PSYCHIATRIC HYPOTHESIS AND PRACTICE.*

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It is a very great honour to occupy the Presidential Chair of the Psychiatric Section of the Royal Society of Medicine; it is one which I appreciate most highly, and thank you warmly for.

It has been said that to preach is not merely the ambition, but indeed is in the blood of all Scotsmen, and that in whatever place they find themselves they are apt to think of it as a pulpit, and proceed to deliver a sermon or discourse. I trust that I shall neither be so ambitious nor so dictatorial. In the light of modern psychiatric practice I intend to try to answer in some degree whether it is always necessary, so as to effect progress, that theory and practice should keep in harmony with one another. I am attempting to do this from the point of view of a clinical psychiatrist who has now spent many years in mental hospital work, and has had the privilege of being a consultant and teacher. My contribution, therefore, must be essentially practical, must deal with the issues which have come prominently before me, and must have for its particular aim how most wisely to instruct those undergraduates and post-graduates who are interested in the wider aspects of medical practice, and perhaps in psychiatry as a speciality. To guide them aright is a very serious and responsible task. It means that fairness and discrimination require to be exercised, and that personal experience with the issues involved, whether of an etiological, diagnostic, prognostic or therapeutic nature, is absolutely essential. I have very little patience with those cold intellectualists who, on the basis of this, that, or the other hypothesis develop personal prejudices, constitute themselves into judge and jury, and then, to their own entire satisfaction, proceed to condemn and sentence all their colleagues who do not agree with them. Such an attitude is much too intolerant and arbitrary, and inevitably leads to bias, dissatisfaction, and greater prejudice. Most of us appreciate, the longer we work in psychiatry, how complex and difficult the field is, but nevertheless it has become far more attractive than it was formerly. This is evidenced by the fact that so many more young men and women taking up medical work are keen and enthusiastic to understand more and more about the fundamental aspects of psychiatry, and the psychological factors involved, whether they are going to become psychiatric specialists or not. They are swiftly recognizing that psychiatry has a message, an assured place in the medical hierarchy, and that the study of the whole man in relation to his

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environment constitutes a live dynamic issue which has, as yet, never been successfully grappled with. Yet it is only by pursuing such a course, and such studies, that we are likely to come to that fuller understanding of human conduct which may lead, eventually, to a more harmonious and more stable state of mental health.

I must not, however, press the above argument further, otherwise I should be led into a discussion of the whole problem of mental hygiene, of social psychiatry or "sociatry" as Moreno would prefer to call it, and of all the practical measures of a preventive and social nature which we must pay attention to. Instead I must hasten back to my more specific task. I shall strive to show that although psychiatry has occasionally been a little diffident, shy, wayward and temperamental, yet it has always remained true to the ideal of bringing comfort and care to those distressed in mind or body, and has not been so fickle as some would have us believe. As I have stated previously, I, like many of the rest of you, have had the responsibility of advising and guiding large numbers of students and post-graduates, and at the same time have required to gain and retain the confidence of well-informed medical and surgical colleagues, without whose co-operation progress would have been impossible. Perhaps then you will extend your courtesy to me still further if I venture to be a little personal. Let me add, however, that—

> "I am not one who much or oft delights
> To season my fireside with personal talk,"

but on this occasion amongst psychiatric colleagues and devoted friends I may be pardoned if I subscribe a background to what I have to say.

During my years of psychiatric training and practice I have had an opportunity to read about, listen to, and witness many changing concepts and ideas, I have seen the rise and decline of many forms of therapy, and I may even have taken part in somewhat violent and heated arguments in regard to the significance of this or that particular trend. Here and there we have had our great disappointments. Methods of approach, forms of treatment warmly acclaimed by their enthusiastic adherents have had their brief hour of glory, and then as their limitations have been realized they have tended to sink back into obscurity. But they have not been entirely unavailing; they have been honest failures, because all of them have had for their purpose the idea of progress, the thought that in some way a greater degree of human betterment could be effected, and even although the results may have been transitory, yet they were stepping-stones to further effort. Psychiatrists in general, I believe, have had a fair share of what my friend, Colonel A. D. Stewart, talks about as "disinterested intellectual curiosity"—the inquiring spirit which, I understand, led Archimedes to discover the science of hydrostatics, and Pythagoras to develop and perfect the pentatonic scale. McNeile Dixon, in his Gifford Lectures entitled "The Human Situation," has much to say on the same topic and mentions Pasteur, "who revealed the undreamt of universe of micro-organisms, revolutionizing the whole art of medicine, and Mendel, a simple parish priest, whose name does not even appear in a cyclopaedia of

1891, threw open the gates to the study of heredity, setting forth the laws which govern its mysterious configurations." And then when talking about the unconscious he writes: "The repercussions of the knowledge already gained of this underworld are only beginning to be felt in medicine. It will not end there; they will be felt further afield, in our legal system, in our treatment of social offenders, in our estimates of human conduct. It has only lately dawned on us that transgressors of the social code are as often sufferers as malefactors." It was surely just this same quality of disinterested intellectual curiosity which in recent times led Egas Moniz to formulate his conception of brain function, leading to a surgical operation which has contributed greatly to neurological and psychiatric knowledge. But more of that later. In the meantime let me cast your minds back into the not too remote past.

In 1907, when I was fortunate to obtain a place on Sir Thomas Clouston's staff at the Royal Edinburgh Hospital, I was introduced to a mental hospital organization which had been tried and tested and had not been found wanting. While there I came under the guidance of one of the most brilliant psychiatrists this country has ever produced. I refer to the late Charles Macfie Campbell, who eventually became Director of the Boston Psychopathic Clinic and Professor of Psychiatry at Harvard University. After his initial training in Edinburgh Campbell studied neurology with Pierre Marie in Paris, he worked on brain pathology with Nissl in Heidelberg, and he had received his clinical training in psychiatry with Adolf Meyer at the Psychiatric Institute, Wards Island, New York. He then returned to Edinburgh as an assistant physician at Morningside, and it was at that time that I came under his influence. I remember his infectious enthusiasm, his nimbleness of wit, and his great desire to bring all his great resources to bear in furthering the cause of psychiatry. He introduced me to the clinical formulations of Kraepelin, he laid great emphasis on careful clinical differentiation, and his case reports and summaries were a model of what such things should be. No one associated with him could help being influenced by such a vital personality. That was the period of descriptive psychiatry, when emphasis was laid on the careful recording of signs and symptoms, when the approach was objective rather than subjective, and when all our efforts were bent on correlating the clinical with the pathological. Is it much to be wondered at? You must not forget that in those days padded rooms and strong rooms were used extensively; crude methods of physical treatment by blisters, setons, restraining sheets and excessive sedation were in the ascendant; the nursing staff, particularly at night time, was quite inadequate; and the wards were crowded with noisy and disturbed patients, many of whom, I believe, were manufactured and perpetuated by the methods employed. One of the impressions which remains vividly before me was the large number of cases of general paralysis in various stages of mental and physical deterioration. Many were completely bedridden, bed-sores were not infrequent, a haematoma auris was not difficult to demonstrate, and the grinding of teeth was a noise which had to be heard to be believed. Ford Robertson and his colleagues worked unceasingly to find a cure not only to relieve the suffering, but to decrease the mortality of a disease which ran its

inevitable course in a period of from 2 to 5 years. Death must have been a blessed relief, not only to the patient, but to the sorrowing relatives. Think of the dramatic improvements which have been effected: the supercession of mercury and iodide by salvarsan and salvarsanized serum, the discovery of the *Spirochaeta pallida* in the brain cortex by Noguchi and Moore, and ultimately the successful treatment by malarial inoculation introduced by Wagner-Jauregg. The mere recording of the above facts gives no idea of the excitement which participation in such work caused. We had been taught that before a diagnosis of general paralysis could be made, inflammatory and degenerative changes must have occurred to such an extent in the cells of the brain cortex that readjustment was impossible, and that this applied just as much to the early acute clinical cases as to those who had had a more protracted course. The procurator-fiscal of Glasgow became so disturbed by the death of one or two patients who had been receiving malarial treatment that he regarded malarial treatment as a more or less criminal procedure, and unjustifiable. He threatened proceedings against those carrying it on. Yet what a revolution has been effected; cases of general paralysis in our mental hospitals are gradually disappearing, and the scepticism which many of us had regarding the effect of treatment has practically disappeared. The hypothetical and therapeutic pessimism which was based on pathological fact had to give way to the wonderful results which were effected.

Another impression which remains before me is the impetus and drive which existed in the Psychiatric Institute Service, Wards Island, New York, under the direction of Adolf Meyer, and later of August Hoch. Meyer had succeeded Van Gieson, and had insisted that the Institute, if it were to function effectively, must have associated clinical facilities. In consequence two wards were put under his supervision, the female ward catering especially for affective and ideational disorders, the male ward for organic states of all types. The clinical material was rich both in quality and quantity, and the Institute came to form the training centre for the New York State Hospital system, and set a standard which has never been surpassed. It was while he was there, and later at the Phipps Clinic, Baltimore, that Meyer did his epoch-making work on the Fundamental Aspects of Dementia Praecox, on his Reaction Types, and on the development of his concept of Psycho-biology. Hoch and Amsden added their quota by their analysis of personality types. It was about the same time that Freud and Jung introduced their psycho-analytic concepts into the United States by delivering a series of lectures—the Clark University Lectures at Worcester, Massachusetts. As one looks back now and considers the discussions and controversies which occurred then, the violent antipathies and prejudices, the personal acrimony, and then gradually the appreciation that even although the therapeutic results were in many cases disappointing, one realises a system of philosophy and psychology had been built up which is likely to be enduring, and which eventually may lead to further developments. The analysis of dreams, the interpretation of symbols, the application of free association and the elaboration of the association method have all been techniques, and methods of investigation which have meant a great deal in the progress and development of preventive psychiatry, but most

of us, I believe, will agree that so far as successful therapeutic results are concerned, hypothesis has largely outdistanced practice.

Again we do well to remember some of the other great personalities of that period: the business-like, thorough Kraepelin; the impressive Alzheimer with his kindly manner and vast knowledge; the ever youthful, active Bleuler; the enterprising and imaginative Southard, who suggested that areas of gliosis in the brain of dementia praecox cases might be palpated. It was during this same period that we witnessed the development of organized occupational therapy, of intelligence testing, of industrial psychiatry, and of psychiatric social service, all of which have contributed so much to individual, family and social betterment.

Furthermore—and perhaps more important than anything that has been mentioned so far— we have seen the greater emphasis of psychiatry in our medical schools, in the out-patient departments of general hospitals, in the establishment of special clinics, and in association with mental hygiene associations. And when I think of the International Association of Mental Hygiene, and of how it came into being, that intrepid courageous man Clifford Beers comes to my mind. Beers—the founder of mental hygiene—used to ask himself the question: "Why has my life been spared?" If any of us could give half as good an answer as Beers did we would be amply satisfied. As a result of all the above developments we are entitled to claim that never before has psychiatry been on so active and potentially so fruitful a basis.

But even with all the progress which has been made, there are still vast unexplored territories of mental functioning which require still greater research and investigation. We need not be unduly worried if the approach comes first from one angle, and then from another, if it should swing from the physiological to the psychological—each is supplementary to the other—and therefore we need not be discouraged by our critics, who are always so ready to inform us that psychiatry does not know where it stands. It is only a very foolish and myopic person who sticks obstinately to one point of view; the really strong, intelligent one is willing to be converted by the results obtained, whether by drug-therapy, psycho-therapy, insulin, electric shock, or leucotomy. The important thing is to study one's results carefully, and to regard every new procedure as a matter for further research and investigation rather than as a cure-all for all the psychiatric ills which man is heir to.

A good many years have now elapsed since the "new" physical methods of treatment were introduced, and an attempt should be made to evaluate or estimate where we stand to-day. Most psychiatrists who have used those methods must have passed through periods of considerable anxiety and self-questioning as to how far they were justified in advocating such procedures, or of agreeing to them, either because of the evident distress of the patient, or because of the insistence of relatives, who not unnaturally feel that something more should be done to try to alleviate the obvious suffering. Those who are older amongst us, and who have been accustomed to rely on a degree of psychological insight backed up by sympathetic understanding on the *vis medicatrix naturae*, and on good nursing and general medical care, have tended to be very sceptical regarding the introduction of insulin coma, cardiazol, narco-analysis,

prolonged sleep, electric shock and leucotomy, but the results obtained have been so impressive not only from the point of view of cure, but of alleviation, that we are forced to examine the whole position most carefully. I do not intend to analyse all the above-mentioned forms of treatment, but to direct my remarks particularly to leucotomy. While preparing this paper I was interested to see that Dr. E. L. Hutton (*Journal of Mental Science*, April, 1947) has expressed a similar point of view, has discussed the contra-indications for leucotomy, and has shown that enthusiasm should be tempered with sober consideration. She has reported that there are a few patients " whose behavour following the operation is definitely less satisfactory that it was at the height of their illness " ; undesirable traits have also been noted in cases which can be regarded as successful. She believes that the basic character and outstanding traits of the total personality are more important in assessing the probable result of the operation than the particular type of mental disorder from which the patient is suffering. Dr. Hutton's opinion fits in with my experience, and for some time I have wondered whether the long-term results have justified the transitory improvements and the methods employed. It is obvious that we should not be carried away by unbounded enthusiasm, nor yet should we be daunted by our adverse critics, many of whom have little or no appreciation of the distress of mentally ill patients or of their relatives, nor the great medical and nursing strain involved in safeguarding and treating patients who have often regressed to a primitive level. I seem, however, to sense a certain danger in Dr. Hutton's statement when she rather minimizes the importance of clinical differentiation. There are still, unfortunately, both research workers and clinicians in psychiatry who are inclined to regard the nervous and mentally disordered as belonging to one category. They think too much in terms of the actual brain structure or lesion, of insanity *sui generis*, and not enough of the actual understanding of the human material with which they are dealing. We need more and more clinical differentiation rather than less and less. It is only right, of course, that our aim should be directed towards finding a common reason or explanation for the successes—partial though they may be—which have been attained, but this is more likely to be done if the research worker and the clinician work closely with one another, rather than in somewhat different camps. It is, I believe, largely because of faulty clinical differentiation that our results are sometimes difficult to assess, and come under adverse criticism. We need our more psychologically minded, our more bio-chemically minded or our more neurologically minded colleagues alongside. Their caustic comments are sometimes extremely good for us. For instance in *Brain*, **70**, 1947, the following appeared: " We read that the prefrontal or forward part of the frontal lobe is concerned with thought, but its precise functions are obscure ; it is very difficult to establish the relationship between such aspects of thought as imagination, initiative and self-consciousness on the one hand, and any given part of the brain on the other." Yet if this psycho-anatomical result is not achieved, the operation nevertheless is designed to " break the connection between the patient's thoughts and his emotions ; and it does this by severing the fronto-thalamic radiations, and ensuring degeneration of the dorsomedial nucleus of the thalamus. We learn later, however, that the

operation may yet be successful even when it achieves neither of those anatomical results, and it remains therefore an empirical procedure producing its results—when it does—in an inexplicable fashion." Despite the above comment I note that Burlingame, in an Editorial Comment in the *Digest of Neurology and Psychiatry* (August, 1947), states that it was the symposium on the functions of the frontal lobe at the second International Neurological Congress in London in 1935 which encouraged Moniz to develop the idea that the interruption of the frontal association pathways of the brain might lead to the relief of certain psychotic symptoms. It was at that Congress that Goldstein discussed the relations between the frontal lobes and psychic functions. He stated that there was ample evidence to show that lesions of the frontal lobe, especially if they occurred on the left side, were associated with psychic disturbances, which were not necessarily limited to a single mental function. At the same Congress, Brickner stated that the functions of the frontal lobes were concerned with the production of "ingenuity"; but more than ingenuity was required if man was to achieve a harmonious and intelligent control over his emotions. (*Lancet*, 10 August, 1935.) Furthermore Gordon Holmes and others have described cases of moral perversion as occurring in frontal lobe tumour, while Richter and Hines have demonstrated that the conduct of macaques was controlled through the prefrontal lobe, particularly Area 9 (Brodmann), and also through the striatum.

It can be seen, then, that the selection of the fronto-thalamic association tracts was not so strange and arbitrary a procedure as some have been inclined to think, but rather was it a brilliant piece of inductive reasoning—"disinterested intellectual curiosity"—which has given magnificent clinical results.

As an aside may I refer to an amusing editorial which a few days ago was published in the *Scotsman*, and was entitled "Trail of the Snail." The writer mentions how the disinterested pursuit of knowledge may turn into strange channels, and comments especially on how research workers in the University of Maryland have recently established the fact that a snail advances at the speed of .000363605 miles an hour. "It is difficult to visualize a group of grown men spending their time recording with a delicate apparatus the speed at which a solitary snail moves over the surface of the restless earth. Snail pacing must be among the most boring occupations ever undertaken by man. . . . Men who collect Ph.D.'s for plotting the pace of a snail are not the kind of men to blow up the world's fuses. . . . No psychologist has ever determined how timid a mouse is. . . . Amnesia among elephants is also a subject on which there is a good deal of loose talk. . . . No one has ever positively declared how slippery an eel is."

We must take care, therefore, not to be led up the garden path, and we must remain watchful because subtle suggestions are constantly coming to us from a variety of sources. For instance Meyer, Beck and McLardy (*Brain*, **70**, 1947) state: "An operation on human beings producing a brain lesion unpredictable in precise location and extent is, from a purely anatomical point of view, an unqualified boon, since each case, and often each hemisphere, presents as it were a separate experiment." It is, indeed, an ill wind that

blows nobody any good—and while our psycho-physical correlations, imaginations and practice may be sadly lacking in precision, logic, thoughtfulness, yet our empirical results and operations are helping to keep alive the enthusiasm of the neuro-pathologist, as well as the critical acumen of the clinical neurologist. All I would say is that we must be careful not to sacrifice our patients on the altar of science. We are being urged to do it all the time. For instance it has been asserted that the after-results in cases treated by means of insulin or other shock methods are better than in those who have made a spontaneous recovery, and that statement is based on the suggestion that the former method is so much quicker, and anticipates emotional deterioration. Again, Freeman and Watts (*Journal of Nervous and Mental Disorders*, **105**, 3, March, 1947) say: "The main indication for psycho-surgery is emotional tension that is of great severity, threatening the patient with disability and suicide, and for which no other treatment is effective—it seems to matter very little what the diagnostic label is, or how long the tension has been present. Since certain patients, particularly schizophrenics, seem to lose their tension relatively easily, it is wise not to wait too long in the expectation that improvement will occur through the process of emotional deterioration." I maintain that here again we are meeting with advice and argument which is tendentious and dangerous. On the one hand we are urged not to bother too much about clinical diagnosis but to act quickly, even precipitately, and rather to have the betterment occur through the emotional deterioration produced post-operatively than by natural and spontaneous means. If I could gauge the recovery, even with a certain amount of emotional blunting, of a schizophrenic or any other type of case, I would prefer that situation to one produced artificially by operation. In connection with the above arguments I have been impressed by Salzman's paper on Evaluation of Shock Therapy (*American Journal of Psychiatry*, **103**, No. 5, March, 1947), when he points out that too little stress has been laid on the possible deteriorating effects on the personality of the individual. We should, he says, distinguish between the immediate remission rate and the long-term result, and in support of his argument quotes the results of Rennie and Ebaugh. Rennie reported that the remission rate in dementia praecox dropped in 3½ years from 55 per cent. to 32·8 per cent., and in manic-depressives in the same period from 75·5 per cent. to 55·8 per cent. Ebaugh using insulin noted a remission rate fall from 63·5 per cent. to 48·2 per cent. in one year.

Salzman also draws attention to the very high readmission rate in patients who have been treated with shock treatment, and believes that this finding largely nullifies the conclusions expressed by others in relation to the economy effected by such treatment. Of 152 patients readmitted to St. Elizabeth's Hospital, Washington, 44 dementia praecox patients had received shock treatment and 45 had not. In the shock-treated cases the average readmission interval was 1·6 years, whereas in the non-treated cases the average readmission interval was 4·5 years. Thirty manic-depressive patients had received shock treatment and 33 had not; the former showed an average readmission interval of 1·4 years, while in the case of the non-shock treated cases the interval was 4·36 years. His general conclusion was to the effect that the larger the number

of shocks the earlier the readmission. Whether or not you agree with Salzman's findings, you will no doubt be impressed by the fact that there is very little justification for the unnecessarily early and sometimes even precipitate and indiscriminate use of shock methods.

For my part I can say that Salzman's experience and results confirm the impression we have formed at Morningside. We have always maintained the necessity of great care in coming to an accurate clinical diagnosis; sufficient time to allow of spontaneous recovery, irrespective of the difficulties of management; careful evaluation of the amount of treatment given; and cessation of treatment as soon as an adequate result has been obtained, rather than pursue it needlessly in the false hope that by giving more treatment the recovery will be made more secure. If we do not obtain a result with the maximum number of 12 shocks we discontinue it, and have recourse to more pedestrian methods.

And now again, if I have not side-tracked the issues too far, let me return to the more specific consideration of leucotomy, of when and how to use it, of its contra-indications, and of whether or not it is completely justifiable. These considerations are based on experience with 100 cases which were operated on by Mr. George Alexander, Senior Surgeon to Mr. Norman Dott's neurosurgical unit. It is not necessary for me to review the literature because I realize that it is very familiar to most of you, but in passing I would merely like to say how striking and impressive it is. The reports of Ziegler, Freeman and Watts, Cunningham Dax, Cook, Frank, Ström-Olsen, Hutton, Golla, Berliner, Moore, and a number of others plus the comprehensive survey by the Board of Control tell a most wonderful story, and must carry conviction to everyone except the hopelessly prejudiced.

The criteria which I have utilized in coming to an opinion as to whether or not such an operation was justifiable are as follows:

1. Duration of the illness.

2. Degree of tension or affect.

3. The seeming impossibility of obtaining betterment by any other means.

In the discussions I had heard in relation to this operation, previous to adopting it, I had not been impressed either by the results or by the type of patient selected for such treatment. I was extremely sceptical regarding the advisability of carrying out a blind operation on a delicate structure such as the brain in the hope that the personality of a distressed, disturbed, aggressive, deteriorated patient could be re-integrated. It was not long, however, before I became completely converted, and recognized that a change and betterment could be effected which surpassed my wildest dreams and expectations. My "disinterested intellectual curiosity" was satisfied, and has remained satisfied ever since. Let me record our results quite briefly and summarily and then discuss certain salient features:

TABLE I.—*Results in* 100 *Cases.*

Diagnosis.	Social Recovery.	Improved.	Unchanged.	Died.	Total.
Schizophrenia	12	20	18	1	51
Paranoid states	9	11	2	1	23
Involutional melancholia	6	2	—	—	8
Obsessional neurosis	7	1	—	—	8
Psychopathic states	—	3	1	—	4
Manic-depressives	1	2	—	—	3
Agitated depression	1	—	—	—	1
Mental defect	—	1	—	—	1
Encephalitis	—	—	1	—	1
	36	40	22	2	100

Apart from any personal comments which I might care to make regarding the transformation which has been effected in the above disturbed, distressed and often violent patients, whose illness had in the majority of cases been of many years' duration and appeared intractable, I would prefer that you should listen to extracts from a number of letters which I have selected from those sent by grateful relations.

1. " I am very happy to report that things have been going considerably better than my wildest expectations. My wife has been absolutely normal in practically every respect. She is happy as the day is long. She has much improved in her interest in the children, and her general attitude to them, though she is still a bit sharp with them on occasions. She gets on well with the household staff and has worked in very well with our new Nanny. She is now much more normal when meeting strangers than she was when she first came home, and in fact in every way it is possible for me to give a most excellent report. I cannot start to put into words what all this has meant to me."

2. "After her long illness I am very pleased to inform you that my sister is doing very well. She is living in her own home with her daughter. She attends to all her household duties, conducts all her own business personally, converses freely, and takes an interest in the daily news. She does her own shopping and understands the ration books."

3. " My son has kept well since he left Craig House in May, 1946. He has been doing horticultural work for four or five months and has settled down to it well. None of his bad symptoms have reappeared, though sometimes he is a bit forgetful. He is still somewhat solitary in his habits, and in regard to strangers is inclined to be shy."

4. " I am happy to say my daughter is keeping very well, and since she was discharged from the institution she has never looked back. If you care to see her I could bring her in any day any time to suit your convenience (Monday excepted) as she is being her sister's bridesmaid on that date."

5. " I am very glad to say my sister is now quite normal. She is just her old self again. She can go to her bank in a taxi alone and draw a cheque, also she can go shopping alone, and sometimes she goes for a walk by herself and enjoys it immensely. She takes an interest in the domestic affairs of the house, and also she has planted bulbs and plants in our garden here—she is very interested in gardening.

" She is gracious and delightful with friends, she is very pleased to see them and gives them a charming welcome. She loves going for a car run into the country. No one ever had a more loving or a more devoted sister, and so far she is so very, very happy that it is a joy to see her."

6. " My daughter is very well. I rang up the family doctor to tell him of your letter and he replied : ' Tell him that I think her case remarkable, and that she is perfectly normal in every way.' I certainly say so also. She is just quite normal. She is the greatest help—takes an interest in the house, garden, and chickens, and does my shopping. She knits, sews and reads. I noticed that she got interested in papers and books gradually after being home for some time. She has been of the greatest help to her nephew, a boy 1½ years old—took him out each day, and often took him entirely out of his mother's hands."

7. " In my opinion my daughter's operation was a most wonderful success. She is now physically strong, and with regard to her mental condition I have not perceived any abnormality whatever. She is attending a training college with a view to becoming a teacher, and has been taking part in short spells of practical teaching. There are, of course, certain traits in her behaviour which a critical observer might find fault with—untidiness and a tendency to ingratitude and expecting everyone to serve her (but these showed themselves before her illness), excessive cigarette smoking, which might indicate a certain lack of self-control. But she is now 27 years old, and if at the close of her present training she is able to stand on her own feet, I think she will gradually correct and overcome these faults. I, personally, am deeply grateful to you."

I have in my possession many other letters of much the same tenour, and they all amply demonstrate the great benefit which has been effected so far as the patient is concerned, and the immense relief and gratitude of the relatives. Even in those cases in which social recovery and discharge cannot be related, yet the improvement in certain cases has been so extraordinary that numerous patients are now able to lead a life of usefulness and contentment under hospital conditions which formerly was denied to them. I shall content myself by giving two instances :

1. A young man, 28 years old, was admitted on 11 June, 1942, to the Royal Edinburgh Hospital for Nervous and Mental Disorders. He was regarded as a mental defective who had exhibited violent and dangerous propensities. A short summary of his life record is as follows :

He was educated in an Industrial (Approved) School to which he had been sent for stealing. After leaving the Industrial School at the age of 16 he was found, on account of his impulsive conduct to be unemployable. When 19 years old he was charged with attempted bag-snatching and was put on probation for one year. A few months later he broke his probation and was fined 10s. or 5 days' imprisonment. During the same year he was charged with theft and was sentenced to three years' Borstal treatment. While there he was described as impulsive, destructive, mendacious, a runaway.

When 20 years old he was considered unsuitable for Borstal treatment, was certified as a mental defective, and transferred to an appropriate institution.

During the following years his conduct is described in the following terms : Very violent, aggressive and destructive, constantly provoking other patients ; on one occasion leapt through a stair-case window. At times he appeared to be hallucinated and delusional ; he attacked several patients and attendants ; he required constant supervision and sedative therapy. In April, 1942, he made a sudden, vicious, homicidal attack on a fellow patient with a pick-axe. That incident was reported to the Procurator-Fiscal, and the Crown authorities recommended his certification as a person of unsound mind.

From June, 1942, until July, 1945, when leucotomy was performed by Mr. George Alexander, he continued in a violent, destructive, unco-operative state. He was frequently controlled by restraining sheets and by almost continuous sedation.

Following the operation he co-operated well in his treatment, did not interfere with the head dressing, and eventually allowed the sutures to be removed without demur. Seven days after the operation he was reacting to auditory hallucinations ; he said that " voices " spoke to him, that people were trying to make a fool of him

and that he was being encouraged to smash things up. He managed, however, to maintain his self-control.

Since that time he has maintained a continued improvement. He is happy and biddable, he is friendly with his fellow-patients and the staff, and he is proving a useful member of the garden staff.

2. A young man, 26 years old, was admitted in August, 1945, to the Royal Edinburgh Hospital for Nervous and Mental Disorders. I had been interested in this young man for approximately nine years, as I had seen and examined him on numerous occasions at the instance of the Procurator-Fiscal. He had been charged repeatedly for lewd practices towards young children. On occasions he had served a prison sentence, but on other occasions he had been a patient in a mental hospital, either voluntarily or under certificate.

He came from a poor stock; he had a fractured skull when seven years old, and a year or two later contracted a severe attack of scarlet fever with subsequent cardiac involvement. He had, however, made good progress at school, he was of average intellectual attainment, but his work record had been deplorable. He changed from job to job largely on account of his aggressiveness and bad temper. At home he was threatening towards his family, and on many occasions vowed that he would injure himself or others. I had many talks with him, during which he expressed great remorse for his conduct, but he felt that he was completely controlled by his over-mastering impulses, and he pled repeatedly that some course should be taken so as to assist him to modify and control his conduct in the hope that he would cease to be a public nuisance.

Eventually, after much thought, I decided to recommend a leucotomy, and this was performed in December, 1945.

Following the operation he was confused, out of touch with his surroundings, interfered with his bandages, was incontinent of urine and faeces. He took longer than usual to convalesce from the operation, and it was not until 16 days after it that he was able to co-operate satisfactorily in an examination. He has not recovered from the point of view of earning his living or of being independent, but he has become a quiet, steady patient who has been freed from impulsive outbursts and has been able to work industriously in the Occupational Therapy Department. He has far greater confidence in himself than formerly, and eventually it may be possible to sanction his discharge in the hope that he will be better able to restrain his sexual impulses than previously.

There are many other cases which I would like to discuss and draw attention to, but I have picked out those two cases purposely because they illustrate the difficult question of how and where mental deficiency, psychopathy and insanity end and where delinquency and criminal conduct begin. The results obtained by means of operation have been most impressive, because a state of peace and relative contentment has replaced one of turmoil and discontent. The suggestions which arise in my mind as a result of my experience with those two cases have taken this form:

1. Would not many delinquents, who realize how unhappy and unsatisfactory their lives are, not readily accept this form of treatment in the hope that they would be greatly benefited?

2. Do such results not constitute a strong argument towards the adoption of a strong psychiatric service in our prison system?

3. Would it not be possible to suggest to the Legislature that sufficient evidence has now accumulated to enable us to recommend leucotomy in certain cases, not as an alternative to, but as an adjunct to prison treatment?

4. Would the psychotherapy of the delinquent not be more effective and satisfactory once a leucotomy, in certain selected cases, had been carried out?

No doubt others might formulate other and better questions along similar

lines, and if this were done, would they not constitute a valid reason for medico-legal discussions in which the arguments, *pro et contra*, could be seriously canvassed? It would, of course, be at once suggested that there might be cases in which the patient's conduct had been aggravated rather than helped by the operation, and while there may be such individual instances, yet I believe, from my experience, that they are comparatively few in number; in any case, both mental hospital and prison treatment by themselves not infrequently lead to considerable deterioration. I feel convinced that any fair-minded person, whether judge or physician, with the interest of the individual and the welfare of the public at heart, might welcome the suggestion I have made.

In addition to what has been said there are a few other points which I would like to draw attention to.

The mere statement of discharges and improvements, wonderful as the figures are, does not do full justice to the results obtained. It cannot be too strongly emphasized that the vast majority of the cases operated upon were persons who had had every conceivable form of treatment previously, whose illness had been of a prolonged and desperate nature, and where a good result, judging from one's past experience, had seemed impossible. In contrast the results have been far beyond my expectations, and have convinced me that in suitable cases the operation of leucotomy is not only justifiable, but advisable. Our mortality rate has been 2 per cent., our post-operative epilepsy rate has been approximately 7 per cent., but the epileptic manifestations have been very infrequent and episodic, and have not given cause for any alarm.

Our figures show one interesting contrast. In the Royal Edinburgh Hospital we have separate departments, Craig House and West House, which cater for people in a somewhat different social and economic position. At Craig House we have the patients able to afford the higher rates of board, whereas at West House we have a number of rate-aided patients and those paying relatively small rates of board. At Jordanburn Hospital we deal only with psychoneurotic cases. Table II illustrates the results obtained in the different departments:

TABLE II.

	Discharges.	Improved.	Unchanged.	Deaths.	Total.
Craig House	24	13	7	1	45
West House	10	27	15	1	53
Jordanburn	2	—	—	—	2
	36	40	22	2	100

It is, of course, obvious enough that we should not read too much meaning into the above results, but the far greater discharge rate among the Craig House patients is very striking; it may be that those with rather better social, intellectual and economic resources have the more satisfactory prognosis.

Another contrast which is worth commenting on, and which I have not seen especially mentioned, is that existing between men and women.

TABLE III.—*Results in Men and Women.*

	No.	Discharges.	Improved.	Unchanged.	Deaths.
Men	53	15	21	15	2
Women	47	21	17	9	--

The larger social recovery rate in the case of women is quite marked, and is what might be reasonably expected, because tension states are rather more frequent and severe in them than in the case of men.

Leucotomy has now been given so extensive a trial in so many hospitals and clinics that I believe the time has come when it should be utilized in suitable cases, but always with great discrimination, and not in any spirit of merely giving the patient a chance. The chance should be based on accurate clinical diagnosis, on a careful study of the literature, and in the belief that, despite the severity and duration of the illness, sufficient of the personality has been left intact so that a reasonable reintegration may be expected. That would seem to be an infinitely safer plan than to attempt to proportion the extent of the operation to the severity of the clinical state as Freeman and Watts have suggested. In consequence all the cases presented in this series have been subjected to the closest clinical scrutiny, and I have come to agree with the view expressed by Frank (*Journal of Mental Science*, 1946) that leucotomy is contra-indicated in cases of schizophrenia with a shallow affect and an insidious development. I would, however, enlarge that category, and would suggest that all cases immature or lacking in emotional development, the constitutionally loaded, the chronic invalid reaction types, are those in which a satisfactory result can hardly be expected. A man, whom I saw originally in 1938, who took an unfavourable view of his prospects, was given intensive courses of insulin coma, cardiazol, electric shock and then, following a leucotomy, he took his own life because he believed that he would never regain a sense of confidence and efficiency, and because he believed that all forms of treatment had been exhausted. In my opinion he was the type of person who would have been more satisfactorily dealt with by constant and persistent encouragement and reassurance rather than by any form of physical treatment. I have mentioned the case to serve as a warning, and as a plea for the greatest discrimination in deciding for and against operation. So far as our cases of schizophrenia have been concerned, practically all those in whom a favourable result was obtained were cases in which exogenous etiological factors had been prominent, and in which a considerable paranoid colouring was present. It was not sufficient to warrant a transfer of the case to the group of paranoid states, but it was sufficiently prominent to remind one of the abortive paranoiacs of Friedman and Gaupp, of the querulants of Specht, and of the periodic paranoid states of Bleuler. Such symptoms may be pointers to more intensive and accurate diagnostic analysis. I feel perfectly certain in any event that the majority of conditions formerly known as paranoid schizophrenias should be regarded as paranoid states purely, and not necessarily related to schizophrenia at all; many of them have a much closer affiliation to manic-depressive episodes than to schizophrenia. I consider that our results with paranoid, involutional, and obsessive states have been outstandingly good.

There are many other points which could be discussed in detail, and where perhaps one might take a rather different view-point than has been expressed by others, but this is not the time or the occasion to be controversial, and there is still so much unknown that it is wiser not to be dogmatic, but rather to recognize that it will take many years yet before we have accumulated all the information to enable us to come to clearer and better formulations. I at least am satisfied from my personal experience, and no one can rob me of it, that in leucotomy we have a means of benefiting many persons to such a degree that, irrespective of a failure here and there, a great advance in the treatment of otherwise intractable conditions has been effected. It may be quite true to argue that the hypothesis which has led to any of those forms of physical treatment in which such magnificent results have been obtained is faulty, but it should likewise be remembered that it was while acting on a wrong hypothesis that Columbus discovered America. Taking everything into consideration, I will feel infinitely more satisfied by my contribution to psychological medicine if I can continue to promote results and recoveries on a faulty hypothetical basis rather than remain inactive because of it, but the matter cannot be left there.

We must continue to strive for greater accuracy, for the closer approximation of hypothesis and practice. That, however, does not alter the fact that I believe that medicine is largely empirical. There is nothing antagonistic between the science of medicine and empiricism, because empiricism (meaning experiment, experience) must always act as a stimulus to more research and investigation. Whether the practice of medicine will ever become an exact science is extremely doubtful. There are too many variables, and every person is, more or less, a law to himself. It is for that reason that in the practice of our art we cannot afford to wait until scientific theory and fact have been established. Indeed Dyce Duckworth (*International Clinics*, **4**, 1911) once stated that he believed that the public, in certain instances, prefer the medical artist to the medical scientist, and he added: "There must be good reasons for this preference." Let us therefore not frown on, but ardently encourage the development of that intuitive judgment which Dr. John Brown called the "Nearness of the Nous" or presence of mind; it is, I believe, a more valuable asset in the understanding and treatment of our fellow citizens than intellectualism, logic and rhetoric.