to plan constructively but continues to exhibit genuine friendliness which almost uniformly is accepted gratefully, but with varying emotional depth which can be very shallow. In the total 122 patients the most trusting and affectionate were schizophrenics. Cameron *et al.* (1955) have drawn attention to the sociability of schizophrenics, given friendships within their capacity.

As a corollary, eighteen of the schizophrenics were married compared with 51 anxiety patients.

C.3. *Dependence*

(a) *On the Doctor*. The schizophrenic's willingness to accept the doctor's help has already been mentioned. Despite insecurity and suspicion and even after the doctor has been moved into the hostile environment which seems to imprison the patient, his concern and interest are still sought. A working woman who believes that my incredulity has wrecked her life and hopes of marriage wrote, "I have not heard from you so I hope you are not using me as a guinea pig". In-patients and out-patients will make urgent demands for an interview when there is nothing urgent to discuss, it is re-assurance concerning the doctor's availability that is wanted. Dealing with schizophrenics mainly before, after or in the absence of acute episodes, I have found that they will generally accept without criticism a period in hospital or out-patient treatment, including E.C.T., even when uncertain and perplexed, like a dear old lady asked for her bus fare and feeling that she has already paid. A patient being transferred to Holloway Sanatorium said "I must be patient, I know and have my teeth out but I would like my holiday first". Even when frightened by ideas of aggression, guilt and sex, or only half admitting illness, "I must have had a breakdown without knowing it", "I was ill, I know, but I do not remember anything about it", or denying any illness, "There is nothing wrong with me, but I trust you, doctor", patients will act as advised during the quiet phases which form the greater parts of their lives.

Anxiety patients are often inadequate, and this applies to very many of the sixty-one to whom reference is made here, but a follow-up showed that thirty-seven have ceased to concern themselves with a psychiatrist and several of the remaining twenty-four write only to report progress and advancement. (A few may be early schizophrenics, see later.) Despite suspicion and false ideation only fourteen schizophrenics of the sixty alive have dropped psychiatric help, twelve are in hospital or under other doctors and thirty-four are being seen as out-patients or are writing more or less regularly and spontaneously.

Another view of the same aspect concerns the small number of schizophrenics who continue with sedatives compared with the anxiety patients, i.e. the need is for a personal relationship and not for chemical sedation. Loneliness and isolation encourage schizophrenic symptomatology (Parfitt, 1937b).

(b) *On Relatives.* Much more than with a doctor, a sense of rejection and projected hostility is easily aroused concerning parents and others near the patient, hatred for the parents has already been described and delusions concerning those emotionally near will be discussed but the tremendous dependence is not changed.

Most patients have worked after first breakdowns and a majority after second, particularly when they have gone back to previously learned work less demanding than original endowment would have suggested as possible but often this has come about by gradual adaptations on the part of others in the home or at work, sometimes to an extraordinary extent, occasional husbands cook, clean and shop in addition to being the wage-earner, occasional wives take over boarding houses or businesses while the husband fills in with unreliable help.

One woman was admitted for a depression and twice appeared to recover with E.C.T. but quickly relapsed, the second relapse being accompanied by florid delusions of a sexual and persecutory kind. Later, with considerable direction from the doctor, much help from the psychiatric social worker and with the interested assistance of her local priest and other friends, as well as very considerable adaptations involving home duties on the part of the husband, she got back to managing her house and child and for the moment at any rate has abandoned the idea of being set up in some lucrative business by friends whom she imagined as willing to finance her. Breakdown has been precipitated by the loss of family support and by broken engagements in this series.

Sometimes when interviewing relatives and bringing forward the serious nature of the symptoms it becomes clear that they are better aware of the grave difficulties than have been some of their advisers, but the reverse is commoner. On three occasions husbands had no idea that the wife's behaviour represented anything but a determination to be difficult and hostile, despite increasing inability to run the house, foolishness with money, a falling-off of interest in the garden and in social activities, violent accusations of murderous plots and of marital unfaithfulness which when examined were clearly delusional. Two male patients in this group lived alone with mothers who did finally seek advice but who refused to accept the illness as a serious one and kept their sons at home to be spared the slightest effort or stress, and the young men carried on without obvious symptoms, looked well, fed well, were reasonably clean and tidy and appeared to like the wireless or the television.

Reactions to the Disease. (These are usually mixed.)

(i) *Fear.* (See 'Emotional Disturbances', earlier.) The essential changes and other results in the lives of patients have been described, but of course every patient reacts to his own malady primarily with fear, except that in schizophrenia the fear is heightened by the namelessness and intangibility of what is happening. With fear come the parents, guilt and hostility. In the anxiety states fear grows out of the personality in the face of past and present stresses and very frequently there is further fear, even panic, of the effects of fear, e.g. the terror of collapse often confines the patient to the home, a result noted in several anxiety patients in this series, but there was no such effect in

any of the schizophrenics. Stresses appear in all human stories, but, as will be described, the schizophrenics experienced less of such stresses than the anxiety patients; fear does not tie them to the home, it comes spontaneously from within as a reaction to a feeling of impending catastrophe.

In this series fear has been prominent in early cases and in the histories of others wherever this was reliable. A few chronic, arrested patients only show fear that can be judged by inference, that they may be interfered with, etc., and it is often superficial and unimpressive. As has been stated already, the fears may concern the actual defects or be of disease and death in some other guise, but most striking of all is the fear of loss of control, an awful feeling that some catastrophic convulsion of behaviour will destroy them.

Fear may smoulder, flame fitfully or erupt into flaming tension and induce suicidal or violent behaviour or, with what appears to be a temporary spread of the disease, produce acute clouding. The very intense fears tend to subside but with every kind of variation, some patients remain liable to outbursts of tension far into the disease and may continue to be generally apprehensive of murder, rape and so on, but generally speaking as the disease progresses the emotional intensity grows less.

(ii) *Development of Normal Psychological Mechanisms.* All patients in the early stages were conscious of something happening which was unpleasant if not dreadful despite parental and medical reassurance, and fear was the dominating emotion. The normal mechanism which tends to operate in the face of painful situations, such as withdrawal, day-dreaming, denial of illness or defect, suspicion and projection come into action and are distinguished in schizophrenia only by the extent to which they can be developed because of shrinking insight, the impairment of constructive thinking, the increasing inability to cope with changing demands, the confusion of remembered fact and remembered thought and the failure to recognize improbabilities and even impossibilities.

In ten patients there was a change from out-going, self-expressive living to withdrawal and self-absorption. The loss of friends and jobs and increasing difficulties in every direction were explained in terms of first an unsympathetic and then a rejecting and hostile environment. There is a tendency to adopt a closed system of ideas which makes no demands on the impaired ability to sustain constant adaptation; many settled for impossible ideas, pleasant justifications which avoided the necessity to plan, running along like toy engines on sets of simple or complex lines. One man moves about on private means while he believes himself to be revolutionizing the bridge world with a new system of bidding, a woman is waiting for the re-establishment of a post which disappeared years ago, another man awaits a revelation and one is founding a league of sanity of which there are never any members, a writer is always about to begin composition and a man and a woman are both waiting for exactly the right kind of job which never arrives.

Opposed to plans there are plenty of wishes, often for work of an ennobling kind. Nine patients expressed the desire to do religious work, two feeling they had a special mission and one wanting to be a sky pilot. Five others wanted to be a surgeon, a doctor, a therapeutic psychologist, a special kind of occupational therapist and a crusading politician respectively. Ten more had facile ideas about the stage, art, the production of ballet, compèring for the B.B.C., organizing "some kind of big business" and others wanted "something really interesting" or "something better" in the vaguest kind of way. Very often there is combined with this kind of wishful thinking the recognition that the new

work must be made simple and easy. The commonest phantasy belief in this series concerned a reciprocated love by a member of the opposite sex (see 'delusions' later), e.g. two men derived interests and emotional satisfaction over years before breakdown from phantasy relationships with idealized real girls, one of whom had never been spoken to, the other having merely acknowledged acquaintanceship.

Projection at first concerned those emotionally nearest and especially the parents, later the family generally, husbands and wives, sometimes the doctor and close friends, then others in the immediate environment, working associates, public officers, near acquaintances, then distant acquaintances and well-known public figures and finally people everywhere. In the early stages God was often felt to have rejected the patient and established religious beliefs were replaced by doubts. Only seventeen patients had no obvious antagonism to either parents, but many had become emotionally indifferent and such hatreds tended to lose their significance and to be replaced by more recent antagonisms. Some sons idolized the father and yet disliked him.

For fifteen patients the immediate environment was hostile but with little active expression, "The matron has me watched", "Why are my belongings disturbed", "It's all this monkey business I can't stand", "People look at me with mixed fear and hate." There is often some bitterness and disgruntlement, three in this series complained to the police and eight others had at some time or another confessed to the police or asked for investigations to be undertaken. As compared with the sensitivity of any anxious patient to the possibility that looks, words, gestures and so on may convey rejection or hostility, there is the factual acceptance that these things are significant so that day to day incidents in the hospital merge into the patient's phantasy.

As the field of projected hostility enlarges, sexual and other thoughts normally suppressed become more and more exposed and there is an increasing failure to appreciate the ridiculous. Blurring of the background of the past against which present experience is seen leads to misinterpretation and false significance moving outside the bounds imposed by normal brain function, thus a homosexually oriented man, continent throughout his life, was pleased to see another patient in his dormitory wearing a surgical corset since he felt that this threw a light on his problem, revealing nothing more however than that "It is so significant".

The increasing inability to know whether something has been said or only thought leads to uncertainty about what is known by others and to assumptions that the doctor or other people are aware of facts known to the patient. At first this may simply concern the patient's age or certain events in his life, but it becomes more and more related to present circumstances, e.g. an out-patient was upset by the assumption that the nurses were aware of a vaginal secretion which she experienced following E.C.T., and this process tends to expand into the well-known condition that "My thoughts are read".

Delusions

Consideration of delusions has been postponed thus far for two reasons. Firstly it is impossible to draw a line between clear-cut delusions, which have been made essential for diagnosis in this series, as against thinking in terms of environmental hostility when insight, clarity and the other faculties already described are defective. Convictions like "My eyes are brought out through my shoulder blades" are clearly delusional, whereas beliefs such as "My husband is constantly planning to leave me" or even "My husband is planning to kill

me and have the house and my things for another woman" obviously cannot be accepted as delusions without other convincing evidence. "I saw a man with one eye and broken, sagging flesh", may have been true but in this case the significance attached, with full belief that he represented a threat of similar disfigurement, was taken as a delusion.

Secondly, during the period covered by this investigation I have studied thirty other patients who, in an apparently clear and normal setting, have become unable to cope with tasks previously handled with ease, whose thinking has been muddled, who find great difficulty in providing relevant facts about their past and who are not depressed except in proportion to the social and working difficulties which beset them. The present series includes exactly similar cases who went on to develop unquestionable delusions and patients are also included in the series who presented the same picture without delusions when there was unequivocal evidence from the previous mental hospital records that delusions had existed. Zucker (1952) has described cases of 'latent' schizophrenia but even more to the point is Eysenck's (1952) conclusion that schizophrenia (and manic-depressive psychosis) forms one extreme of a continuum running from normal, a conclusion based on the analysis of a large battery of objective tests.

Delusions have followed irregularly the pattern of first concerning those most loved, including God, then a wider circle of friends, then well-known public figures and finally people in the vaguest sense. The delusions were sometimes phasic but usually very persistent, accompanied by considerable tensions in early cases, but in the majority the emotion was less than would have been appropriate to the ideas being expressed, in some chronic cases so much less that the delusions were merely remembered when leading questions were asked about them, previous histories being used as guides. Three patients largely confined the hostility experienced to the disease itself by developing a false and immovable conviction that syphilis or cancer was destroying them, but in each of these three cases there was a false belief that people in the immediate environment were insulting them by sniffing at smells or making oblique remarks. As well, roughly in proportion to the severity of the disease, the delusions varied from those only recognizable by confirmatory evidence or further development, to those which were utterly fantastic. When insight is partially destroyed, the patient may project insanity into the environment, five women and two men believed that one or more psychiatrists who had treated them were insane, one man concluded that I was insane and another believed that most psychiatrists and priests were malignantly psychotic.

The commonest delusion of all, affecting twenty-one patients, concerned parents, "I am on a constant wave length with my mother", "My father shared the divinity of God", "She (the mother, then dead) still sucks me dry of every bit of energy", etc. This has been foreshadowed when discussing the loosening of repression.

Among female patients the commonest delusion was of a phantasy love affair. This was present in eighteen and in each it occupied a prominent place in the symptoms of a first or recurrent breakdown; one patient had her third breakdown with such a delusion very much the presenting symptom as it had been twice before, two women believed the wedding date to be fixed. Even when the acuteness of the illness had passed and the patient had levelled out again and seemed more or less recovered, remarks of the kind "Couldn't we arrange a round-table conference?", "Could you telephone him and arrange a car?", "But I must see him to have the matter thrashed out properly", and

"My father must send him a wire, we must have a definite understanding", were spoken or such phrases were written in letters after leaving hospital and the doctor may have been felt to have failed by not co-operating. "Time means nothing to a psychiatrist but I cannot wait twenty years." Another woman developed the delusion that I would have a lover waiting for her at a certain interview and was disillusioned and angry at my failure and she has been more critical and hostile since. Often the 'lovers' seem to be father substitutes and they included four doctors and three priests, "The previous doctor proposed to me", "The doctor made improper suggestions", "He did not say it out but I knew what he meant", "He would not come to the point so I had to leave the parish". Some of the women were already married, but this fact had no influence. Two women had regular and enjoyable sexual intercourse with their husbands but still described phantasy love affairs without shame, although both "knew" and were highly critical of their husbands' unfaithfulness and intent to kill them. Taking the eighteen as a whole the truth varied from the man concerned not having known the patient at all to his having made positive advances without any commitment. In only two male schizophrenics was this kind of delusion present.

In the anxiety group two women had broken down following straightforward love disappointments, and another had been seduced by a married man under the impression that he would leave his wife and get a divorce. One man had left his wife for another woman, but the other woman had gone off with a new man and this had proved intensely traumatic. These were the main findings and compared with four schizophrenics whose illnesses followed real love disappointments and two more whose illnesses came on some months after the deaths of the husbands.

Next in order were delusions concerning the sexual organs, seven women believed that their genitals were drying, rotting, anaesthetic, interfered with at nights and/or affected by inexplicable means, and five men were sure that the penis or testes were dilating, shrinking, twisting or rotting, affected by rays or potions, with or without syphilis or cancer and producing loss of virility. Seven women and four men had delusions concerning animals, e.g. "Anyone walking towards me with a dog causes me to wobble because the dog recognizes my sexual abnormality". Both sexual organs and animals have been mentioned under the 'loosening of repression'.

Delusions of bodily changes were expressed by seven, "My brain is settling into layers", a belief supported by diagrams, "My face, tongue and throat are becoming more and more distorted", in two the brain was rotting and three others had an absolute conviction of a loathsome bodily disease. Four patients expressed their failure at work as a result of fellow workers conspiring against them, four more had day-to-day delusions concerning the immediate environment, the B.B.C. (4), newspapers (3), television (1), were represented and at least seven had delusions of grandeur and were involved in matters of global importance. Several revealed utterly bizarre delusions in the presence of social composure and easy adjustment to a protected environment, "I am the heroine of T. S. Eliot's *Cocktail Party* and I am Lord Byron", and "I have been approached to take a leading part in approaching Mars by rocket".

Duration of Illness before Diagnosis

It is usually difficult to estimate when the illness began, because sometimes several years have elapsed between the first breakdown and the second or third and sometimes it could be argued that the patient had had, say, an hysterical

illness which was nothing to do with the present schizophrenia and I have tried to bear this in mind. Generally speaking, the fuller and more reliable the history, the earlier suggestive symptoms appeared.

The following table is correct as far as I am able to estimate.

TABLE VI

	Schizophrenia		Anxiety Patients	
	Duration of Symptoms	Diagnosis Known	Duration of Symptoms	Diagnosis Known
Under 1 year	0	19	1	14
1 to 2 years	8	8	29	23
2 to 5 years	12	14	8	15
5 to 10 years	18	16	11	8
Over 10 years	23	4	12	1
Average	7½ y.	3½ y.	5½ y.	2½ y.

There must be added to this that very often pecularities were clearly present during childhood.

False Diagnosis

In less than a quarter of the patients in this series was schizophrenia the first psychiatric diagnosis. There are good reasons for this, there is not only the reluctance to mention such a serious diagnosis if evidence is only suggestive, but in the absence of severe basic symptoms or of acute episodes the condition may be indistinguishable from a psychoneurotic reaction. Neubauer and Steinert (1952) drew attention to the many schizophrenics thought to be neurotic or schizoid. Moreover, clarity of thought, planning ability, insight, reliability concerning the personal history and the easy recognition of absurdities, are qualities which vary considerably in terms of endowment and since the disease usually involves a slow reduction, this is at first extremely difficult to detect; if the disease becomes arrested it must often pass permanently unrecognized. Sometimes there is a series of different diagnoses over several years, in one case hysteria, then depression, then mania, then recurrent mania and finally schizophrenia; in another patient hysteria, then psychoneurotic depression, then psychotic depression, then schizophrenia; and in a third, psychoneurotic depression, depression, obsessive-compulsive neurosis, depression again and finally schizophrenia. Many patients had had considerable psychotherapy with or without sedation, one patient continually for three years and another for four years, in no way to their detriment as far as I know (see treatment).

TABLE VII

Previous Psychiatric Diagnoses

(These are certain, there were probably more)

Anxiety State or Psychoneurosis	8
Psychoneurotic Reaction	3
Inadequate or Schizoid Psychopath	14
Psychopathic Personality	1
Obsessive-compulsive Psychoneurosis	12
Phobic Reaction	6
Hysteria	19
Depression	13
Hypomania or Mania	6

Anxiety State

Studying the early symptoms in retrospect it is usually clear that anxiety arose out of the basic symptoms. In five cases given this diagnosis the previous personality was not anxious, the personal record and intelligence were good and there were no precipitating factors other than "He took a dislike to a certain master" or "He suddenly got fed up with his job".

The ordinary symptoms of anxiety were present, easy fatigue was noted in 55 patients and under the circumstances of this investigation this is practically 100 per cent. Insomnia was noted in 36, indecision or loss of confidence in 48 and bodily pains, headaches and attachment of fears to possible bodily diseases were all common, while physical changes such as pallor, increased pulse rate, increased perspiration, sugar in the urine and so on were frequent at this time. The anxiety was often mixed with depression, and occasionally additional shyness, withdrawal or apathy had been put down to general inadequacy. The basic changes were often hidden because any acute nervous illness may produce for the time being the same clinical effects.

Judging mainly from those seen in a state of anxiety but to some extent from the histories studied and from relatives' statements, there are certain points which would help to suggest schizophrenia.

1. In addition to the fear already discussed, the patient is both more restless and less expressive (restlessness was a noted symptom in 49 patients in this series).
2. There is a more 'forward-looking' failure, the future may even look terrifying.
3. There is more perplexity and bewilderment.
4. Moodiness and inexplicable bursts of temper and crying are more frequent.
5. If hints are followed up there is more evidence of blame attachment to parental restraint or other interference which is not substantiated on enquiry or of contradictions of a kind which would not continue with an anxiety patient, e.g. "I am gradually getting worse under your treatment", not as a sudden protest but as a prolonged attitude without even the suggestion by word or deed that the relationship should be terminated.

As the disease progresses the anxiety generally lessens and the patient may achieve a remission, always at a level lower than the performance at his best period would indicate and sometimes at a much lower level. Alternatively the anxiety may continue at a bearable level in terms of odd psychosomatic complaints, and given reasonably regular help the patient may go along fairly well for some time. I have been struck in this series by the number of patients who have made satisfactory adjustments for long periods when they are given the opportunity to continue partial dependence on a psychiatrist or a general practitioner.

Obsessive-compulsive Psychoneurosis

The psychoneurotic symptomatology is frequently mixed and here especially anxiety and depression were usually obvious. The standard framework was present, 'A catastrophe involving other human beings is threatened for which I shall be responsible and which will be followed by awful retribution', with guilt and possible aggression. Given a personality with an obsessional loading, there is a natural fit here, the inability to plan and the difficulties of thought are easily exhibited as obsessional indecision and ambivalence and doubts are quickly exposed.

The diagnosis may be impossible at first, but the schizophrenic patients tended to be younger, the attitude 'I know how ridiculous it is' was less marked, there was more compulsive thinking about the frequency with which the patient was brought into contact with tubercular or otherwise infected people and there was an increased tendency to be caught up in ruminations about insanity, syphilis, cancer and bodily distortions and to believe in their existence. The ruminations tended to be more odd, "I am always thinking of the horrible reality that ectoplasm exists", "Do I see what I see, is it really real", "I feel the threat of spectrum analysis, proper light can disappear". Bewilderment and perplexity were more marked. Sargant (1953) has drawn attention to this difficulty in diagnosis.

Phobic Reaction

E.g. A woman who had been an extremely promising girl at her secondary school, head prefect and captain of games, after losing her boy friend to another woman was invalided from the W.A.A.F. at 26 in 1944 with an obsessional conviction that she had a cancer near the heart. Repeated X-rays and investigations followed her into civil life where she settled down to a humdrum job. After a year or two she became attached to another man whom she met as a friend of her brother's, but she developed the fixed idea that he had it in his mind to kill her and she rejected him and was bitterly disappointed with her family when they continued to be friendly with him. It is easy enough here to see the symbolic cancer and the identification of love with the threat of death, but she continued to make no progress whatsoever in her working life, in fact her ability to obtain junior posts suffered increasing interference by ideas of environmental hostility. Not until 1955, when she was 37, did other delusions become obvious, although it became clear then that they had been developing for a long time.

Hysteria

The theme 'I am unfairly neglected and unloved' develops into active symptomatology which is indistinguishable at first from that seen in hysteria, and one met not only day-to-day manifestations but special syndromes like fugue and amnesia, of which there were two examples in this series. As with hysteria proper, fears may be successfully resolved by the illness or the underlying anxiety may be plain. The shifting of phantasy towards belief is common to both but in schizophrenia the ability to recognize the ridiculous is less and the changes are more widespread, rapid and permanent. In this series the diagnosis was most frequently made following the exhibition of impulsive conduct, flightiness, the engineering of scenes and crises, the throwing up of jobs and general histrionic behaviour with covert aggression. The most common missing item was any recognizable aim other than the general demand for attention and the infliction of punishment on the environment. Prolonged dramatic silences are twice recorded but these may have been derived directly from the basic symptoms. In schizophrenics the remark so often heard from hysterics, "I cannot concentrate or think" may prove eventually to have a factual significance.

Where the hysterical pattern was preserved, sooner or later conduct became inexplicable in terms of hysteria, there were impulsive attacks upon strangers, unexpected and embarrassing declarations of love, imperious or threatening demands upon the police, clergy, doctors and so forth, patients suddenly walked naked into the night or made suicidal attempts. Ziegler and

Paul (1954) followed up 66 hysterics diagnosed at the Boston Psychopathic Hospital and found 22 psychotic, of whom 12 were schizophrenics.

Dramatic symptoms which could have brought up the question of hysteria appeared in the histories of 40 patients; about two-thirds of the series were more than averagely sorry for themselves during the period of observation.

Depression

Two kinds of depression occurred, a reaction to the basic symptoms and a manic-depressive swing.

The patients were typically depressed, slow and inactive. Suicidal attempts or gestures had been made by nine, and three more were suicidal enough while under my observation to make me anxious on this point. Among the non-schizophrenic anxiety patients only one man and one woman had made suicidal gestures. Talk of suicide and death was extremely common not only among depressed schizophrenics, but generally in the whole group.

The points of difference noted were more sensitiveness and withdrawal from the environment, and some showed a demanding, dramatic quality. Loss of appetite was less common. There was also more surprise and fear associated with the ideas of death than in true depression, with at the same time a clinical feeling that the patient was more apathetic about it, "Death to a cancer case can be a blessing, why shouldn't it be for me". The depression was more often mixed with a desire to do good, a naïve compensation for feelings of guilt, in the fields of religion, medicine, nursing or a vague 'something'. This was noted in other reactions as well and so was the possibility of clearing or smouldering spasmodically.

Mania

The typical syndrome of elation, flight and psychomotor activity coming as an explosive rejection of the incapacity, occasionally with a great increase in sexual activity. Depression alternated twice.

Depersonalization

This symptom was commoner if one sought for it specifically. It was marked in six and was the presenting symptom in two.

Fits

Two patients, one of whom had a strong family history of epilepsy, had had fits.

Alcoholism

Two patients with marked anxiety and depressive symptoms had been treated for alcoholism. Three patients expressed strong fears of taking alcohol because of the danger of losing control.

It will be clear that the diagnosis of schizophrenia is usually missed at first and I think that milder forms of the disease are much commoner than is suspected and that the diagnosis is sometimes dropped unjustifiably, e.g. a patient of 40 who had twice previously been in a mental hospital with a diagnosis of schizophrenia arrived at St. Ann's with a psychiatric description 'There is no present evidence of her previous psychosis and her physical condition is satisfactory, but she is very neurotic', although the patient had weird delusions and incapacitating thought disorder, to say nothing of severe ulcerative colitis.

Where is the Lesion?

It is difficult to imagine that the basic symptomatology is not organically determined. There are several in this series who enjoyed happy childhood homes, who grew up in healthy surroundings with every prospect of satisfaction and success, who were out-going, active and competent, virile and well-formed or gay and lovely to look at, until they were struck by this disease of devastation and became people tortured and terrified by a brain that would not do its job, that distorted their reasoning and falsified their memories, and who were only saved the agony of deterioration by a merciful reduction in the depth of emotion and by the failure of insight. The fact that legal definitions and legalized control have occupied such a prominent place in the history of schizophrenia has tended to make the diagnosis dependent on evidence of 'Insanity', even among those who are clearly aware that these legal requirements should have no direct bearing on the picture of the disease. It is as if special and painful seclusion was necessary for any sufferer from tuberculosis whose disease was 'open' as recognized by, say, the spitting of blood, with a consequent reluctance to make the diagnosis in its absence.

This position has been accentuated by the acute phases when hallucinations are so common together with clouding and extraordinary behaviour, as well as by the fact that so many schizophrenics suffer for years from persistent hallucinations which would be distracting to anyone and which cannot be contained in association with a working life by a patient with the basic defects.

The present series of cases has the advantage that treatment did not involve even the signing of a voluntary form and that both the persistently and disturbingly hallucinated and those suffering acute phases were absent, although the majority had suffered acute phases during the course of their illnesses, so that one is really examining the schizophrenic 'cures' who are showing residual or new symptoms together with very early cases in whom at first the diagnosis is in doubt.

Of the basic symptoms, the failure of planning stands out because it is such an accepted symptom of frontal defect (Penfield and Evans, 1935). Penfield and Jasper (1954) state that stimulation of the frontal lobes does not produce the dramatic evidence of function revealed by stimulation of the temporal lobes, but the fleeting distortion of planned initiative in a patient on an operating table would hardly be expected to do so, although the same patient would soon run into trouble during the ordinary business of life if his planned initiative was distorted and his 'understanding of the future consequences of present action' was seriously at fault (see Penfield and Jasper, 1954, quoting Denny-Brown). Besides, Penfield and Rasmussen (1950) never produced speech by direct stimulation anywhere, and words are the symbols of ideas; moreover this extraordinary silence follows stimulation of parts of the brain the bold cutting of which has had to be stopped in psychoneuroses because of the devastation of character which follows, although they can still be heavily incised with impunity in advanced schizophrenics. Again, Penfield (1952a) says that the temporal cortex is obviously necessary for the interpretation of current experience, since minor temporal seizures may produce misinterpretation, but he does not add the equally obvious possibility that the frontal cortex may be hard put to interpret abnormal discharges in the temporal lobes.

Again it was impossible not to be struck in this series by the general progress towards a lack of normal restraint, with easy discussion of sexual matters, a lack of consideration for others, rudeness, greediness, selfish demands and the absence of effective self-criticism, all of which are so typical of the more severe

sequelae of prefrontal leucotomy. This is camouflaged to some extent, first of all forms by the fact that every degree of disease is possible and that sometimes an acute and severe illness ends in what is tantamount to a complete recovery, and secondly by the possibility strongly suggested here that many schizophrenics are superior people to begin with. In many of them good qualities endured in an extraordinary manner. The opposite is true as well; a devoted mother said of her daughter "She was never popular with her brothers and sisters, she always took it for granted that she must have everything her own way" and this is by no means unusual. One schizophrenic mother actually inducted her fifteen-year-old daughter into taking increasing doses of sodium amytal. Again, the release of unconscious hostilities against the parents is evidence not only of such unconscious hostilities but of a failure on the part of patients to weigh their feelings against their obligations and the total situation. Uninhibited spitefulness was much more frequent than among anxiety patients; it was shown against the parents five times, against the married partner seven times, against other members of the family four times and five times against fellow patients. As well, there was indifference to the suffering of others, especially of parents in the face of the patient's illness, in 24 patients who were clear-minded within their limits and reasonably socialized. Lying and cheating at games were observed during the early stages but insufficiently for figures to be of any value, and in general schizophrenic patients tended to *lose the ability* to lie: chronic cases were extraordinarily truthful if allowances were made for their delusions. Nine schizophrenic patients had abandoned or changed their religious faiths, excluding 15 whose early agonies had engendered doubts, several switched about from this cult to that, and the majority was indifferent to any religious appeal, although a few chronic patients, were helped considerably by simple, unquestioning faith.

The distinctive deterioration associated with extensive loss of frontal lobe function has been known for nearly a century. It was described by Ferrier in 1878 (see Russell, 1948), underwritten by Hughlings Jackson (1884), stressed again by Bianchi (1922), by Gordon Holmes (1931) and more and more frequently as time went on, by Brickner and Tilney (1936), by Halstead (1947), by Ackerly and Benton, Rylander, Yacorzynski *et al.* in 1948 and by many others, while the description of the effects of severe bilateral frontal lobe damage given by Martin and Elkington in Price's Text-Book of Medicine (1946) could hardly be bettered as a picture of the more deteriorated schizophrenics. There is a fading-out of the sense of adult responsibility, impoverishment of thought, an inability to plan the use of retained knowledge, emotional flattening and loss of drive, accompanied by a failure of insight. But havoc arising from '. . . la fragilité bien connue du cerveau préfrontal, tard venu dans la phylogénèse', to quote Messimy (1953), or from a more freely accepted pathology, in the absence of reflex changes, is missed repeatedly, as Klages (1954 and 1955) and Faust (1955) have shown. It is suggested that the same clinical picture is standard in chronic schizophrenia, with additions which will be mentioned.

Money sense was defective in 19, sometimes chaotically so, and the sense of any need for punctuality (or the time-sense) was reduced in another 17. Every anxiety patient was conscious of the changing picture wrought by the passage of time, but many schizophrenic patients were quite unaware of the problems raised by long absence from active existence. I would judge that twenty-nine patients had less than the average sense of humour and this defect was much more marked than in anxiety cases. A few had preserved a macabre sense of humour with little sense of fun. The well-known 'witzelsucht' occurred

in five, e.g. ". . . poor fellow in Wormwood Scrubs, Shepherd's Bush, I hope he will find his shepherd under the 'bush' before the worms scrub him out", "I am a lun-atic, striving for the moon—lune in the top room—attic", "His name is Playfair, some call him Play Foul, one could have Foul Play ending up with Fowl Pest". With the pathology of Pick's disease in mind, this series showed several examples suggesting a progressive failure in the command of words without any impairment of the mechanism of speech, exhibiting examples like those described by Petrie (1952) after prefrontal leucotomy. In many advanced cases in mental hospitals this has progressed to jargon aphasia, but it is called 'word salad'.

The view that the frontal lobes are at least part of the areas diseased in schizophrenia receives strong support from the effects of leucotomy, especially in those with few hallucinations and of good basic ability. Some of the most striking improvements I have seen have followed posterior leucotomy and this becomes understandable if one supposes that remaining healthy brain has improved its performance. The most extensive prefrontal operations produce no change in very deteriorated schizophrenics and I can report that in mental hospital wards for the most chronic patients the leucotomized cannot be distinguished from their fellows. Couston (1954) describes a group of mental defectives as being just like leucotomized mental hospital patients.

Gellhorn's extensive work (1953) makes it a reasonable proposition that in schizophrenia the lateral and posterior hypothalamus is either affected as part of the disease or is disordered by the disease. The lateral and posterior nuclei have developed throughout the mammalian series *pari passu* with the neocortex both reaching the highest development in man (Le Gros Clark *et al.*, 1938), and there is nothing more human than the depth and range of emotional response (Hoskins, 1946). But the extraordinary emotional shallowness seen in schizophrenia is not essential for the diagnosis and may be deceptive; to take one example from this series, the same woman who discusses deserting her husband and children for the love of a young fellow who is hardly aware of her existence craves and enjoys sexual intercourse and can become bitterly hostile and angry; it is not her emotional responses which are at fault but their depth and range and linkage to a humanly adult level of integration. Patients who become almost unbelievably superficial may be in no way aloof or withdrawn and may chatter easily and be socially short of inhibitions; this could be said of at least nine patients in this series and four had changed from quiet, reticent people to out-going and boastful ones.

The most convincing evidence of hypothalamic dysfunction in schizophrenia is provided by the intense, uncontrollable emotional eruptions which characterize the early phases, so different from the mere lack of emotional control sometimes seen after prefrontal leucotomy. The subsequent emotional flattening *could* be visualized in terms of the failure of frontal function, but I favour the view that in part it is the result of hypothalamic failure. It should be noted that this series is very short of catatonics, the type of schizophrenics in whom one would expect the most severe damage to the hypothalamus.

Even remembering the total integration of brain function, there is a special intimacy between the frontal lobes and the hypothalamus (Le Gros Clark, 1938; Bailey and Sweet, 1940; Delay, 1947; Ward and McCulloch, 1947; Clark, 1948); in hypoglycaemia these two parts of the brain are the first to show evidence of dysfunction (Parfitt, 1937) and of course prefrontal leucotomy produces considerable vegetative changes (Rinkel *et al.*, 1947; Fulton, 1951). Dysfunction in the hypothalamus is very unlikely to be the sole cause of schizo-

phrenia in view of the variety of gross and even fatal diseases which can develop there without producing clinical pictures even faintly resembling schizophrenia (Le Gros Clark *et al.*, 1938; Wechsler, 1953), but a degree of dysfunction is likely and would go far to explain (see Harris, 1955) the almost uniform glandular functional abnormalities reported in schizophrenics side by side with repeated reports of glandular normality. Regarding glandular diseases, again they can be of such variety and malignancy without producing anything like schizophrenia (e.g. the pituitary, and almost every other gland, can even be destroyed totally provided substitutive therapy is devised), that the essential pathological processes can hardly lie among them, although they may share in the generalized biological substandard which may characterize at least the more severe forms of schizophrenia.

Penfield and Jasper (1954) mention hallucinatory experiences many of which are typically 'schizophrenic' except that they are easily described by the patient, episodic, associated with epileptic foci in the temporal lobes and with recognizable epileptic phenomena, reproducible by stimulation and relieved by appropriate excisions. Penfield and Jasper look upon the temporal lobes as store-houses of rememberable experience. The diagnosis of schizophrenia is not suggested by the total clinical picture they describe, there are schizophrenic symptoms without psychosis. Hallucinations may not occur in schizophrenia and in the form of intense sensory phenomena are often of short duration, leaving only memories. Once more heightened abnormal activity followed by loss of function is suggested.

A search through Critchley's monograph (1953) reveals few symptoms characteristic of schizophrenia which could be attributed to the parietal lobes, although Hanfmann (1939) described a reduction in the comprehension of spatial relationships.

The clinical evidence suggests that large areas of the frontal and temporal lobes and something of the parietal lobes together with the posterior hypothalamus are affected in schizophrenia. (I favour the view that actual dysfunction as apart from failure of function in the frontal lobes is an essential element in any psychosis. Subtract from the clinical picture of general paralysis or Huntington's chorea all those signs and symptoms for which an explanation can be given in terms of local brain pathology, including Penfield and Jasper's temporal lobe effects, and you are left with something very like paraphrenia. This is diagnosis by exclusion, but it supports the importance of disordered frontal lobe function in schizophrenia.) Symonds (1931) pointed out that mental symptoms occur in the early stages of lesions in the 'silent' areas, and Miskolczy (1938) suggested that those areas of the brain are affected in schizophrenia which are particularly human, and described changes most marked in the prefrontal and inferior temporal areas. Von Bonin (1952) stressed the parallelism in the development of frontal and temporal lobes in primates and the astounding homogeneity of the cerebral cortex of man, certain well-known areas excepted, so that one has to view cerebral localization against the holistic possibilities demonstrated by Lashley (1929) and supported strongly in this country by Golla; intelligence in its widest sense is a function of the whole cortex, if not of the whole brain and, as Halstead (1947) has pointed out, at most can only have its maximal representation in the frontal lobes, even loss of insight concerning loss of function is found after brain damage further back (Critchley, 1953).

Rose (1927), Papez (1937), Grünthal (1947), MacLean (1949 and 1954), Le Gros Clark and Meyer (1950), Gastaut (1953), and Meyer and Beck (1955)

among others have developed the knowledge of the importance of the hippocampus in human brain function and of the associated circuits connecting the frontal and temporal lobes with numerous other smaller brain parts, including the hypothalamus and thereby involving the autonomic nervous system and the ductless glands, especially in relation to emotional expression, including sexuality. The integrity of the hippocampus is essential to the highest forms of intellectual performance, but the clinical evidence linked with the pathology of the hippocampus does not call schizophrenic phenomena to mind.

In fact, however advanced and chronic schizophrenia may be, large areas of the brain continue to work very well: a deteriorated schizophrenic can put up on occasion an outstanding physical performance involving exact sensory discrimination and including the immediate interpretation of special sense stimuli, his reflexes are normal, there is no tremor, rigidity or involuntary movement, no hypotonia or loss of equilibrium, he makes no errors of range or direction, he is oriented in immediate space and time, has constancy of sense perception and perception of movement, he eats, drinks, sleeps and can be stimulated sexually. Furthermore he may have a fair measurable intelligence and a well-stocked memory. He wakes easily and can become alert enough to those matters which retain his interest, so that it is difficult to implicate the thalamus, necessary though this is to a properly functioning prefrontal cortex (Cairns, 1952), the ascending reticular activating system (Moruzzi and Magoun, 1949; Magoun, 1952) or Penfield's centrencephalic mechanism (1952a). To quote Penfield, '. . . lesions, however large, which are restricted to the cerebral cortex do not abolish consciousness, although they may modify its content'. Schizophrenia is a disease which does not abolish consciousness but which modifies its content. Turner (1955) has written on these matters and ends by looking towards the frontal lobes. In fact it is difficult to better Miskolczy's concept of schizophrenia as a disease of those areas of the brain cortex which are particularly human, to which I would add the posterior hypothalamus, a concept which explains why schizophrenia is not found in very young children (Schurmans, 1952) before they have begun to leave the chimpanzee behind in the direction of human supremacy (Katz, 1937).

What is the Lesion?

There is no present answer to this question, but valid reflections are possible. The following table shows how heavily the schizophrenic families were loaded with psychosis as compared with the anxiety states.

Table VIII

	Schizophrenia	Anxiety
Psychotic mothers	6	2
Psychotic fathers	10	0
Psychotic siblings	14	1
Psychotic others (children, uncles, aunts, grandparents, and cousins)	17	3
	47	6
And schizoid brothers and sisters	6	0

The significance is overwhelming, and a genetic factor or factors can hardly be doubted (Kallmann, 1938). In 1953 Kallmann published evidence suggesting that identical twin homosexuality concordance was almost 100 per

cent (44 of 45, the exception being a schizophrenic exhibiting homosexuality and alcoholism), whereas the identical twin concordance for schizophrenics is less than 86 per cent. (Garrison, 1947), a high figure but one indication that postnatal factors have importance.

TABLE IX

	Schizophrenia	Anxiety
Psychoneurotic mothers	4	6
Psychoneurotic fathers	5	5
Psychoneurotic siblings	1	5
Alcoholic parents	1	8
Parents with psychosomatic complaints	2	13
Mother unusually dominant	2	6
Mothers with unusually violent tempers	4	2
Mothers oddly cold	5	2
Fathers oddly cold	9	2

N.B.—"psychosomatic" complaints include hyperthyroidism, hyperpiesis, peptic ulcer, asthma, migraine, rheumatoid arthritis.

Only the general picture in this table is significant, with a suggested accent on emotional extremes and particularly emotional flattening in schizophrenic parents. Thirty-six mothers of schizophrenic patients provided no evidence of personal abnormality whatsoever and many were models of understanding and affection. From the evidence I have been able to gather, the conception of schizophrenia in terms of maternal rejection appears quite unwarranted and this supports a more detailed enquiry on this point made by Nielsen (1954), a paper by Anderson (1952) who was forced by her experiences with schizophrenic children to reject the 'guilty mother' theory and find for an organic defect, and a paper by Oltmann *et al.* (1952).

INFANCY AND CHILDHOOD

TABLE X

	Schizophrenia	Anxiety
Maternal pregnancy troubles (1 premature, 1 toxic)	2	0
Patient 'highly strung' or nervous as a child	9	10
Physiological irritability more than average. (Bed wetting, stammering, nail biting, etc.)	12	9
Patient 'inadequate' from infancy	8	8
Infantile stress and deprivation	31	27
Patient considered 'odd'	14	0
Only child	18	18

Infantile stresses and deprivations include parental inadequacy, abnormality, cruelty, separation or desertion, serious disorder or death of one or the other, children brought up away from home, intense hostility in the family, illegitimacy, etc.

'Oddity' was confined to the schizophrenic group and would seem to represent strong evidence of some constitutional defect, since several parents of the children in this group were of excellent quality and understanding and some of the children in their adult years were clearly aware that as children they had been unable to share the warmth of family affection which was available to them. Some descriptive phrases which characterized such children were 'She never wanted to be kissed like her sister', 'The most exciting things would happen but she was not interested', 'He was so cruel to his baby brother but

he simply could not understand', 'She was never happy like other children', 'Even when his sister died he hardly seemed to know', 'She never made friends', 'She was always different and odd', 'I never knew how to treat her, she was so cold and yet so hurt'. The more reliable and detailed the childhood history the more likely was one to find a difference from normal of this kind. Lauretta Bender has been developing her views of a disorder of maturation at embryonic level, a kind of genetic encephalopathy, over some years (1952, 1954, and see Hendrickson, 1952) but I cannot support her views concerning the crisis of birth and later tension-situations.

The childhood oddity and emotional coolness, where it existed, often led to an unhappy school career which was suffered rather than enjoyed, although unhappy school years were equally common in anxiety patients. Commoner in schizophrenic histories were school incidents, e.g. refusal to sit examinations or the development of faints before them, which occurred in six as compared with none of the anxiety patients. Nielsen's schizophrenics showed less than average ability at school and made fewer friends and this series confirms the latter point. Some schizophrenics were aware of and felt somewhat guilty about their lack of affection for parents, "I felt I should love my mother more, I wanted to and couldn't" but others were unaware of the perplexity and unhappiness produced by their peculiarities.

Preliminary Brilliance

Of all the findings in this investigation I have been most struck by the period of exceptional brilliance which developed so often during adolescence, particularly since I came to this enquiry with the knowledge that years ago schizophrenia had been thought often to affect the brilliant and gifted but that intelligence tests had shown this to be a false impression. There is some evidence that a similar phase sometimes occurred during childhood, not only in that schizophrenic children were often unusually imaginative, 'Not half of what she says has ever been true', 'I have never known when to believe her' and so on, but also in that several of them were unusually precocious and this phenomenon was confined to the schizophrenic group. Three children were spontaneously described as having been unusually gifted with their hands and they were all schizophrenics. However, it was difficult to demonstrate such occurrences with certainty but there is no doubt whatsoever that during adolescence and early adulthood a period of heightened and unusual ability developed in at least fifteen of the schizophrenics being studied.

Although only fourteen schizophrenics could be described as having had no unusual features in their histories before evidence of mental illness developed, nevertheless thirty-one could be described as having been at least averagely out-going and social before the illness was suspected as compared with only seventeen anxiety patients, and some were gay, confident and capable to a degree not met with at all in the anxiety group, moreover a few carried far into the disease a personality exhibiting bonhomie and social grace quite distinct from the uninhibited brashness of many chronic patients. On the other hand twenty-seven schizophrenics were described as shy with the opposite sex compared with sixteen anxiety patients and the information was volunteered about sixteen schizophrenics that they had been moody and seclusive but this was said of none of the anxiety patients, although this may be partly explained by the disease itself.

The patients who exhibited the brilliance being described began to forge ahead often in the most unexpected way, especially in studies, although there

were occasional special subject gaps, and often in games as well, for instance altogether nineteen of the schizophrenic patients had been unquestionably better than the average at school games compared with seven anxiety patients. But this rocket progress from obscurity, reaching a spreading cascade of brilliance, dissolved again into the shadows.

The bright period was commonest during the years covered by the first year in the sixth form to the second year at the university; ten schizophrenics had spectacular school careers compared with one anxiety patient, an insecure homosexual; then the grandiloquent certainties of the sixth form concerning religion, politics and economics would suddenly become perplexing, or later the exciting exploration and discussions at the university would become a confusing experience from which the patient had to withdraw. "The whole business is stupid and I refuse to go on."

The schizophrenics included two girls who won scholarships to Oxford, although one never reached the University, one man who won a Cambridge scholarship and another a London University scholarship after an extraordinary school career, but the others were equally striking in different ways: for instance one whose school report included 'He writes Latin even more freely than he does English', and who seemed certain of a classical scholarship, began to crumble unaccountably during the last year or so at school. Another with a brilliant school record at work and play gained a commission during his National Service, but returned to increasing bewilderment as a failing student before levelling out at an altogether lower level of achievement. Of the fifteen, six were only children, five had one sib and four two, none of the thirty parents or the thirteen sibs had ever stood out in anything like the same way. The anxiety group had only one Oxford scholarship (the man mentioned above) to put against this preponderance. Seven schizophrenics had exceptional talent in the fields of music, painting, sculpture, etc., compared, with only one in the anxiety group. Fitzherbert (1955) has recently reported three schizophrenics whose illnesses began with a surprising increase in measured intelligence and I can add my conviction that this is by no means a rare phenomenon.

The physical appearance of the favoured schizophrenics matched their intellectual superiority. I had the names of all the schizophrenics (thus diluting the physical attraction under consideration) and of all the anxiety patients typed on separate sheets of paper marked A and B and I handed the two lists to a Sister who had known most of them and asked her to take them away and mark the group which, if she found them at a dance or met them on some social occasion she would feel were the more gay and attractive. Her opinion was decisive in favour of the schizophrenics, but she added that some of the other patients were better fun, some of them used to 'keep their dormitories in fits', thus making a voluntary comment on another schizophrenic defect. More schizophrenics started careers in the fields of service to others, religion, medicine, nursing and so on.

Many of the brilliant schizophrenics went on to a full psychosis (i.e. became long-term mental hospital patients), six levelled out below the mediocre. It is a tragic experience to see someone lively and attractive just missing a human peak and falling away to become a coarser person in almost every sense of the word.

The intellectual facilitation is reminiscent of the extreme acuity of hearing and of vision, including a heightened appreciation of brilliance of colour which I have previously observed for a period in schizophrenics both in the natural

course of the malady and while recovering from insulin comas; I have met this also in normal people recovering from anaesthetics and in atropine poisoning (Parfitt, 1947), and of course it is a feature of mescaline and other intoxications. It has also been suggested earlier in this paper that there is evidence of intense overactivity in the hypothalamus before emotional flattening develops.

This brings one to the question 'Why are the dramatic symptoms of schizophrenia so rare in diseases of various kinds affecting the brain areas which it is being suggested are failing in schizophrenia?' It is now suggested further that not only is the extent of brain affected unusually extensive (and at the same time peculiarly limited), but that the disease first facilitates brain function sometimes to an extraordinary degree, and that between this facilitation and the eventual abrogation of function there is a period of widely varying duration when there is *dysfunction*, a dysfunction which I can only compare with the paraesthesiae which lie between hypersensitivity and anaesthesia.

Recently I drew attention again (Parfitt, 1955) to the dramatic clinical crises which occasionally developed during the deep insulin treatment of schizophrenia and which are truly remarkable, even inexplicable, unless seen against some such background as is being painted here. The two outstanding facts are firstly that the 'irreversible' coma develops when the greatest care is being taken to avoid this very development and almost uniformly as a sequel to the first or an early coma when this state is merely allowed to be reached before being terminated; and secondly that in proportion to the duration of the 'irreversible' coma and the mindlessness which follows, so will the eventual result be best. The young lady described in the paper to which reference has just been made (Parfitt, 1955, Case 2) who hung between life and death for several days and who then improved at first to a state of painful dementia which gradually gave way to a state in which she was able to become independent, has, since that paper was published, doubled her income and filled in her holidays with extra work (not under my advice) besides improving in every way, although never reaching the fullness of her youthful promise. It is difficult to interpret these events, spread over several years, except by the hypothesis that during the development of the schizophrenic process there is a period of extreme sensitivity in certain brain areas and that if these areas become totally inactive then the remaining tissue can begin to expand its functions in a steadily progressive way.

Adult Stresses

TABLE XI

	Schizophrenics	Anxiety
Domestic 'hate'	8	23
Patient doing two jobs	1	9
Psychosomatic illnesses. (Ulcers, allergies, some skin diseases, ulcerative colitis, rheumatoid arthritis.)	6	16
Tuberculosis in the history	3	1
Traumata (serious operations, wounds, injuries, unusual war stress)	4	10
The patient's own frigidity (but many more anxiety patients were married)	4	8
Care of 'mental' or difficult relative	4	6
Love losses (deaths of married partners or children, desertion, genuine disappointments)	14	4

I think there is a tendency to over-stress 'stress'; it is almost always possible to find in any patient's story a rationale for the breakdown, but there is here this

difference that one never failed to make out a story for the anxiety patient whereas in nine schizophrenics the illness seemed beyond understanding whatever weight one was prepared to put on causes. In any case, the precipitating and contributing stresses are greater in the anxiety group, excluding personal 'love' losses. With every kind of patient stresses arise out of the nature of the illness itself, but this was outstandingly so with early schizophrenics. Massive adjustments to war (Hemphill, 1941) increase psychoneurotic reactions but not schizophrenia; a quiet simple culture, stressing filial piety and traditionally opposed to alcohol, has less psychoneurosis, alcoholism and psychopathy but not less schizophrenia (Tsung-Yi, 1953). Rheumatoid arthritis (Pilkington, 1955) and other 'stress' diseases are rare in chronic schizophrenics for fairly obvious reasons.

Chemical Toxins

Much has been written of a possible chemical causation in line with the very schizophrenic-like symptoms produced by mescaline, L.S.D., atropine, etc., and particularly adrenochrome as a possible abnormal body product, or rather as a normal body product which may exist in larger doses than normal. But if these are important, and well they may be, one still has to explain why the brain effects are so extraordinarily limited. Without exception, as far as I know, these poisons, like anoxia, produce not only more intense 'temporal' hallucinosis, and perhaps 'occipital', etc., than is usually found in schizophrenia, but also muscular inco-ordination, giddiness, severe malaise and other evidence of generalized effects, so that the greatest care has to be taken with dosage. Such toxins produce increased effects in acute schizophrenics but considerably less in chronic patients as compared with normals, a further fact supporting the view of heightened followed by diminished sensitivity.

Other Considerations

Miskolczy (1938), much helped by the work of Schaffer, with whom he wrote a joint book, described a necrobiotic process in schizophrenia in the frontal and temporal lobes particularly, especially the prefrontal and inferior temporal portions, and involving chiefly the third and fifth cortical layers with less damage in the sixth, second and fourth. Since I became aware of his work only after I had felt on clinical grounds that this was the distribution of the changes I have naturally been impressed by his findings although they have not been confirmed. Hoskins (1946) describes many possible defects in body structures, the most convincing of which are perhaps the vascular and capillary abnormalities demonstrated by Olkon (1939) and Pickworth (1952). Adrian (1954) and Murray (1954) make clear that brain pathology can be devastating in the absence of microscopically demonstrable pathology, and subtle biochemical and electrical changes may elude detection for a very long time to come, especially if the disease is a biological variant, as Eysenck's work suggests; his analysis throws up the possibility that the disease can develop when a hereditary combination which is an advance on both parents just fails to hold and involves the vulnerability which leads to catastrophe, either inevitably or because of extraneous factors not yet known; they could include even organismal invasion of the kind described by Papez (1952) or some other variety.

Von Bonin (1952) is sceptical about any kind of computing machine analogy, but the disease does give the clinical impression of a brain constantly trying to right itself at a lower level of performance in a manner analogous to a

disordered cybernetic system (Wiener, 1948; Ashby, 1954) which goes on cutting out part after part until a state of equilibrium is reached.

Treatment

In the complete absence of a method of reversing the unknown process it may still be possible to find a safe way of imitating the effects of 'irreversible' coma (Parfitt, 1956). Until then supportive psychotherapy consistently offered by the same psychiatrist, preferably one who believes that arrest of the disorder may occur at any stage and be followed by holistic improvement, is the most valuable form of treatment that can be made available to a schizophrenic at present (Mann, 1953; Bak *et al.* in the symposium in the *International Journal of Psychoanalysis*, 1954). The very long-term prospects are better than with many chronic brain degenerations, disseminated sclerosis for example, and it is a medical tragedy that humanity largely shrugs its shoulders at the tremendous possibilities of rehabilitation if observation and therapeutic help are never abandoned. Interest and medical confidence help any patient, of course, and the availability of someone who can discuss with acceptance and understanding family relationships and sexual developments in the exposed terms revealed to the patient will often tide the patient over until a remission occurs.. It is justifiable to make repetitive reassurances and explanations as authoratitive as the situation allows. The fact that thoughts can become beliefs means that a patient convinced of improvement at interviews can become certain that it has occurred.

Nineteen patients had had prolonged psychotherapy without a diagnosis, and on the whole the results seemed to me to have been good. The frequency with which this occurs makes it clear that large numbers of schizophrenics who have never had an acute episode are in fact being successfully kept going by psychotherapy until natural remissions occur. At the time of writing it remains the main form of treatment which is helping 45 of the patients to live away from hospital.

It is often possible to hold the patient to a reality situation by explanations which are simple and satisfying and which contain obvious truths, e.g. that the death of the mother, where this is so, has stirred up resentment against the father, that he had been more dependent on his mother than he realized, and that with worry about his health a kind of vicious circle had developed which had impaired his energy and his confidence, but that he must now begin to expand his active interests. Sometimes this can be carried on until there is a degree of stabilization, always at a lower level of potential achievement.

During acute phases especially it should be remembered that a child first learns to detect kindness and affection in the inflection of a voice and there is good reason to believe that this early response is still operative in states of severe confusion so that 'mothering' when genuine is invaluable. The patient's need for the equivalent of parental help is almost infantile. Three of the men in this series were completely uninterested in girls sexually, they longed only for mothering.

The fact that the disease process often becomes arrested at a level compatible with a social and working existence, and that psychotherapy in the form of understanding, affection and help is the most important and necessary form of treatment and is so often rewarding, has tended to blind many to the underlying failure of brain function which may possibly resolve but which is usually replaced by the quietude of partial loss. The greatest hope for the schizophrenic is that once mal-functioning tissue has ceased to function, then re-organization

and clinical improvement is possible, and this is the keystone of the attitude to the schizophrenic, that those who watch and wait are ever ready to help the natural process which could improve the performance of the victims in whom the disease has become arrested (see Neubauer and Steinert and many others concerning the recuperative potentiality of schizophrenics).

The rapport established makes physical treatments possible should they be indicated. A large proportion in this series have had periods in mental hospitals and usually intensive physical treatments which at least continue a doctor-patient relationship and encourage a justifiable attitude that improvement is possible.

Sedatives are absolutely necessary sometimes, and especially with manic-depressive attacks during schizophrenia if E.C.T. fails to help quickly, and prolonged narcosis is very useful. Eleven patients in this series had had a narcosis or modified narcosis, one of them twice and one of them three times. Largactil particularly and sometimes reserpine and sometimes both together seem to be genuinely helpful on occasions. If the disease tends towards stabilization with residual defect it would be expected that sedatives would become unnecessary, and this expectation has been illustrated by the present series, in contrast with the anxiety states. Drugs which may control hallucinosis are being tried (Fabing, 1955, etc.) and symptom control, as in epilepsy, may go a long way yet.

I have not been impressed with E.C.T. in early cases but in milder chronic forms, properly spaced, it acts as if a slowly spreading abnormality was repeatedly righted (Parfitt, 1942; Bourne, 1954). On one occasion in this series it appeared to break the patient's precarious hold on reality and precipitate an acute episode. Sometimes it helps insomnia and indirectly improves the general condition.

Excepting the extraordinary value of 'irreversible' comas, the chief value of an insulin unit is the socialization and camaraderie induced in a common severe experience as well as the fact that close attention is given to the patient while stabilization is being achieved so that rehabilitation follows naturally and more quickly (Gillman and Parfitt, 1938). As pointed out by Freyhan (1955) almost as big a proportion of schizophrenics become chronic as in Bleuler's time, but the discharge rate from mental hospitals is higher and more schizophrenics are being kept going in the community.

Thirty-eight patients in this series had had insulin coma treatment, mainly at Holloway Sanatorium. One patient had died during a second course elsewhere.

Occasionally patients who have become unemployable but have residual talents, or acutely disturbed patients of long standing in whom it is felt that there are still elements of a good personality and measurable intelligence and who are worried by few if any genuine hallucinations, can be improved by leucotomy. Two patients in this series went on to leucotomy, in both cases with good effect and I have seen many other extremely satisfactory results in such cases. Physical treatments however are to be viewed like the operative procedures in tuberculosis, and consistent supportive psychotherapy is the basis of treatment for schizophrenia, just as rest and guided living are the essential provisions for tuberculosis.

Synopsis

The paper presents a detailed analysis of 61 schizophrenics studied in an open hospital for the short term treatment of psychoneurosis during the two and a half years following May, 1953. Many of the cases had been treated by

me at Holloway Sanatorium during the years before 1953, but there were many recent cases including eleven who were under observation with the diagnosis of psychoneurosis for several months before it became clear that they suffered from schizophrenia.

In general the opportunities here have been to study the early and the residual symptoms of the disease. As a comparison 61 uncomplicated cases of anxiety state or psychoneurosis were analysed in so far as the findings could be compared with schizophrenia.

Five basic symptoms were found in every case of schizophrenia, which were absent in every case of anxiety. Almost everything which follows was observed in the complete absence of hallucinosis and clouding of consciousness.

1. Increasing difficulty in organizing thoughts.
2. Increasing failure to plan.
3. Increasing difficulty in separating past thoughts from past events.
4. Increasing failure to recognize absurdity.
5. Increasing failure of insight.

N.B. Since all these difficulties can be present to some degree in healthy people, it is the *increase in the difficulties* which is diagnostic when recognized. All these difficulties preceded the development of delusions, often by a very long time.

Eventually, in the large majority of cases there is a failure of measurable intelligence, with diminished ability to learn (which can be absolute) and difficulty in the use of words (which can go on to jargon aphasia).

There is also a loosening of repression so that discussion of sexual matters and of hatreds becomes considerably more free.

In the standard case there is the development of a special kind of mental defect.

Particularly in the early stages there are acute emotional disturbances, different from and more explosive than are seen in anxiety states and accompanied by veritable torment when insight is still reasonably well preserved. N.B. Both the emotional disturbances and the failure of repression may also occur long before delusions develop.

Hallucinations occur in considerably more than half of schizophrenic patients, and they are sometimes extremely intense, but more often than not only ideas and memories about hallucinations are finally left.

Clouding of consciousness is a frequent development in the acute stages of the illness, being most likely to develop when intense hallucinosis renders a patient with the basic defects unable to maintain his hold on reality.

Consequences of the Disease

1. Increasing failure of working ability.
2. Increasing failure of social relationships.
3. Increasing dependence on the family, the doctor, etc., despite whatever delusions may have developed.

Reactions to the Disease

Fear, either open or disguised as anxiety symptoms is uniform in the early stages, and may be complicated or not by the intenser emotional disturbance already mentioned.

Other normal mechanisms in the face of difficulty and failure, such as withdrawal, day-dreaming, denial of illness, suspicion and projection, developed.

Projection is particularly important because when the basic difficulties are bad enough delusions easily follow.

False Diagnosis

The disease is often undiagnosed for many years, indeed abnormalities in childhood are extremely frequent.

As already stated, the basic defects of function are not diagnostic until they are obviously increasing, since endowment varies so much. *As a rule* a false diagnosis is made at first, anxiety state, hysteria, obsessive-compulsive neurosis, depression, and so forth and treatment on the basis of such diagnosis may go on for years.

Where is the Lesion?

If only the failing ability to plan is considered, frontal lobe defect becomes obvious. (There is plenty of other evidence which makes this an inescapable conclusion.)

The lateral nuclei and the posterior part of the hypothalamus are probably affected (see below under Preliminary Brilliance). The temporal lobes are almost certainly concerned with the hallucinosis and there is evidence of some failure in the parietal lobes.

The damage can be summed up, as it was by Miskolczy, as damage to the particularly "human" parts of the brain.

What is the Lesion?

The evidence concerning hereditary and childhood abnormalities makes it clear that some "constitutional" basis is present (apart from the stresses produced by the disease itself; the schizophrenic histories show less stress than that suffered by anxiety patients). The 'rejecting mother' theory is quite untenable.

Preliminary Brilliance

There was some evidence that this occasionally occurred in childhood but certainly fifteen of the sixty-one schizophrenics had a period of very much heightened ability which can only be explained in terms of facilitation of brain function. This was followed by dysfunction and finally by arrest of function in those areas affected. This is in line with the intense hallucinosis and the complaint "Everything in my past has become so vivid and clear to me" to quote a patient I have seen recently; here again facilitation is followed by dysfunction and quietude. The chief evidence for posterior hypothalamic involvement is the intense, distinctive and uncontrollable emotional experiences which sometimes overwhelm the patients in the early stages of the disease. It is suggested that in varying order all the parts of the brain affected exhibit facilitation, followed by dysfunction (comparable to paraesthesiae), and ending with loss of function.

This is in line also with the extraordinary catastrophes which develop during the insulin coma treatment of schizophrenia under conditions of unremitting observation, and the even more extraordinary fact that in proportion to the mindlessness resulting the patient shows eventual striking improvement, facts totally at variance with experience with healthy people with islet-cell adenoma.

Chemical Toxins and Other Considerations

There may be much in the theory of chemical intoxication, but this still leaves the extraordinarily wide and yet extraordinarily limited extent of the

disease to be explained. The malady may be an expression of a biological variant involving instability or vulnerability to unknown factors. Evidence is presented to show that individuals who represent "superior" people as compared with their parents are most in danger, in other words, the disease may be in a limited sense at least an expression of evolutionary progress which does not quite succeed.

Treatment is considered mainly in so far as it underlines the considerations put forward by the paper.

Conclusion

The hypothesis is advanced that schizophrenia is an expression of an inborn defect in those parts of the brain which are particularly human, a progressive disease which throws regions of the brain into disorder and then out of action and which spreads usually from the frontal poles backwards, although it may start in the temporal lobes or in the hypothalamus, producing the various 'types' of the disease.

The disease often makes itself evident in infancy or childhood, more commonly in adolescence and frequently much later in life. The malady may be heralded by heightening of function, followed by dysfunction and brain 'paraesthesiae' and then, in most cases, by abrogation of function and a peculiar form of mental defect. Dysfunction in the hypothalamus initiates pituitary, suprarenal, thyroid and sex gland disturbances without actual disease in these structures.

The inborn error produces ontogenetically inevitable pathology or pathology made manifest by factors not recognized at present to be pathogenic, and the disease tends to spread in tidal fashion with periodic recessions during any one of which it may become arrested. It is suggested that schizophrenia would be better known as phylogenetically and ontogenetically determined encephalopathy (the shortened term *genetic encephalopathy* would probably cause no difficulty despite other encephalopathies).

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