RESULTS OF AN INVESTIGATION INTO A GROUP OF PATIENTS PRESENTING THE SYMPTOMS OF SCHIZOPHRENIA.

BY

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BEING

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TO

PROFESSOR J.C. TWOMEY

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STERKFONTEIN HOSPITAL,KRUGERSDORP, AND

SOMETIME HEAD OF THE DEPARTMENT

OF PSYCHIATRY AND MENTAL HYGIENE OF

THE UNIVERSITY OF WITWATERSRAND,

JOHANNESBURG,

THIS WORK IS DEDICATED IN TRIBUTE

TO A LIFE NOBLY LIVED.

Why art thou cast down, O my soul?

And why art thou disquieted within me?

Psalm 43 : 5.

I fled Him, down the nights and down the days;

I fled Him, down the arches of the years:

I fled Him, down the labyrinthine ways

Of my own mind.....

Francis Thompson.

TABLE OF CONTENTS.

PREFACE.

I wish to express my deep gratitude to Mr. A.S. Roux, Head of the Department of Psychology of the University of South Africa, for his valued counsel in regard to the question of maintaining this investigation on an inductive basis. My thanks are due, too, to Professor J.C. Twomey, former Superintendent of the Sterkfontein Hospital, Krugersdorp, and sometime Head of the Department of Psychiatry of the University of Witwatersrand, for granting me all the necessary facilities for the conduct of the investigation; and also to Dr. L.A. Hurst, Professor Twomey's successor both at the Sterkfontein Hospital and at the University of Witwatersrand, for renewing the facilities previously granted. I am grateful, too, to Dr. R. Geerling, Head of the Neuro-psychiatric Department of the Johannesburg General Hospital, for permission to peruse and analyse the case records of a group of schizophrenic patients; and to Professor G.A. Elliott, Head of the Department of Medicine of the University of Witwatersrand, and Drs. H.L. Heiman, M.M. Suzman, and J.B. Baynash - senior physicians at the Johannesburg General Hospital - for the opportunities they have graciously accorded to me over a number of years for studying and observing in their wards cases of organic disease exhibiting a psychotic symptomatology. I also wish to thank Dr. S. Mansvelt, Head of the Child Guidance Clinic of the Johannesburg Municipality, for the training received in his Clinic in the application of the intelligence test known as the Individual Scale of the South African National Bureau of Educational Research; and Dr. P. Bayer, Senior Physician of the Fever Hospital of the Johannesburg Municipality, for the opportunities he has accorded me of observing cases of infectious disease exhibiting a psychotic symptomatology; and Mr. S.P. Watson, Superintendent of Northlea Retreat of the Rand Aid Association, for the opportunities he has accorded me of observing a group of alcoholic patients presenting a schizoform symptomatology; and Mrs. M.M. Enfield, Secretary of the Witwatersrand Mental Hygiene Society, for granting me permission to examine the case records of schizophrenic patients who were subsequently referred either to Sterkfontein Hospital or the Neuro-psychiatric Department of the Johannesburg General Hospital. Lastly, I cannot refrain from recording my deep appreciation of the assistance which was so freely offered to me at all times by the male and female nursing staff of the Sterkfontein Hospital.

L.F.F.

FOREWORD.

Dr. L. FREED, already well known as a writer and lecturer on the borderland between sociology and psychiatry, in the present work carries his careful field work and detailed analyses into the very heart of psychiatry in coming to grips with Schizophrenia, our most serious, extensive and, tragic mental problem. In so doing he breaks new ground, filling a gap in South African social psychiatric literature, which Landis and Page, for instance, have dealt with for American and European population groups.

It is a merit of Dr. Freed's monograph that in faithful adherence to his unitary approach, he has avoided dualistic mind-body concepts, and has studied objectively the causal role of the factors he has selected for consideration. I would not hide the fact from our readers that Dr. Freed's and my own ideological biases being diametrically opposed he is often inclined to postulate causal efficacy where I see result.

I may perhaps be permitted a word on the substance of Dr. Freed's investigation. The book opens with a scholarly review of the concept of Schizophrenia. We are then introduced to the clinical material which comprises 15 schizophrenic patients for intensive clinical study and another group of 50 cases of the same condition to be investigated for the operation of socio-economic factors. These data are amplified for statistical purposes in some instances by more extensive figures culled from the Annual Reports of the Commissioner for Mental Hygiene, to say nothing of a small group of 6 organic cases with schizoform symptomatology. The case histories are in my opinion well done, being comprehensive both longitudinally and in cross section, and convey the impression of authenticity and accuracy.

The major contribution that this work makes is however undoubtedly the detailed consideration of highly specialised as well as more general sociological factors as bearing on the aetiology of Schizophrenia. The list includes sex, race, birth order, marital status, nativity and cultural conflict between native-born and foreign-born generations, socio-economic status including overcrowding in the home, occupational mobility and parental disharmony. Dr. Freed is the first to admit the provisional nature of the inferences to be drawn on many of these points and the need for further investigation.

In conclusion it only remains for me to say how honoured I am that my good friend Dr. Freed has accorded to me the privilege of introducing his monograph, and to express the opinion that serious students of psychiatry and sociology will derive benefit from perusal of this careful study.

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CHAPTER I.

INTRODUCTORY.

An investigation of the problem of schizophrenia necessitates in the first instance recourse to the following procedures: (I) A definition of the problem and a description of the symptomatology upon which the diagnosis of the disorder is based; (II) An elucidation of the methodological approach to the problem; and (III) A statment in regard to the sources of the clinical material which the investigator has utilised for the purpose of his research. These procedures are treated of in some detail in the ensuing sections.

I

DEFINITION OF SCHIZOPHRENIA AND A DESCRIPTION OF ITS SYMPTOMATOLOGY.

Schizophrenia, or dementia precox, has been defined by Gillies[1] as a form of grave mental disorder characterised by a special type of impairment of thought, emotion, volition, and motor reactions. The course of the illness may show either a gradual progress to chronicity or else assume the form of a series of periodic attacks. Complete recovery from the disease may occur spontaneously, but in the absence of modern treatment it usually ends in severe disintegration of the personality.

The nature of the disorder was poorly understood until recent years. Thus many cases which to-day would be diagnosed as schizophrenia were at one time variously called puberty insanity, juvenile insanity, adolescent insanity, hebephrenia, masturbatory insanity, primary dementia, delusional insanity, and catatonia - as though these were separate entities. Emil Kraepelin (1856-1926), however, recognised a denominator common to all of them, and so - in 1896 - he unified these diverse diagnostic terms under the term dementia precox. His observation of patients over many years had proved to him conclusively that although the initial clinical

(1) Hunter Gillies (1952)"Psychoses-schizophrenia", in the British Encyclopaedia of Medical Practice. 3rd Edition. Vol. 10. Butterworth & Co..Ltd..London. p.370.

manifestations could be most protean, the terminal states were similar. He adopted the term dementia precox because, in the particular series of cases which he had studied, the early symptoms of the disease manifested themselves soon after puberty, and quickly ended in apparent dementia. Bleuler (1857-1939), however, noted subsequently that many cases began in adult life and that true dementia was in fact infrequent. Accordingly, in 1911, he coined the name schizophrenia, which describes the "splitting" or loosening of the psychic functions which is characteristic of the disorder. But Bleuler, and others before him, in their description of the nature of this disease, attributed the attendant symptomatology entirely to a disorganisation of the categories of the individual psyche. In doing so, however, they gave credence to the concept of psycho-physical parallelism, according to which the functions of the soma and the functions of the psyche were erroneously considered to run parallel to or independently of one another. In an ensuing section evidence will be presented to show, among other things, that the schizophrenic subject, even as the normal individual, is a psychosomatic personality, and that the components of the two segments of the personality are functionally related to one another. Accordingly, the symptomatology of schizophrenia - which is produced by the impact of a severe disorganising stimulus upon the consciousness of the individual personality - must be described (A) with reference to the disorganisation occurring primarily in the psychic segment of the personality; (B) with reference to the <u>associated</u> disorganisation of the somatic segment of the personality, and (C) with reference to the disorganisation occurring primarily in the somatic segment of the personality. These three aspects of the symptomatologic problem of schizophrenia are considered hereunder:

(A) <u>THE SYMPTOMATOLOGY OF SCHIZOPHRENIA EMERGING PRIMARILY FROM THE DISORGANISATION OF THE PSYCHIC SEGMENT OF THE PERSONALITY</u>

The effect of the impact of a severe disorganising stimulus upon the psyche is to disturb the diverse categories of consciousness which have hitherto existed in such a fine state of harmonic integration as to potentiate an adequate perception of, and an adequate adaptation to, reality, Accordingly, this aspect of the symptomatology must be studied with reference to the disturbance of the categories of cognition, affect, conation, etc.

(a) The symptomatology of schizophrenia associated with the disturbance of the category of cognition.

The distortion of intellectual processes which occurs in the schizophrenic reactions involves a grave disturbance of the individual's perception of time and space, of quality and value, of logical order, and of causally connected events. The disturbance of cognition which occurs in schizophrenia leads inevitably to the autistic form of thinking, that is, a form of thinking which is purely subjective in character, and has no relation to objective reality. Where, however, perception of a segment of reality does occur, the things perceived become subjectively inverted, and are given a value, and a meaning which do not accord with reality. Autistic thinking in the schizophrenic may carry with it the belief that the materials perceived derive, not from the objective world, but from the subjective world - a belief which may find expression in phantasies, delusions, hallucinations, etc. The content of thought in other words, is largely endogenous. Hinsie and Shatzky, 1940[1]. Autistic thinking, in so far as it bears no relation to reality, is perforce illogical. (Vigotsky, 1934)[2]. The special aspects of the schizophrenic reaction pattern include the following:-

(1) The schizophrenic illusions: These have been defined by Bleuler[3] as "perceptual misidentifications" of the

(1) L.E. Hinsie and J. Shatzky (1940): Psychiatric Dictionary, New York. Oxford Univ. Press.
(2) L. Vigotsky (1934)"Thought in Schizophrenia", Arch. Neurol. & Psychiat., 31 : 1063.
(3) E. Bleuler (1950): Dementia praecox or the Group of Schizophrenias, International Univ. Press, New York, p.72.

sensory field ranging from the everyday and accepted "normal" to the grossly deviant phenomenoa. Thus things and objects may become distorted, inverted and personalised. The illusions of schizophrenia represent wishful and dereistically symbolic thinking, but as compensatory mechanisms aiming to restore "the steady state", they are worthless because they have no reference to the harmonic values which comprise reality.

(2) The schizpphrenic hallucinations: These result from a distortion or disorganisation of sensory perception, and particularly of auditory perception, without any readily apparent sensory stimuli. Almost every schizophrenic hears "voices" either occasionally or continually.

Hallucinations of bodily sensations maymoccur in a great variety of forms. Thus any organ may be the seat of "the most severe pain", and every bone in the body may "ache" Hallucinations of kinaesthetic senses are not infrequent. Thus a patient may believe that he is performing certain bodily movements when in fact he is not (Bleuler, 1950)(1)

(3) The schizophrenic delusions: A patient's wishes, hopes and fears may find expression in diverse delusions, such as delusions of persecution, and delusions of grandeur. In the former, the patient harbours the belief that all the world is against him; in the latter the belief that he is really greater, nobler, and finer than he really is.

Delusions of reference are not uncommon. In this a patient may believe that people are whispering things about him.

(4) The schizophrenic memory disturbances: The schizophrenic may exhibit diverse forms of memory dysfunction. Thus he may show hypermnesia, or hyperfunction of memory, consisting in a peculiar capacity to register more details than a normal persons would in like circumstances; or amnesia, consisting in loss of memory for new or remote events; or

(1) Bleuler, Op. Cit., pp. 97, 100, and 117.

or paramnesia, consisting in the memory of events which have never actually occurred.

(5) Disturbances of association: These render the patient incapable of directing his own thoughts, and as a result the world and his own personality seem different to him.

(6) Disturbances of orientation: This involves an impairment of the patient's perception of spatial and temporal relations.

(7) Disturbances of attention: The capacity for concentrated attention is greatly disturbed in the schizophrenic;

(b) Symptomatology of schizophrenia associated with disturbance of the category of affect:

The disturbance of the category of affect may lead to the melancholic and manic forms of emotional behaviour. The melancholic manifestations, which may be referred to as depression, is probably the primary reaction, and the manic manifestation may be construed as secondary on the assumption that it is compensatory in character. Disorganisation of affect, may furthermore be characterised by a mixture of reactions, such as euphoria, flight of ideas, and increased activity.

(c) Symptomatology of schizophrenia associated with disturbance of the category of conation:

The disturbance of conation or volition is part and parcel of the general psychic disorganisation which occurs in schizophrenia. The category of conation, which expresses itself in a capacity for voluntary activity, becomes, in the schizophrenic, modified, exaggerated, or perverted. Twomey (1) has described three fundamental forms of disorganisation of volition, namely:-

(1) Decrease of volition or abulia: In this the patient carries out voluntary acts slowly and with difficulty, and in an extreme case may become completely immobile and stuporose.

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(1) J.C. Twomey (1951): "The Psychoses", Chap. VIII in Cluver: Social Medicine. Central News Agency Ltd. South Africa, pp. 201-203.

(2) Increase of volition or hyperbulia: In this the patient's behaviour is characterised by an abnormal facile release of voluntary acts, restlessness, constant activity, violence, and destruction.

(3) Perversion of volition: This may be expressed in one or other of the following forms:

(i) Impulsiveness, wherein the patient may engage in sudden, more or less uncontrollable acts when in a state of abnormal irritability.

(ii) Stereotypy, wherein the patient shows a morbid tendency to remain in the same position, repeat the same actions, or use the same words over and over again.

(iii)Perseveration, wherein the patient persists in a particular action once it is begun, but the action requires some external stimulus to set it off.

(iv) Negativism, wherein the patient does the opposite of what is expected or requested of him.

(v) Suggestibility, wherein - in contrast to negativism - the patient displays automatic obedience. This mode of behaviour may assume one or other of the following forms: catalepsy or flexibilitas cerea, in which the patient's limbs remain indefinitely in the position in which they are placed; echolalia, in which the patient repeats words or phrases addressed to him; echopraxia, in which the patient repeats actions performed in front of him.

(vi) Automatism, wherein the patient carries out acts without being aware of their meaning or even of their occurrence.

(vii) Posturing,wherein the patient strikes peculiar attitudes which reflect the tone of the patient's general mental state.

B. THE SYMPTOMATOLOGY OF SCHIZOPHRENIA EMERGING FROM THE ASSOCIATED DISORGANISATION OF THE SOMATIC SEGMENT OF THE PERSONALITY.

The effects of psychic disorganisation are of necessity transmitted sooner or later to the somatic segment of the

personality, and the resultant psycho-somatic disorganisation gives rise to,a behaviour change more complex than heretofore. The increased complexity of this change is determined by the disorganisation which proceeds apace in the diverse components or "systems" of the soma. Accordingly, the complication of the symptomatology which occurs must be examined with reference to each clinical system.

(a) The symptomatology of schizophrenia emerging from the associated disorganisation of the central nervous system.

This may be considered under the following heads:-

(1) Sleep: This may be disturbed during the acute or chronic phase of the disorder.

(2) Fatigue: Some patients tire very easily, both mentally and physically; while others may appear to be quite indefatiguable.

(3) Headache: This is very common, and may take a great variety of forms.

(4) Sensory disturbance: Paraesthesia, hyperaesthesia, and analgesia are commonly present.

(5) Motor disturbances: These may include paralysis, in the form of hemiplegia; idio-muscular contractions, and fibrillary contractions.

(6) Disturbances of co-ordination.

(7) Disturbances of reflexes - superficial and deep.

(8) Psycho-motor tension states: These states include the following:-

(i) Catalepsy: In this the patient may present an ironed out facies with tense lines and features: or he may persistently maintain a forced posture suggesting a state of muscular rigidity, and also a certain degree of resistance to passive movement; or he may go into the opposite condition of "flexibilitas cerea" or "waxy flexibility", wherein he becomes incapable of spontaneous movement; but

maintains the exact position in which he is passively placed.

(ii) Stupor: In this a patient's reaction to his environment may be markedly diminished or even entirely absent.

(iii) Stereotypy: The inclination to stereotypy in movement, action, posture, speech, writing, drawing, musical performance, thought, and desire is commonly met with in schizophrenia.

(iv) Mannerism: A patient may take on a certain pose which is artificial, stilted, and pompous; or he may develop peculiar mannerisms as regards walking, washing, dressing, eating and speaking.

(v) Negativism: Negativistic behaviour may assume an active or a passive form. In passive negativism, the patient cannot, or will not, do what is expected of him; in active negativism, the patient may do either the very opposite of what is requested of him, or else something other than what is expected.

(vi) Command-automatism: A patient may obey more or less mechanically any and every suggestion and command coming from the outside, and without being able to resist them in any way. Flexibilitas cerea has been included by Kraepelin in the phenomenon of command-automatism. Echopraxia and Echolalia are common modalities of command-automatism. In this a patient may imitate an act or a gesture or echo a sound or a voice without thinking, without discrimination, and without any evidence of resistance.

(vii) "Internal"automatism: In this apatient's modalities of behaviour are automatic, occurring without any suggestion from an outside person.

(viii) Impulsivity: Impulsive behaviour in the schizophrenic is more often automatic rather than affective in character, and occurs readily in that type of patient whose thought and sensory impressions are constantly tormenting him.

(ix) Speech and writing deviations: Abnormal-

ities in speech and writing are commonly present. Emotional blocking, poverty of ideas, incoherence, clouding, delusions and other anomalies are expressed in the language of the patients.[1] The modality of speech, states Bleuler, inevitably undergoes a great change. Cameron[2] has characterised the talk of disorganised schizophrenics, on the basis of studies of their behaviour in situations requiring verbal and manipulatory solutions, as (1) asyndetic, i.e., lacking in essential connectives; (2) metonymic, i.e., lacking in precise definitive terms for which approximate but related terms or phrases are substituted (many of these being personal idioms); (3) interpenetrative, i.e., having parts of one theme appearing as intrusive fragments in another unrelated theme; (4) overinclusive, i.e., speech making reference to factual and imaginal material which are, however, remotely related; (5) non-corresponding , i.e., speech which reflects no correspondence between what the schizophrenic said and what he actually did.

Graphological anomalies are not uncommon

(b) Symptomatology of schizophrenia emerging from the associated disorganisation of cardio-vascular system.

The cardio-vascular functions may become impaired in schizophrenia. This may be reflected (i) in alterations in the pulse rate; (ii) in changes in the blood-pressure; and (iii) in the vaso-motor disturbances which not infrequently occur*.

(1) Bleuler, Op. Cit., pp. 147-148.

(2) N. Cameron,(1938):"Reasoning, regression and communication in schizophrenics". Psychol. Monog., 50 No.1; Idem (1938):"A study in thinking in senile deterioration and schizophrenic disorganisation", Amer. J. Psychol.,51: 650-665; Idem (1939):"Deterioration and regression in schizophrenic thinking". J. Abnormal & Psychol., 34: 265-270; Idem (1939):"Schizophrenic thinking in a problem-solving situation". J. Ment. Science, 85: 1012-1035.

(X) Vide (i) Bleuler, Op. cit.; (ii) Lingjaerde, C.L. Loane and H. Strom (1950):"Variation of blood pressure with age in schizophrenics", Nord. med.,43: 167-170; (iii) M. Schachter (1949):"Characteristics of tension in schizophrenic conditions", Neurobiologica, 12: 163-167.

(c) Symptomatology emerging from the associated disorganisation of the respiratory system.

Respiratory disturbances, e.g., pulmonary tuberculosis, are not uncommon in schizophrenia.*

(d) Symptomatology emerging from the associated disorganisation of the gastro-intestinal system.

The gastro-intestinal disturbances commonly met with in schizophrenia include (i) Anorexia - usually accompanied by symptoms of gastric catarrh; (ii) Bulimia; (iii) Ptyalism; (iv) Hyperchlorhydria; (v) Constipation, and (vi) Dysentery and severe diarrhoea.**

(e) Symptomatology emerging from the associated disorganisation of the genito-urinary system.

The urine output and the excretion of urea, chlorides, and alkaline salts are variously affected in schizophrenia.***

(f) Symptomatology emerging from the associated disorganisation of the haemopoetic system.

The presence of chlorosis, anaemia, increased fragility of the red cells and of an increased coagulation time has been reported in different series of cases investigated by Kahlbaum, Steele, Vorster, Bruce, and Obici and Bonon.xxxx The frequency of schizophrenic psychoses in pernicious anaemia has been reported on by Friedlander and Dagradi.(1)

(g) Symptomatology emerging from the associated disorganisation of the blood chemistry.

The disturbances in the blood chemistry of schizophrenics does not appear to be marked. Thus Gottfried(2)

(x) Vide (i) Annual Report of Commissioner of Mental Hygiene, Union of South Africa, 1949; (ii) Report of the Ministry of Health. Cmd. 8342, H.M.S.O. 1950; (iii) Bleuler and B.A. Zurgilgen (1949):"Tuberkulose und Schizophrenie". Wien, med. Wchschr.,99:357-358.

(xx) Vide (i) Annual Report of Commissioner of Mental Hygiene Union of South Africa, 1949, p.26; (ii) Report of the Ministry of Health, United Kingdom, 1950, Cmd. 8342, H.M.S.O. p. 82.

(xxx) Vide Bleuler, op. cit., p. 163.

(xxxx) Vide Bleuler, op. cit., p. 164, ff.

(1) J.H. Friedlander & A.F. Dagradi (1949):"Schizophrenic psychosis with pernicious anaemia", Psychiat. Quart., 23: pp. 444-456.

(2) S.P. Gottfired (1949):"Serum protein fractionation studies on schizophrenia", Psycho-somatic Med. 11:334-335.

found that the mean total protein, albumin, globulin, the albumin-globulin ratio, and euglobin values of schizophrenic patients before treatment agreed closely with those obtained for normals, and that the mean pseudo-globulin level differed from the normal, being slightly higher. The blood sugar curves follow a characteristic course in schizophrenia, according to Holmgren and Wohlfahrt[1]

(h) Symptomatology emerging from the disturbed nutritional status.

Llopis[2], citing his experience with pellagrins during the recent Spanish war, has stated that mental disorders are commonly encountered in conditions of avitaminosis like pellagra. The clinical symptoms, which may vary considerably according to the severity of the avitaminosis, are however, non-specific, and may be indistinguishable from a typical schizophrenia.

(i) Symptomatology emerging from the associated malignant degeneration of the soma.

Schefflen[3] has reported that carcinoma of the pancreas was slightly more frequent in schizophrenic patients, although the disturbance of pathological types and sites was the same as in the general population.

(j) Symptomatology emerging from the associated disorganisation of the endocrine system.

Thyroid dysfunction, like myxoedema, may produce characteristic paraphrenic or other psychotic symptoms. Such cases have been observed by the writer at the Johannesburg General Hospital.

(k) Symptomatology emerging from the associated disorganisation of the skeletal system.

Trophic disturbances like osteomalacia and bone

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(1) H. Holmgren and S. Wohlfahrt (1947): "Course of blood sugar curve in mentally healthy subjects and in schizophrenics during adrenalin tolerance tests for day and night", Acta psychiat. et neurol. Supp. 46, pp.132-144.

(2) B. Llopis (1950): "La psychose pellagreuse et les problemes psychiatriques", Schweiz. Arch. Neurol. Psychiat., 66 : 172-192.

(3) A.E. Schefflen (1951): "Malignant tumours in the institutionalised psychotic population", Arch. Neurol. Psychiat. 66: 145-155.

fragility have been described by Bleuler in old hospital inmates.

(1) Symptomatology emerging from the associated disorganisation of the cutaneous system.

Disturbances in the function of the sweat glands have been reported by Bleuler to occur in the various types of the disorder. Thus sweating may be greatly increased in some patients, but decreased in others - especially in conditions of excitement. Localised sweating , e.g. of the hands has been observed by the writer in a few cases.

(C) THE SYMPTOMATOLOGY OF SCHIZOPHRENIA EMERGING PRIMARILY FROM THE DISORGANISATION OF THE SOMATIC SEGMENT OF THE PERSONALITY.

A symptomatology indistinguishable from that met with in the functional type of schizophrenia may be met with in primary disease conditions of one or other components of the soma. These disease conditions include the following:-

(a) Infections: e.g.:-
- (i) Syphilis of the central nervous system, viz. Meningoencephalitis type (general paresis)
  Meningovascular type (cerebral syphilis)
  Intra-cranial gumma;
- (ii) Tuberculous meningitis;
- (iii) Epidemic encephalitis;
- (iv) Sydenham's chorea;
  etc., etc.

(b) Intoxication, e.g.:
Alcoholic intoxication, presenting as
- (i) Delirium tremens;
- (ii) Korsakow's psychosis
- (iii) Acute hallucinations;

(c) Drug addiction or other exogenous poisoning, e.g.:
Addiction to opium and its derivatives, to barbiturates, poisoning by metals, gases, etc.

(d) Trauma, resulting in
- (i) Traumatic delirium;
- (ii) Post-traumatic personality disorders;
- (iii) Post-traumatic mental deterioration.

(e) Cardio-vascular disorganisation, e.g.:
- (i) Cerebral arteriosclerosis;
- (ii) Cetebral embolism;
- (iii) Congestive cardiac failure.

(f) Renal disorganisation, e.g.:
Chronic nephritis, presenting with uraemia

(g) Convulsive disorder, e.g,:-
(i) Epileptic deterioration;
(ii) Epileptic clouded states

(h) Senility, presenting with:
(i) Senile psychoses, e.g.:-
Delirious and confused types.
Depressed and agitated types.
Paranoid types.
(ii) Alzheimer's disease
(iii) Involutional melancholia, e.g.:-
Melancholic type
Paranoid type.

(i) Endocrine disease, e.g.:)
(i) Thyrotoxicosis
(ii) Myxoedema

(j) Nutritional disorder, e.g.:-
Pellagra;

(k) Neoplasia, e.g.:-
(i) Intracranial neoplasms
(ii) Neoplasms outside the central nervous system.

(l) Hereditary diseases, e.g.:-
(i) Multiple sclerosis
(ii) Paralysis agitans
(iii) Huntington's chorea.

The symptomatology of schizophrenia, howsoever produced, may assume one of several patterns. Kraepelin has described four fundamental forms of schizophrenia, viz:-

(a) The schizophrenia simplex group or simple type.

In this disease type, the patient gradually loses interest, instead of increasing in effectiveness during adolescence and early childhood, tends to falter in his ability to cope with the demands of his environment. The patient's unconcern and apathy are at first misunderstood by friends and relatives, and are not infrequently attributed by them to "sheer indolence" or "lack of ambition". The striking feature about the simple type of schizophrenia is that it is not characterised by emotional outbursts or by any obvious hallucinatory and delusional episodes, (N. Cameron)(1).

(b) The hebephrenic type:

This form of schizophrenia appears with sudden onset in early puberty and is characterised by various affective disturbances, by odd symbolic mannerisms, by silly incongruous laughter, by bizarre notions, and by delusions which

(1) N. Cameron (1945):"The Functional Psychoses", in J. Mc. V. Hunt: Personality and the Behaviour Disorders, The Ronald Press Co., New York, Vol. 2, p. 893.

are vague, unsystematised, and fragmentary. A patient of this category is invariably torn by opposite emotions. Thus he may affect pathos one moment, and give himself over to clowning in the next. Melancholic and manic excitements may appear at one time in the course of the disease. Deterioration in hebephrenia is always marked. Interference with the fantasies or activities of this type of patient is apt to elicit sudden impulsive retaliation. (Noyes, 1939).(1)

(c) The catatonic type.

In this group, the onset of the distinguishing symptoms may be sudden or insidious.

In cases of sudden onset, motility disorders predominate such as stupor and excitement, as well as the less dramatic reactions or repetitions, posturing, gesturing, and grimacing. The agitation in this hyperkinetic phase may vary between manic and melancholic conditions, and confusional and stuporose states. A period of quiescence may set in in which the patient is able to correct his delusional ideas, rid himself of his hallucinations, and resume elementary work again.

When the onset is insidious, the catatonia may appear with or without agitation, and with or without negativism. The stupor in catatonic schizophrenia is an active and not a passive immobility. Thus a patient may resist any attempt made to change the position of his limbs or trunk. He may remain quite observant, too, in spite of his stupor, and be able to recall the chance remarks of a medical attendant. A patient may come out of a stupor as suddenly as he goes into it, and then in response to some hallucinatory command, he may suddenly attack a person, and later go into stupor. (Homburger), 1932(2).

(d) The paranoid type:

In this category delusions dominate the clinical picture

(1) A. Noyes, (1939):Modern Clinical Psychiatry, 2nd Edition, Philadelphia. Saunders.

(2) A. Homburger (1932):"Allgemeine Symptomatologie :Motorik", in Bumke, O.:Handbuch der Geisteskrankheiten, Bd.9: Die Schizophrenie, Berlin, Springer.

The delusions are mainly persecutory or grandiose in, character. The somatic complaints met with in such patients, especially those of a hypochondriacal nature, are considered to be delusional in some instances. (Billings, 1939)[1]. The paranoid delusions may at first be quite restricted in scope, fairly logical, and with congruant attitudes of resentment, aggression, self-aggrandisement, anxiety, etc.; but with increasing disorganisation, the scope and variety of delusional topics increase, and for a time become less stable and less logical. In patients given to delusions of persecution there is often a period of hallucinatory excitement, mainly limited to the auditory sphere, and frequently combined with marked confusion and disorientation.(Cameron, 1945)[2].

In every pattern of schizophrenic symptomatology there is nearly always present a degree of dementia. Thus schizophrenic patients never act in accordance with the delusions or distorted notions.

II

METHODOLOGICAL APPROACH TO THE PROBLEM.

The description of the symptomatology of schizophrenia presented in the foregoing section, and which is based upon the clinical observations of clinical investigators, suggests that the psychic disorganisation met with in the disorders is not limited to the psyche, but that its effects are transmitted to the soma as well; and that conversely, the effects of disease occurring, in the first instance, in the soma are not limited thereto, but are transmitted to the psyche. The work of Selye, states Le Vay[3] has demonstrated that there is "an intimate connection between personality disorder and emotional disturbance on the one hand, and physical disease on the other; and it has provided, furthermore, the beginning of a explanatiom in terms of the relation between stress and target organs during disordered adaptation." Selye has

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(1) E. Billings:Handbook of Elementary Psychology and Psychiatry, New York, Macmillan. Cited by Cameron Op. cit., p. 896.
(2) Cameron (1945), Op. cit., p. 896.
(3) D. Levay (1952):"A Unitary conception of disease", The British Journal for the Philosophy of Sc.,Vol. III No. 10, pp. 157-168.

shown that emotional stimuli may be equally as effective as physical stress in setting the adaptation mechanism in motion. The pituitary gland is intimately related to the thalamic and subthalamic regions of the brain, and it can be assumed that emotional stress is capable, not only of its well-known property of affecting the blood vessels and viscera through the vegetative nervous system, which has its headquarters in this region, but also of stimulating the anterior pituitary to secrete its corticotrophic hormones, so initiating the adaptation response on the hormonal side. This direct connection between emotion and the formation of cortical hormones is important as knowledge accumulates about the peripheral effects of these hormones."In psychoses like schizophrenia, a typical bodily configuration suggests that hormonal dysfunction is a constant part of the disease". (Le Vay, 1952)[1].

In the last twenty years a systematised school of thought has developed, associated with the names of Flanders Dunbar, amd Franz Alexander in the United States and James Halliday in Britain, which seeks to link causally particular personality types with particular diseases. Halliday[2] in particular has shown that there is a significant association between the emotionally upsetting event or situation and the emergence or recurrence of the bodily disturbance; that there is a disproportion in the sex incidence of these disorders; and that they are, commonly, in close relations of such patients, exposed to the same emotional atmosphere, than in the general population, and that the patient who develops one form of psychosomatic disorder is liable to suffer recurrence, or the substitution of another form. Halliday states further that the concept of a psychosomatic affection bears resemblance to Selye's concept of stress diseases, but in Western civilisation the common forms of stress are not those of extremes of heat or cold or malnutrition, but

(1) David Le Vay (1952)"Hans Selye and a unitary conception of disease". The Brit. J. for the Philosophy of Sc., Vol. III, No.10, pp.157-168

(2) J. Halliday (1950):"Significance of discovery of the effects of cortisons", Lancet, 2. Sep., p. 365.

emotional, and these stresses are attended by dysfunction of the nervous and endocrine mechanisms which may take a great variety of forms. The position has been well summerised by Weiss and English[1]. "All illness", they state, "is a problem of disturbance of psyche and soma, hence all medicine is psychosomatic medicine. When this thoroughly understood, there will no longer be a necessity for the term psychosomatic medicine; both parts of the term will be implicit in the word"medicine".

In the light of the body of knowledge examined herein, it is apparent that the task confronting the clinical investigator of a particular disorder, e.g. schizophrenia, logically necessitates the determination of the psychological and the physical factors contributory thereto and also the relationship between them. Accordingly, the methodological approach followed in this study in regard to the investigation of the particular problem of schizophrenia consists in the utilisation of such procedures as will facilitate the identification of the complex of factors which are operive within the human continuum, - that is the body-mind-surround, and which project the symptomatology of the disorder. The approach adopted accordingly embrace the following procedures:-

(1) Investigation of personal history of patient.

This involves the collection of the following data:-

(a) In regard to the patient:

(i) Name
(ii) Age
(iii) Birth order
(iv) Place of birth
(v) Sex
(vi) Race
(vii) Marital status
(viii) Occupational status
(ix) Occupational mobility
(x) Educational status
(xi) Economic status
(xii) Residential locus
(xiii) Spatial mobility
(xiv) Religious affiliation
(xv) Alcoholic addiction
Frequency
Quantity
Quality

(1) E. Weiss and O.S. English, (1943):Psychosomatic Medicine, W.B. Saunders Company,Philadelphia and London,pp.41-42.

(xvi) Drug addiction
Frequency
Quantity
Quality

(xvii) Past illnesses, or infections, behaviour anomalies, etc.

e.g. 1. During intra uterine life: conditions like infections, eclampsia, traumatisms of the mother?...Hydrocephalus, or other diseases of the foetus?

2. At birth: Premature labour or difficult or instrumental delivery? with resulting head injury?

3. During infancy or childhood:
Somatic: meningitis?... whooping cough with intra-cranial complications, convulsions?
Psychiatric: breathholding? nightmares?..persistent enuresis?..stammering?.. nervous mannersisms or tics?..temper tantrums?.. nail-biting?..prolonged thumb sucking?..inability to play with other children?

4. During adolescence or adulthood:
Medical: Infections, e.g.: mumps?..meningitis?.. encephalitis?..abcesses?.. typhoid?..acute rheumatic fever?..chorea?..small pox?..diphtheria?..syphilis?..Neurologic disorders(other than above)?.. Cardiac disorder?.. Respiratory disorders?.. Gastro-intestinal disorders?.. Urinary disorders?.. Endocrine disorders?.. Disorders of the haemopoietic system?.. Disorders of the lymphatic system?.. Disorders of skeletal system?.....
Surgical-traumatic: Operations and injuries in chronological order.
Psychiatric: Neurosis?.. Psychosis?..special manifestations thereof in form of - delinquency?.. criminality?..truancy?.. hoboism?. homosexuality?.. prostitution?..alcoholism? drug addiction?..religious fanaticism?.. - and in the form of temperamental abnormalities like:hypochondriacal disposition? seclusiveness, emotional lability?.....

(xviii) Marital relationships:
Relationship with wife:
Age difference?....
Differences as to - educational status?..temperamental disposition?..economic status? race?..sexual libido?..
religious affiliation?..
Relationships with children:
Emotional attachment to children?..Emotional neglect by children?.....

(xix) Social participation:
Friendships?..Membership of clubs?.
Youth Associations?.. etc.

(b) <u>In regard to the patient'd parental family history</u>

(i) The parents:

Age of Father..Mother
Race of Father..Mother
Nativity of Father..Mother
Marital relations:
Happy.....Not happy
Cause of broken home:
Death of father..Death of mother..Divorce..Desertion
Re-marriage..poverty..drink
Incompatibility.....
Duration of marriage.....
Religious affiliation:Father..
Mother.....
Educational status:Father..
Mother.....
Occupational status:Father..
Mother.....
Occupational mobility:Father..
Mother.....
Socio-economic status:Father..
Mother.....
Spatial mobility:Father..Mother
Medical History:
Tuberculosis:Father..Mother..
Syphilis:Father..Mother..
Blood dyscyasia:Father..Mother
Mental disorder:
Psychoneurosis:Father...
Mother...
Psychosis:Father..Mother..
Mental deficiency:Father..
Mother.....
Epilepsy :Father..Mother..
Habits:
Alcoholism:Father..Mother..
Drugs:Father..Mother..
No. of children:
Ages.....Sex.....

(ii) The parent-child relationships:
Parental rejection?.....
Parental domination?....
Parental overprotection?....
Parental perversion?...

(iii) The sibling relationships:
Harmony..Jealousy..Quarrelling?
Patient's status in sibling group:
Eldest.....Youngest.....
Only boy with sisters.....
Only child.....

(2) Investigation of psychic segment of patient's personality.

This includes an examination of :-

(a) The general appearance and demeanour of patient:

(b) The history of present mental disorder:
Age at onset... ....date of onset.....
Mode of onset: sudden....gradual.....
Earlier manifestations.....
Hospital record:
Date of admission.....
First diagnosis.....
Treatment.....
Date of discharge....

(c) The present manifestations of mental disorder, e.g.

(i) Disturbances of cognition:
Autistic thinking
Delusions of:persecution..grandeur..
reference.
Illusions:
Hallucinations: Auditory.....
kinaesthetic.....
Memory deviations:
Remote events:How old are you?..
When and where were you born?..
How many years were you at school?..
Recent events:Where do you live?..
Where were you yesterday?..
When and how did you come to hospital?.....
Current events:How many meals did you have to-day?..How often did you urinate to-day?...Did your Did your bowels move to-day?....
Hypermnesia?
Paramnesia?
Deviations of association:
Deviations of attention:
(i) Inability to attend(aprosexia)
(ii) Increased attention
(Hyperprosexia)
Deviations of orientation:
(i) Time
(ii) Place
(iii)Personal identity
Peculiarities of conversation.....
Deviations of comprehension....
Deviations of judgment.....
Intelligence quotient.....
Psychometric tests.....

(ii) Disorders of affect:
Happy emotional states:
Exaltation
Ecstasy
Euphoria
Unhappy emotional states:
Depression
Anxiety
Apathy (Diminution or absence of emotionality)
Irritability:
Anger:
Emotional instability:

(iii) Disturbances of conation:
Decrease of volition(abulia) or

psychomotor retardation.
Increase of volition (hyperbulia) or psychomotor excitement.
Perversion of volition, e.g.:
Impulsiveness.....
Stereotypy.....
Perseveration.....
Negativism.....
Suggestibility.....
Catalepsy(Flexibilitas cerea)
Echolalia....
Echopraxia....
Automatism.....
Posturing.....

(3) Investigation of the somatic segment of the patient's personality.[x]

This is done to establish, or exclude, the presence of any primary defect, such as a neurological, traumatic, toxic, metabolic or nutritional disturbance, etc., which may be responsible for the psychotic condition; or, conversely, to identify the secondary somatic defects precipitated by the schizophrenic pattern of psychic disorganisation. Investigation of the somatic segment thus involves the following:-

(a) Observation of general physical appearance, e.g.:
Physique(constitution type)...Development.....
Nutrition..... Dehydration.....
Dyspnoea..... Cough.....
Pallor..... Cyanosis.....
Oedema.....
Skin: Bruises....scars....bedsores....
Jaundice...rash.....petichiae...
Hair.....Nails.....
Varicosities.....
Deformaties.....
Head and Neck: Face....Scalp....eyes....ears....
Nose....septum...throat..tonsils...
Thyroid.....pulsations.....

(b) Examination of the central nervous system:
This embraces examination of the following:-

(i) Speech functions:-
1. Spoken speech:
Deviations from normal articulation, e.g.:
Stammering.....lalling speech.....
Screaming.....stacatto.....
Slurring.....
Dysarthria.....anarthria.....
Deviations from normal interpretation of spoken speech, e.g.:-
Word-deafness.
2. Written speech:-
Deviations of interpretation, e.g. visual aphasia....
Deviations of production, e.g. paragraphia

(ii) Cranial nerve functions:-
First or olfactory nerve:

(x) The plan of this section of our investigation is based on (i)Hutchison & Hunter(1952):Clinical Methods, Cassel & Co., London; and (ii) Purves-Stewart (1952): The Diagnosis of Nervous Diseases, Edward Arnold, London.

Anosmia.....Parosmia.....

Hallucinations of smell.....

Second or Optic Nerve:

Acuity of vision.....Amblyopia.....

Amaurosis.....

Field of vision: Concentric diminution....

Central scotoma.....

Hemianopsia:

Superior....inferior.....

Bitemporal....binasal.....

Colour sense:

Third, Fourth and Sixth Nerves:

3rd Nerve: Ptosis.....

Pupil dilated and unable to contract.....

Loss of power to accommodation.....

4th Nerve: Impaired power of downward movement.....

6th Nerve: Inability to move eye outward.....

Diplopia on looking outward.....

Pupils: Size.....Shape.....

Mobility:

Reaction to light.....

Reaction to accommodation.....

Cilio-spinal movement of pupil.....

Fifth Nerve:

The sensory root:

First or ophthalmic division:

Loss of sensibility of conjunctiva, lachrymal gland, mesial part of skin of nose as far as tip, the upper eyelids, the forehead, and the scalp as far as the vertex.....

Corneal reflex - abolished?.....

Second or superior maxillary division:

Loss of sensibility of cheek, front of temple, lower eyelid, and its conjunctiva, side of nose, upper lip, upper teeth, lining membrane of nose, upper part of pharynx, roof of mouth, soft palate, and tonsils.....

Loss of palate reflex.

Third or inferior maxillary division : joined by the motor root:

Loss of sensibility of lower part of face, lower lip, side of head, the ear, the tongue, lower teeth.....

The motor root:

Paralysis of muscles of mastication .....

Paralysis of tensor tympani.....

Seventh Nerve(Facial):

Paralysis of muscles of face and scalp....

Affected side of face expressionless.....

Naso-labial fold less pronounced on one side.....

Furrows of the brow smoothed out.....

Eye more widely open than the other.....

Mouth drawn to healthy side.....

Patient unable to whistle.....

Eighth Nerve: (Auditory):

Impairment of hearing.....Rinne's Test.....

Weber's Test.....abnormal auditory sensations , e.g. tinnitus.....

Hyperaesthesia of auditory nerve (hyperacusis) .....

Hallucinations of sound.....

Vertigo.....

Ninth Nerve(Glossopharyngeal):
Impairment of power of taste in the posterior part of the tongue.....
Absence of pharyngeal reflex.....

Tenth Nerve (Vagus):
Paralysis of soft palate, pharynx and larynx.....
Regurgitation of fluids through nose on swallowing.....
Inability to pronounce words requiring complete closure of the nasopharynx.
Absence of movement of palate during phonation.....
Voice hoarse and deep.....

Eleventh Nerve:
Paralysis of upper part of trapezius, e.g., patient unable to shrug shoulder against passive resistance.....
Paralysis of sternomastoid causing weakness in rotation of chin towards the opposite side....

Twelfth Nerve (hypoglossal):
Paralysis of muscles of tongue, e.g.,
Can patient move tongue?.....
Any wasting of tongue?.....

Cervical sympathetic:
Any signs of paralysis, e.g.
Recession of eyeball.....
Slight drooping of upper lid.....
Contraction of pupil with absence of dilatation on shading the eye or instillation of cocaine.....
Abolition of ciliospinal reflex.....
Absence of sweating on corresponding half of head and neck and over whole upper limb on same side...

(iii) Motor functions:

1. Investigation of motor power:
   (i) Upper limb:
   Claw hand?.....
   Progressive muscular atrophy?.....
   Wrist-drop?.....
   (ii) Trunk muscles:
   Weakness of muscles of abdomen?.....
   Babinski's "rising-up sign"?.....
   Paralysis of a portion of abdominal wall?.....
   (iii) The head muscles:
   (iv) The lower limb:
   Paresis?.....
   Paralysis?.....
   Hemiplesia?.....
   Paraplegia?.....
   Monoplegia?.....

2. Investigation of muscular co-ordination:
   (i) In the upper limb?.....
   (ii) In the lower limb?.....
   Rombergism (in Tabes)?.....
   Adiodokokinesia (in Friedreich's Ataxia)?.....

3. Nutrition of muscles:
   Atrophy or wasting of any muscles?.....
   Pseudo-hypertrophy of any muscles?.....

4. Muscle tone:
   Hypertonia or spasticity?.....
   e.g.(i) Spasticity due to lesion of pyramidal tracts?....
   (ii) Muscular rigidity in extra-pyramidal motor disorders:
   e.g.:-
   Paralysis agitans
   Parkinsonism following encephalitis lethargica

Hypotonia?.....
e.g. (i) in tabes; (ii) in chorea; (iii) in cerebellar disorders....
Contractures?.....
Kernig's sign:-
e.g. (i) meningitis; (ii) subarachroid haemorrhage; (iii) sciatica.

5. Abnormal muscular movements:
(i) Any exaggerated involuntary muscular contractions (spasm)?.....
(ii) Continuous (tonic) muscular contractions?.....
(iii) Intermittent (clonic) muscular contractions?.....
(iv) Tetanic spasm, e.g. in tetanus , in strychnine poisoning, hydrophobia, hysterical fits?.....
(v) Tetany (intermitting spasms of muscles) as in hypocalcaemia?.....
(vi) Convulsions, e.g:
in a whole group of muscles, as in epilepsy?....
in individual muscles, as in encephalitis lethargica?....
(vii) Tremor, e.g.:
Fine tremor , as in :Exophthalmic goitre, alcoholism, metallic poisoning?.....
Intention tremor, as in dissemination sclerosis?.....
(viii) Fibrillary twitching(clonic contraction of individual fibres in a muscle) as in progressive muscular atrophy?.....
(ix) Choreic movements (involuntary movements of a purpose-like character occurring in individual muscles)e.g. in chorea minor or St. Vitus Dance?.....
(x) Tics (co-ordinated, repetitive, purposive acts)?.....
(xi) Athetosis (slow muscular contractions which lead to continuous and deliberate twisting movements especially affecting the hands and feet).

(iv) Sensory functions:
1. Tactile sensibility:
Anaesthesia?.....
Hyperaesthesia, e.g. in-hysteria, alcoholic peripheral neuritis?.....
Delayed conduction of stimuli, e.g. in tabes, alcoholic peripheral neuritis?.....
2. Sensibility to pain:
(i) Superficial pain?.....
(ii) Pressure pain?.....
Analgesia, e.g. often absent in tabes.
Hyperalgesia?.....
3. Thermal sensibility:
Thresholds for heat and cold?....
4. Sense of position (Tested with patients eyes closed):
Appreciation of movement:
(i) Direction?.....
(ii) Extent?.....

5. Recognition of size, shape and form:
   Astereognosis?.....
6. Appreciation of weight:
   (i) By hands?.....
   (ii) By feet?.....
7. Appreciation of vibration or pallaesthesia:
   Absent or diminished in -
   (i) Tabes
   (ii) Peripheral neuritis
   (iii) Diabetes
8. Abnormal sensations, e.g.:-
   Paraesthesia - (experienced by patient in absence of external stimulus) e.g.:- "needles and pins", numbness, heats and chills, pressure, girdle pain - as in tabes, lightning pain - as in tabes, pruritis, formication.

(v) Reflexes:

1. Superficial reflexes:
   absent in : (i) Anaesthesia of skin
   (ii) Disease of sensory fibres of posterior nerve roots;
   (iii) Changes in the grey matter of the cord;
   (iv) Lesions of motor nerve fibres;
   (v) Lesions of fibres of muscles;
   absent or diminished on paralysed side in hemiplegia

   (i) Plantar reflex:
   Normal(flexor) response?.....
   Extensor response (Babinski's sign)?...
   Present in organic lesions of the pyramidal tract
   Flexor response present in - Functional paralysis, tabes, and peripheral neuritis, and polio myelitis - provided reflex arc is intact, and in paralysis agitans, myopathy and chorea.

   (ii) Epigastric and abdominal reflexes:
   Present (normal)?.....
   Absent (as when pyramidal tract of the same side is in any way affected)

   (iii) Superficial reflexes dependent on cranial nerves:
   Conjunctival (depending on the integrity of the 5th(sensory and 7th(motor)?.....
   Palate (depending on integrity of glossopharyngeal and the vagus nerves)?....

2. Deep or tendon reflexes:
   (i) Knee jerk (3rd and 4th lumbar segment of spine)
   Present?.....absent(e.g. tabes, peripheral neuritis)?..
   Exaggerated (e.g. in upper motor lesions, in hysteria, and other functional conditions)?.....

   (ii) Ankle jerk(1st and 2nd sacral segments)
   Present?....absent?..., exaggerated?...
   Ankle clonus: Present (when there is disease affecting 1st and 3rd sacral segment)?.... absent?....

   (iii) Triceps - or elbow jerk (7th and 8th cervical segments):
   Present?.....absent?.....

(iv) Biceps or flexor jerk (5th and 6th cervical)
Present?..... absent?....

(v) Wrist jerk (6th cervical)
Present?.... absent?.....

(vi) Jaw jerk (Motor nucleus of 5th Nerve)

3. Organic reflexes and sphinters:

(i) Deglutition:
Difficulty in swallowing:

(ii) Defaecation (4th and 5th sacral segments)
Incontinence ?.....
Difficulty in act?.....
Tenesmus?.....

(iii) Micturition: (11th and 12th Thoracic, 1st Lumbar, and 2nd, 3rd, 4th sacral segments)
Retention?.....
Incontinence?.....
Difficulty or pain in act?.....

(vi) Trophic functions:

Nutrition of different tissues or organs may be impaired in diseases of the nervous system:-

(i) The bones:
Brittle from interstitial absorption?.....
Spontaneous fracture (in oesteopathy)

(ii) The joints:
Painless effusion with or without atrophy, or enlargement of the articular ends of the bones?....
Bones and joints involved together (osteo-arthropathies)

(iii) The skin:
Erythema?....Perforating ulcers (as in tabes, diabetes?.....
Gangrene?....Painless whitlows?.....

(iv) Epidermic appendage:
Alopecia?....nails dry and brittle?..

(v) Muscles:
atrophy?.....

(vi) Glandular organs, e.g. testes:
Atrophy?.....

The Eye:

1. The pupils:
Reactions to light?.....to accommodation?

2. The fundus oculi:

(i) The optic disc:
Shape?....Colour?....Atrophy?....
Edge of disc: Papilloedema (as in increased intracranial pressure, e.g. cerebral tumour, T.B., meningitis, meningococcal meningitis, chronic nephritis, malignant hypertension, anaemia)?.....
Surroundings of disc:.....

(ii) The blood vessels:
Pulsation (as in aortic regurgitation)?.....
Haemorrhages (as in - hypertension, chronic hephritis, aplastic anaemia, leukaemia, thrombopenic purpura, retinal arteriosclerosis)?.....

(iii) The macular region:
Encircled by white spots(as in hypertensive retinitis)?.....

(iv) Periphery:
Stigmata of -
Disseminated choroiditis?.....
Retinitis pegmentosa?.....
Hypertensive retinitis?.....
Diabetic retinitis?.....
Leuccaemic retinitis?....
Choroidal milliary T.B.?.....

Cerebro-spinal fluid:

1. Colour:
Clear (as in health)?.....
Turbid (due to pus or red blood cells)?

2. Clot formation: (as in meningitis, cerebral tumour, or in polyneuritis)

3. Cytological examination:
Pleocytosis, or excess of cells?.....
Polymorphoneclear pleocytosis(as in meningitis?.....
Lymphocytic pleocytosis(as in syphilis)?
Mixed type of pleocytosis (as in T.B., meningitis and poliomyelitis)?.....

4. Chemical examination:
Proteins: Normal amount (i.e. trace of albumin and hardly any globulin, and total protein not more than 35 mgms per 100 ccs C.S.F.)?.....
Globulin: increased(as in G.P.I.)?.....
Glucose: Normal amount (i.e. 50 to 75 mgms. glucose per 100 ccs)?.
Diminished(as in acute meningitis)?.....
Chlorides: Normal amount (i.e. about 750 mgms. per 100 ccs)?.....
Diminished (as in meningitis)?
Increased (as in renal efficiency)

Wassermann reaction:
Positive (in G.P.I. in 100%, in Tabes in 80%)?.....
Negative:.....

Lange's Colloidal gold test:
Positive (in syphilis of C.N.S.)?.....

(c) Examination of the cardio-vascular system:
This involves the following procedures:-

(1) Inspection of precordia -
to determine :

1. Form of precordia
2. Movements
(i) In the precordial region, e.g.:Apex beat?
(ii) Outside precordial region: e.g. pulsations in root of neck?.....
3. Presence or absence of distended veins on the chest wall or in the neck.

(2) Palpitation -
to confirm or modify results obtained by inspection, viz.:
1. Form of precordia:
2. Movements of -
(i) Apex beat, viz. position?...character?..
(ii) Other precordial pulsations?.....
(iii) Pulsations outside precordia
3. Vibrations
(i) Originating within the heart?.....
(ii) Originating exocardially (friction)?....

(3) Percussion
to determine the bounderies of the heart and surrounding viscera, etc.

(4) Auscultation of the heart and vessels:
to determine -
the character of the heart sounds with respect to -
(i) Intensity of first and 2nd sounds?
(ii) Reduplication of 1st or 2nd sounds
(iii) Regular?....Irregular?.....
(iv) Quality, e.g. abnormal murmurs?....

(5) Examination of Pulse:
to determine -
(i) the rate.....(ii) the rhythm.....
(iii) the volume.....(iv) the condition of walls.....

(6) Examination of Blood Pressure:
Systolic pressure.....
Diastolic pressure.....

(7) Electrocardiographic examination
(When specially indicated)

(8) Radiological examination
(When specially indicated)

(d) Examination of the respiratory system:
This embraces -

(1) Inspection, to determine -
1. Form of chest:
Normal?.....abnormal?.....
2. Movements of chest:
(i) Rate per minute?.....
(ii) Ratio between respiratory rate and pulse?.....
(iii) Rhythm, e.g.:
Inspiration prolonged?.....
Expiration prolonged?.....
(iv) Type
(v) Character

(2) Percussion, to determine -
(i) The bounderies of the lungs
(ii) The resonance of the lungs

(3) Palpation, to determine -
1. Form of chest
2. Movements of chest
3. Vibrations:
(i) Fremitus
(ii) Vocal fremitus
increased...diminished...absent...
4. Tenderness

(4) Auscultation, to determine
1. Character of respiratory sounds:
(i) Vesicular
(ii) Broncial breathing
2. Vocal resonance
Increased...diminished...absent...
3. Accompaniments
(i) Rales...(ii) Friction...(iii) sounds...

(5) Radiological examination of chest
(Where specially indicated)

(6) 1. Examination of sputum, embracing -
Naked-eye inspection for
(i) Quantity
(ii) Colour
(iii) Odour
2. Microscopic examination, for
(i) Cellular structures, like pus, etc.
(ii) Bacteria, e.g., Tubercle bacillus, pneumococci, etc.

(e) Examination of haemopoietic system:
This embraces among other things -
(1) The study of cellular changes, viz.:
1. Haemoglobin determination
2. Enumeration of red cells
3. Enumeration of leucocytes

4. Differential leucocyte count.
5. Observations on the red cells in a stained blood film, e.g. for nucleated red cells, reticulocytes, abnormalities in size, abnormalities in shape, etc.
6. Observation on the leucocytes in a stained blood film, e.g. for mature cells, or immature cells like myelocytes, myeloblasts, etc.

(2) The study of serological changes, e.g.:

Flocculation and precipitation tests, as in syphilis.

(3) The study of physical and chemical changes, e.g.

1. Sedimentation of red cells
   (Increased in all conditions where there is tissue breakdown, e.g. cancer.)
2. Fragility of red cells
   (increased in most cases of acholuric jaundice)
3. Bilirubinaemia
   (Increased in obstructive jaundice).

(f) Examination of lymphatic system:

To determine whether there is -

(1) A generalised enlargement of lymphatic glands, as occurs in:-

Lymphatic leukaemia
Hodgkin's Disease, etc.

(2) A localised lymphatic glandular enlargement, as occurs in sepsis, T.B., and malignant disease.

(g) Examination of the alimentary system and abdomen:

This embraces , among other things, the following:-

(1) Examination of the mouth, viz.:-

Lips.....teeth.....gums.....tongue.....

(2) Examination of the throat, viz:-

Palate.....fauces.....pharynx.....breath.....

(3) Examination of the abdomen, by -

Inspection.....
Palpation.....
Percussion.....
Auscultation.....

(4) Examination of abdominal viscera, viz.:-

Stomach.....
Liver.....
Gall-bladder.....
Spleen.....
Kidneys.....

The Urine:-

Quantity.....
Colour.....
Density.....
Reaction.....
Blood.....
Sugar.....
Bile.....
Pus.....
Micrsocopic appearance of urinary deposits.

Intestines

Character of stool.....
Bile.....
Haemorrhage.....

(h) Examination of the locomotory system:

Bones.....
Vertebral column.....
Skull.....
Gait, e.g.:-

Spastic gait?.....
Ataxic gait(in tabes)?.....
Reeling gait(in cerebellar ataxia)?...
Festinant gait(in paralysis agitans)?..
Waddling gait(in pseudo-hypertrophic paralysis)?...and in congenital dislocation of the hip)?.....

High-stepping gait(from peripheral neuritis affecting antr. tibial nerve)?.

(i) Examination of the cutaneous system:

This embraces inspection for the following:-

Pallor(as in various anaemic states)?.....

Yellowness (as in haemolytic jaundice, when tint is pale lemon yellow; or in obstructive jaundice, when tint is dark yellow)?.....

Bronzing (as in Addison's Disease)?.....

Earthy tint (as in chronic malaria, in syphilis or in cancer)?.....

Dusky tint(as in heart failure)?.....

Eruptions -

Erythematous?....Macular?.....

Papular?.....Vesicular?.....

Pustular?.....Purpuric?.....

Ulcers?.....

Scars?.....

III.

SOURCES OF CLINICAL MATERIAL.

The clinical material discussed herein was personally investigated by the writer and was derived from the following sources:-

(1) The Sterkfontein Hospital, Krugersdorp, where -

(i) A group of 15 schizophrenic patients,both male and female were personally examined both clinically and psychiatrically on a number of successive occasions covering a period of approximately 100 hours.

(This group is referred to in the text as the "A" group of patients).

(ii) The data of a group of 50 patients were examined to evaluate the factors of age, heredity, and marital status, economic status, educational status, residential status, population density etc. in the etiology of the disorder.

(This group is referred to in the text as the "X" group of patients.)

(2) The Neuro-psychiatric Department of the Johannesburg General Hospital where the data of a group of 50 patients were examined in order to,evaluate further the factor of heredity, marital status, occupational status, economic status, educational status, residential status, and population density in the etiology of the disorder.

(This group is referred to in the text as the "Y" group of patients.).

(3) The Annual Reports of the Commissioner of Mental Hygiene of the Union of South Africa, in which data were analysed with a view to determining the factors of sex, race, and nativity in the etiology of the disorder.

(This group is referred to in the text as the "Z" group).

(4) The private medical practice of the writer in which 6 patients with organic disease and presenting a schizoform symptomatology were investigated,

(This group of patients is referred to in the text as the "B" group).

The data in regard to the personal history of the "A" group of patients were obtained only in part from the clinical records made available to the writer at the Sterkfontein Hospital; but as these were inadequate from the point of view of the special character or our investigation, we found ourselves obligated to communicate with the parents or close relatives of the patients concerned. In eight instances we were able to make direct contact with relatives on the Sunday afternoon when they visited the Hospital, and arrangements were then made by the writer to visit them at their homes. In the remaining seven instances, contact was made with the parents or close relatives either by writing or by telephone, and again arrangements were made for the writer to visit them at the home. Home visits had to be repeated at least twice in each case, as we found that relatives were understandably shy of confiding the intimate private details of their lives. A knowledge of English and Afrikaans enabled the writer to establish a certain measure of confidence. The reaction of the affected families to the presence of insanity in the family circle varied a great deal. Thus some regarded it as a "social disaster" in that "it had spoiled the chances of marriage for the daughters in the family". Some said that it had been"a protracted agony" and that they "could not bear it any longer". Some said that their child "had been bewitched by an evil eye". And some said wildly:"Why should it happen to people like us?"

Not all the information which we sought could be obtained from parents - where these existed - and invariably it had to be supplemented by interrogating a brother, a sister, or even an in-law. Some questions which we put to one member of a family would be repeated to another in order to ensure accuracy in regard to certain details upon

which the final analysis was to be made.

Furthermore, in five instances, data relating to the personal history of patients had necessarily to be supplemented by the perusal of records at the Neuropsychiatric Department of the Johannesburg General Hospital and at the offices of the Mental Hygiene Society of the Witwatersrand, Johannesburg, through which channels these patients had initially passed before referral to the Sterkfontein Hospital, Krugersdorp.

The data obtained by the interrogation of relatives, by the examination of the patients themselves, and through the perusal of supplementary records, are mobilised in the ensuing chapters under the following,heads:-

I The presentation of the data;

II The analysis of the data;

III Evaluation of response to treatment;

IV Conclusions.

CHAP. II.

PRESENTATION OF THE DATA.

The data presented herewith relate to (a) the "A" group of patients, and (b) the "B" group of patients. The "A" group of patients were found, in our investigation, to be without any organic basis for the attendant schizophrenic disorder, while the "B" group were found to have an organic basis for the condition. Ten cases selected from the "A" group are presented hereunder for illustrative purposes, the data in each case representing a cross-section of the human continuum, wherein are exposed the complex of factors contributory both to the causation and symptomatology of the disorder. The data relating to the "B" group of cases are likewise presented, but are of a more limited character and yet adequate from the point of view of identifying the factors responsible for the emergence of the schizophreniform symptomatology.

(A) THE "A" GROUP OF CASES.

CASE NO.1.

(1) Patient's personal history:

(a) Patient-----, an European male; aged 26 years; the eldest of 5 children; born in Johannesburg; single; by occupation a storeman in the Navy, but subsequently , after discharge from the Navy during World War II, was in three different clerical jobs for short periods, having to abandon them all on account of his nervousness; passed matriculation; economic status was fair, having earned about £35 a month as a clerk; resided in-----Str., Bertrams ; parents had six changes of residence within 12 years, but patient has lived apart from them for varying periods ; belonged to the Jewish religion, but had spent his earlier years at a Catholic Boarding School, later embracing the Catholic faith and then renouncing it; was not addicted to alcohol; was addicted to drugs to the extent of taking Secconal and Luminal in 1½ grain doses at night on account of insomnia.

Past illnesses: The period of gestation of the mother of the patient was not attended by any toxaemia of pregnancy, and patient's birth was normal.

During infancy patient had measles, whooping-cough, and mumps. He suffered from occasional night terrors; he was afraid to go to sleep because of the fear of dying in the

night; he would then read from his prayer-book and ask God to protect him from evil.

During adolescence, patient contracted virus 'flu on a number occasions , and always became delirious with a high temperature. He was always afraid of dying. He had no other serious illness. He developed masturbatory habits at about the age of 13 years. One day he was caught by his father and given a thrashing. Thinking that he had done something shameful, the patient ran away from home and made his way to Durban and from there wrote to his father that he wished to die and that he was going to drown himself in the sea. The boy was subsequently found in a state of destitution by the Police and sent back home.

Social participation: Patient had one schoolboy friend and even then they seldom went out together as they lived in different suburbs. He belonged to no youth clubs and rarely went to bioscopes - as "there was just not enough money for these things". Patient was at one time deeply in love with a school-girl friend of his; she was considered very beautiful, but she would have nothing to do with him as she considered him somewhat odd and gawky; once he saved up enough money to buy her a volume of Shakespeare's plays, thinking that this would awaken her interest in him, but she returned it with a note saying that after due consideration with her mother, she could not possibly accept it; this was a big blow to the patient, and his suffering was made worse by the fact that other members of the family made a mockery of his discomfiture; patient was not quite himself after that; he avoided his family, kept a good deal to himself, and behaved like a beaten dog.

(b) Patient's parental family history: The age of the father was 51 and of the mother 46; both parents were born of the Jewish race and religion; both parents were born in Belgium; and both had a primary school education; father was a tailor, and always in same trade, and earned £40-£60 a month; mother was always a housewife. Parents lived in same house for 18 years but had to move because area had deteriorated.

Medical history: Father was asthmatic, was shy and withdrawn, and given to anxiety. The mother had rheumatic fever and was under treatment for mitral stenosis. There was no evidence of grave mental disorder in the rest of the family. The number of children in the family was 5, two girls and three boys aged 17,19,21,24 and 26 years.

The father-mother relationships were not happy, and were marred by the struggle to make ends meet; quarrelling between the parents occurred at intervals, but usually stopped as quickly as they flared up, and the angry words spoken by both parties were invariably followed by remorse. There was, however, no joy in their lives, and they seemed to be incapable of kindling it in their children.

The parent-child relationships were unsatisfactory; patient was dominated by the father, and over-loved by the mother. The attitude of the parents to the other siblings was similar except that in the case of the one daughter special favouritism was shown. The unsatisfactory parent-child relationships were due largely to the culture-conflict in the home. The parents kept doggedly to the ways and manners of their homeland, while the children were overwhelmingly orientated to the culture of South Africa.

The sibling relations were fair. Patient,however, was somewhat jealous of a younger brother who had made greater educational progress than himself to the extent that he had taken a degree at the University.

(2) Psychiatric investigation of the patient:

(a) History of present disorder: The age of the patient at the onset of the present condition was 20 years, and the date of onset the earlier part of 1946. The mode of onset appeared to be gradual. In 1943, while on service with the Royal Navy, patient's ship was repeatedly exposed to dive-bombing attacks, which had a shattering effect upon his nerves. Some months later, while on active service in India, he contracted amoebic dysentery, and was brought back to Wynberg Hospital, in the Cape, where he was treated with Emetine, E.B.1. and other drugs. He had recurrences of diarrhoea, and received altogether fice courses of Emetine treatment. He continued to complain of laxity of bowels (three stools a day) without blood or mucus - abdominal cramps and peri-anal chafing. Recently he had recurrences of blood in the stools. Also, in 1943, while in India, patient twisted his left ankle while coming down a gangway, and his left ankle has since remained weak with a tendency to inversion when running. Patient was hospitalised for three weeks in India with an anxiety state, the symptoms of which were insomnia, forgetfulness, and jumpiness. These symptoms recurred on his return to the Union in March, 1946, and led to the initial period of treatment at -----Hospital, Johannesburg. Physical examination at this time revealed nothing except for a barely palpable tender liver edge and hypermobility at the left ankle joint.

On 12.9. 1946, patient was admitted to the -----Hospital complaining of being nervy and jumpy, of having nightmares and of difficulty in concentrating. Observation of the patient at this time showed that he was poorly co-operative at Physical training and Occupational Therapy. He always had some excuse for not attending. He was, however, noted to mix well and to be take advantage of the recreational facilities. He slpet well. Patient was treated at first by superficial psychotherapy and ordinary hospital routine, and on the 18th Oct., 1946, he was transferred at his own request to the Dispersal Depot for final discharge from the U.D.F. Patient then went into clerical employment. However, he had to abandon his employment on account of the recurrence of his nervousness, and he was subsequently readmitted to the ----- Hospital on 13.3.1947. His employment had entailed much strain, and, in addition to becoming tense and anxious, he began to suffer from insomnia and to experience a recurrence of the diarrhoea from which he had suffered in the Far East. He remained without employment for two months, and stayed at Toc H during that time. He was taken back on strength on 15.2.47, and referred for further treatment. Subsequently patient was referred to the Demobilisation Readjustment Officer for financial assistance to attend the course in Commerce at the University. On 2nd May he was referred to Dr.-----, Physician-specialist, who regarded the case as chronic amoebiasis, and suggested a course of Biodoquin and Sulphaquanadine, which was duly carried out. The orthopaedic surgeon, Capt. -----, made a diagnosis of complete rupture of external lateral ligament of the left ankle joint, and considered the condition probably due to the alleged injury; he ordered an appliance, and considered the disability to be 15% for a recurrent dislocation of the left ankle. The ophthalmologist, Dr.-----, reported a mild chronic conjunctivitis. On the 20th June, 1947, the patient was transferred to the O.P.D. of the -----Hospital, He continued his University studies, and was able to be boarded when his University Grant came through. In June 1947, patient complained of his inability to make progress at his University studies; he was unable to concentrate, and had recurrence of anxiety. He was referred to a Psychologist, Dr. -----, who noted in him a persistance of anxiety, acute self-consciousness with incipient projection of his inferiority feelings onto his environment in the form of suspicion that one of the tests was deliber-

ately designed to make a laughing-stock of him. Patient was advised to discontinue his University studies. On 12.11. 1947, patient was readmitted to -----Hospital because of a series of extraordinary statements he had made at O.P.D. interviews in regard to the signifcance of numbers. He stated that various numbers signified good, and other numbers evil. He remarked that the way people sat had peculiar significance, and at subsequent interviews revealed a thought-content which was fantastic and illogical. Thus patient felt that "it was very significant that Dr.----- was wearing a red tie on a Monday. In view of his lack of interest, vagueness, withdrawal, and preoccupation with the fantastic, a diagnosis of schizophrenia simplex was made, and patient was given a course of treatment by High Dosage Insulin and Electro-convulsive Therapy. The investigation and treatment of his bowel condition was continued at the same time. Patient's condition inproved. He was discharged, re-admitted and discharged on a number of occasions since.

(b) General appearance and demeanour of patient:

Examined on Sep. 1952, patient appeared to be untidy, and his hair was dishevelled. He seemed to be entirely unaware of his slovenly appearance. He stared into vacancy for a while and periodically became highly introtensive, clenching his fists as he struggled to reply to questions. He looked as though he had been behind prison walls for years and had forgotten what the outside world had ever looked like. Patient looked anxious and frightened, and frequently picked at his clothing during the interview. When asked what was the matter, patient got up quietly and stood in a corner with his back towards us, and said:"Give my love to my people", and then began to cry. He thought that he had been punished for his shortcomings, and felt that he ought to commit suicide. Patient's general trend was pessimistic and self-depreciatory. He felt that he had come benumbed, and that parts of his body looked as though they did not belong to him.

Disturbances of cognition were manifest, and took the form of autistic thinking, or impaired memory for remote and recent events, and, to a lesser extent, for current events. Patient was also disorientated for time and place, but not as to his personal identity. His speech was slow, laboured, and stacatto, indicating a degree of blocking. His powers of logical association were impaired; thus he expressed his ideas in a bizarre manner, saying, for example:"My soul is white because my hair is black". Patient's powers of comprehension were impaired to the extent that he was slow to grasp a total situation; thus when given pencil and paper and asked to sign his name, he took an intensely long time to respond. Patient was unable to solve simple arithmetical problems such as items 47 (1) on the Individual Scale of the National Bureau of Educational Research, and he did not know who was the Prime Minister of the Union of South Africa, or which was the Administrative Capital. Patient's insight was impaired, having no understanding of the general nature, course and implications of his disorder; he attributed his mental condition to purely physical factors such as the climate. He had no delusions or hallucinations of any kind. His mental age on the Individual Scsle of the N.B.E.R. was 9.2. years.

Disturbances of affect were clearly evident. Patient looked nervous, jittery and depressed. He said he could not carry on, and wished he were dead. The patient's mood was worried and sad and at times his description of his complaint was not in harmony with his mood. Thus he wore a sad expression while recalling some joyful memory of his boyhood.

Disturbances of conation were present to the extent that patient did not have the will to live, and his volition was generally decreased.

(3) Physical examination of the patient:

(a) General physical appearance:

Patient was an asthenic type, and his nutritional status was impaired. No abnormalities like pallor, cyanosis, dyspnoea, etc., were detected. His height was 5'10" and, his weight 131 lbs.

(b) Central Nervous System:

Speech functions: impaired; articulation was slow and laboured.

Cranial nerve functions were intact.

Motor functions: Motor power, muscular co-ordination, and muscle-tone were difficult to assess. Slight atrophy of muscles of left leg on account of disuse due to recurrent dislocation of left ankle; no abnormal muscular movements.

Sensory functions: These were difficult to assess, on account of subjective factors on part of patient.

Reflexes: Superficial reflexes present. Deep reflexes exaggerated, particularly supinator; knee and ankle jerks. Organic reflexes normal.

Trophic functions: No abnormalities detected.

The eye: Pupils react sluggishly to light and accommodation. Fundus oculi: No abnormalities present.

(c) Cardiovascular System:

No abnormalities detected by inspection, percussion, palpation or auscultation.
B.P. 125/80; P.R.:70, regular, equal in time and force.

(d) Respiratory System:

No abnormalities detected by inspection, percussion, palpation, or auscultation.

(e) Haemopoietic System:

Investigation of cellular content of blood was not indicated by clinical examination.

(f) Lymphatic System:

No abnormalities detected.

(g) Alimentary System:

No abnormalities in mouth or throat. Liver edge palpable and tender; abdominal wall tender in left iliac region.

(h) Endocrine System:

No abnormalities detected.

(i) Locomotory System:

Dislocation of left ankle joint.
Gait is slow.

(j) Cutaneous System:

Cheilosis present; pellagrous condition of skin evident.

Patient responded to High Dosage Insulin Therapy, and was given in all 24 comas. The duration of treatment was approximately six weeks.

CASE NO.2.

(1) Patient's personal history:

(a) Patient -----, an European male, aged 36 years, the eldest of six children by first marriage; born in N. Transvaal; single; by occupation a farm labourer, assisted

his father on tobacco farm for 8 years, then joined Army in 1940, but discharged after 2 years on account of nervous disturbance; left school in Std. VII, was impecunious; had lived on farm in N. Transvaal all his working life, but had spent the last 7 months on Calvinia; had had only one change of residence; belonged to the -----Church; was not addicted to drugs or to alcohol.

Past illnesses: Patient's birth was normal, the mother's pregnancy being uneventful. During infancy, patient had German measles, chicken pox,and whooping cough; was terrified of going to school, as he was afraid of the teachers and being bullied by the older boys; could not de simple arithmetic sums when in Std. III, and he had great difficulty in learning to read. During adolescence, patient had no serious medical illness; but was always a lonely boy, and always hypercritical of the members of his family; he would often say that they could not understand him; he had certain sex difficulties during his late teens; his sexual interests extended to the clothing of his sisters; and aunt once accused him of being a pervert and said that "the curse of Cain" would be upon him and that there would be hell and brimstone for him when he died; patient began to believe that he was steeped in the sins of the flesh, and that no good would ever come to him.

Social participation: Patient joined the boy scouts as a youth, and became a bugler; he could not take part in boxing because,his head would begin to throb and his nerves would become too tense. The friends of his Boy Scout days soon disappeared as they grew older. He could not mix with them as he always felt overpowered by their free and easy talk and behaviour. He was passionately fond of some girls, but they didn't seem yo like him. They thought he was a little queer and quite unlike the general fun of boys who were full of fun and animal spirits. They nicknamed him "the minister" because he always wore a solemn face and was abstemious in his habits.

(b) Patient's parental family history: The age of the father was 83 and mother had died two years ago at the age of 63 years; both parents were European and Afrikaans-speaking and of the same religious persuasion; father was born in the Transvaal,and the mother in the Cape; father had a primary school education , and mother passed Std. IV; father was by occupation a farmer, earned between £30 and £40 a month, and was unable to maintain a decent living stanfor his family; mother was a housewife; spatial mobility of parents was almost nil, having lived on same farm for almost 30 years.

Medical history: Father had always been a healthy giant of a man; was quick-tempered in his relationships with the patient; would speak very little to his family at the table, and was inclined to regard them as an onerous burden. The mother always felt socially inferior to other people in the neighbourhoos and was, to the annoyance of her children, always over-friendly to strangers; she suffered from asthma. There had never been any evidence of grave mental disorder in the rest of the family. The father had 6 children by his first marriage and 7 children by his second.

The father-mother relationships: were inadequate. There was no love between them, and they always seemed to be perpetually afraid of one another. There was no drunkenness nor any vicious atmosphere in the home, but there was always poverty and struggle, and the burden of both seemed too much to bear. There was never any time over for the giving and receiving of affection. The parents remained strangers to one another down the years of their married life.

The parent-child relationships: were far from satisfactory. The father always wore a severe and sullen expression, and the children really thought that he was a strong-willed man with a masterful personality whose only fault was that he was poor; but later the children began to entertain grave doubts about the strength of their father's character, and soon began to despise him openly. The father then began to withdraw from his family, and instead of helping the mother with the children he would spend most of his nights playing dominoes in a Greek cafe in the nearby village, and there boast of the financial acumen which he never actually possesed. The mother was humble, of a retiring disposition, and always felt self-conscious in the presence of strangers; she had sad eyes and spent her nights in praying for brighter days which were never to come. The mother transmitted her disposition to her children, and her memory kept them together for a number of years after her death. When her eldest child became afflicted with mental disorder she went into the backyard to cry and to ask "Why should it happen to people like us?" The patient's mental illness hastened her end, for she bore him a certain tender love.

The sibling relations were quite unsatisfactory. There was a great deal of friction between the sibling children and the step-children. The latter had it in for the patient and in fact resented his presence in the hosuehold. The father, however, was quite indifferent to the friction that went on between the two sets of children, for he regarded them all as a burden to himself. Patient used to keep a photograph of his mother in his breast pocket; but when the stepmother discovered this she incited her own children to tease him about being a "Mummy's darling". This would lead to fisticuffs among the children, and when the father intervened, it was but to give the patient a thrashing with a riem. The children slept 3 to 4 in a room, with only a paraffin lamp to illuminate it. When one wanted to read , the other wanted to sleep, and this was an added cause of strife among the children.

(2) Psychiatric investigation of the patient:

(a) History of the present disorder:

The age of the patient at the onset of the present condition was 34 years, according to a statement by the relatives; but close questioning showed rather that patient's present mental condition had its beginning in childhood. As a child he already showed evidence of being unhappy. He played very little with other children ,and was on that account regarded as difficult. He went to school at the age of 7, but his scholastic progress was poor. Thus he reached Std. IV only at the age of 16. He found the lessons extremely difficult, and failed three times. He tried very hard to be like other boys. He used to pray to God to help him, and once he fasted before an exam., hoping that the Lord would hear his prayer. But patient failed his exam. His father was annoyed, and made him leave school. Patient was thus obliged to work with his father who was a "bywoner" on the farm of a Mr.------. The boy planted tobacco and wheat and received 33 per cent of the earnings. On the farm the patient seemed quite happy, was very quiet, but not very friendly. He was good at his work, however, and his parents were pleased that he at last had some ability in this direction. But patient was all too prone to worry about small things that didn't at all matter, and occasionally he would lose his temper for short periods if he did not get his own way. Patient's social life at this time was very circumscribed. He never went out with girsl.His main diversion in his spare time was reading the Bible. He would never read any other book. He indulged in no sport. His speech was not peculiar, and there was nothing outstanding about ,what he said. He never laughed at

any jokes made by the members of his family, and never made jokes himself. He was like this for a number of years. In the past year, that is in 1951, patient became more reticent than ever, and spoke only in answer to direct questions, but he was still able to carry on with his physical work. When World War II broke out, patient was encouraged by his family to join the army, as they felt that "mixing with other people in the rough might knock the nonsense out of him". But patient did not do so. He began to have outbursts of bad temper and to swear a great deal without any provocation. Whenever he was addressed by his brothers and sisters he would not answer. He compalined to them that his body felt all numb, and that at times he could not hear properly. One day while working in the fields, he suddenly began to cry. He was seized with sudden terror. He was afraid of the loneliness of the veld. He was afraid of dying. That night the patient could not sleep. The following day he was taken to a doctor in -----, 18 miles away. The family was informed that his "senuwees het ingegee ondat hy so hard gewerk het". The patient was given injections and pills, and these helped to sedate him for a few hours. Patient next began to complain of pain in the stomach. He felt he could not work because of his crying, and so he went to live with his brother in ----- for one month. Later his family sent him to stay with another brother in -----, thinking that this might help him. But patient continued to act peculiarly. He would sit down in one place and look blankly into space for about 5-10 minutes, and then all of a sudden he would burst out singing. At other times he would bend down to the floor and make the motion of scrubbing; or he would sit for long periods simply plucking at his clothes, or he would stand in the doorway in a fixed position without even moving. Patient never recognised the members of his family while going through these acts. He would later watch them suspiciously. He would refuse to take his food, or to speak, unless spoken to. He had to be led to his bed at night. For days he would never sit down except for meals. He would continually pick at his nose without a handkerchief , or continually scratch his face and neck, or continually scrape on an identical spot on the wall day after day. Patient was never able to carry out any of the small domestic chores expected of him. He never befouled himself, and never committed any immodest or immoral act. The family were not able to say whether the patient had any delusions or hallucinations, but they were definite that he had no epileptic seizures. Patient was finally admitted to the -----Hospital in September, 1952, with a diagnosis of schizophrenia catatonica. At this Hospital he was treated with High Dosage Insulin, and after a period of three months he was dischsrged as "improved".

(b) General appearance and demeanour of patient as at September, 1952.

The patient looked much older than his years; he had a vacant stare, and looked forlorn and apprehensive; his demeanour was subdued; he answered all questions in a slow drawling fashion. His affect was impaired; he spoke monotonously without any emotion, although occasionally he smiled and grinned fatuously. He knew he had been in hospital, and when asked for what reason, he said that he had "funny feelings" in his abdomen that went up to his mouth and made him feel very ill. Patient gave the impression of being a mental defective with schizophrenic features.

Disturbances of cognition were manifest. Patient's thoughts were austistic , and had no relation to objective reality. His attention was poorly sustained throughout the interview. He was disorientated for time, but not for place or personal identity. His powers of comprehension and logical association were impaired. His speech was slow and

laboured, and there was no evidence of neologism or echolalia. His memory was impaired for remote events and, to a lesser extent, for recent events. He had the delusion that people were following him, and that they were constantly talking about him and threatening him. He constantly picked at his shirt throughout the interview, and when asked to refrain he just went on as though he were completely deaf. Patient had no insight into the nature or the cause of his condition. He believed that God had punished him because he had taken to the Bible too late. Patient's M.A. on the Individual Scale of the N.B.E.R. was 3.8 years. Patient smiled and grimaced alternately at different stages of the interview, and towards the close he began to cry, asking "Who am I?" "Where is my home?" Finally, the patient lapsed into a state of depression, and kept his head averted while we endeavoured desperately to contact him. There appeared to be no association between his mood and thought content.

Disturbances of conation were manifest, and were in the nature of abulia. His chief mannerism consisted in a restless tugging of his shirt.

(3) Physical examination of the patient:

(a) General physical appearance:

Patient was an athletic type. His nutritional status was poor. No abnormalities like pallor, cyanosis, etc. were present. He had marked acne of the face. His height was 5'10½" and his weight was 142 lbs.

(b) Central Nervous System:

Speech functions:	were impaired. Patient would begin a sentence and then complete it only after an interval of five to ten seconds
Cranial nerve functions:	were intact.
Motor functions:	could not be assessed as pat. was resistive and negativistic when an attempt was made to test for motor power, muscular co-ordination, and muscle tone. There was, however, no atrophy of muscles, and no abnormal muscular movements.
Sensory functions:	were likewise difficult to assess on account of patient's shallowness of affect.
Reflexes:	Superficial abdominal reflexes could not be elicited, but the plantor reflex was flexor. Deep reflexes were present, but not exaggerated. Organic reflexes were normal.
Trophic functions:	were normal
The eye:	Pupils reacted sluggishly to light and accommodation. The fundus oculi was normal in appearance.

(c) Cardiovascular System:
No abnormalities were detected by inspection, palpation, percussion, or auscultation. The B.P. was 110/72; the P.R. was 68, and the beat regular, and equal in time and force.

(d) Haemopoietic System:
Investigation of blood was not indicated by the clinical examination of the patient.

(e) Respiratory System: nil.

(f) Lymphatic System:
Clinical examination revelaed no abnormalities.

(g) Alimentary System:
No gross abnormalities were detected.
Clinically patient was edentulous.
Halitosis was present; and tongue heavily furred.

(h) Genito-urinary System:
There were no clinical indications of renal dysfunction. There was no albumen , sugar, or pus in the urine.

(i) Endocrine System:
No abnormalities detected.

(j) Locomotor System:
Patient's gait was slow and deliberate. The second and third toes of his right foot had the hammer-toe deformity; but this was not responsible for the peculiarity of his gait.

(k) Cutaneous System:
The only abnormalities were acne of the face and back.

Patient responded to High Dosage Insulin Therapy, and was given altogether 32 comas. The duration of his treatment was approximately 8 weeks.

CASE NO. 3.

(1) Patient's personal history:

(a) Patient -----, an European male, aged 21 years, the second eldest of seven children, born in Jeppes, Johannesburg, single; by occupation an outfitter's salesman; was in 5 different jobs in the space of 2½ years; left school in Std. VI; had earned £20-£25 a month, but was now impecunious; resided with parents in Bertrams, Johannesburg; spatial mobility high in that his different jobs took him into 8 different towns in the Transvaal; was not attached to any church; was not addicted to alcohol or drugs.

Past medical history: Patient's health was normal, but mother developed kidney trouble during pregnancy and subsequently suffered from high blood pressure. During infancy, patient contracted infantile diarrhoea, and, in the course of the illness, septicaemia developed; he got a mastoid abcess in both ears, and an operation by a Johannesburg ear-nose-and-throat surgeon saved his life; patient became thin and emaciated after these two severe illnesses, and it took him more than three years to recover his strength; he was always afraid of being left alone; he always wanted his father to be near him in his bedroom, but his father was a quiet, dour sort of man who never showed any emotional warmth; patient nevertheless always yearned for his father's affection; at school patient made poor progress; he learned to read much later than the majority of children in his class; he could not add or subtract like other children, and as a result was regarded by his teacher as a dunce and made to stand in a corner wearing a dunce cap, while all the other children shouted out in chorus:"Dunce, dunce, double "D"!"; patient thereafter was afraid to go to school, and, as an excuse , often shammed illness. His father gave him a thrashing and forced him to go to school; later, at the age of 11, patient became ill with typhoid fever; he was taken to hospital where he spent 8 weeks; patient lost 2 years schooling as a result of his illness, and he felt very bitter about the fact that he was somewhat older than the average boy in his class; when he returned to school after his attack of enteric fever, he found that he could not concentrate, and that he was particularly poor at arithmetic; he failed in all his arithmetic tests and so was mocked by the boys and dubbed a failure; the boys at school used to greet hum with the words:"Hello,failure!" During adolescence, patient had no severe physical illnesses, but he always complained of being depressed; he used to say

that there was a funny pressure in his head, which made him feel half-conscious of his urroundings; patient had definite sex difficulties just after the age of puberty; he used to masturbate fairly frequently; once he was caught in bed with his sister's corset; his sister threatened him that she would tell the parents unless he did everything she asked. Patient grew to fear his sister, and on one occasion actually ran away from home, thinking that she had secretly informed the parents of "the terrible thing" that he had done.

Social participation: Patient never mixed readily with other people; he was always shy and self-conscious; he had one or two friends at the primary school, but as he grew older, he became lonely; nearly all his school friends had gone to high school , and a number went on later to the University and became professional men; but he just became a rolling-stone, always going from one job to another, and never happy in any one of them; he brooded intensely over the fact that the social distance between himself and his, former acquaintances had increased with the years; patient was fond of certain girls he knew, but he became self-conscious in their company, and was afraid that they might laugh him out of court because of the gawky ways he was supposed to have; patient joined the Boy Scouts for a while, but he soon left because he could not stand being bossed about by the patrol-leader.

(b) Patient's parental family history: The age of the father was 48 and the mother 45; father and mother were both European; father was born in Poland and mother in Latvia; father could read English but was unable to write it; mother was completely illiterate in English, and was letrate only in Yiddish; the father was by occupationan outfitter, and his stroe was patronised mainly by mine natives; the mother was a housewife, and occasionally assisted her husband during the afternoon; father was in the business for very many years; the family, as a whole, were poor, and were just able to make ends meet; the parents had lived in the same house for about 12 years, but were hoping to move to a better area for the sake of the girls,as soon as the bond was paid off.

Medical history: The father was a quiet, reserved type of man, but occasionally he would have outbursts of temper, which would,however, last only for a short while. These outbursts were usually followed by an attack of asthma , which would subside as soon as he had been given an injection of adrenalin by the family doctor. The mother suffered from heart disease which followed an attack of rheumatic fever some ten years previously. She could not lie up in bed for the three months period which the doctor had prescribed, and her breathlessness on exertiom became worse as the years went by.

The father-mother relationships were anything but adequate. The parents seldom had anything to say to one another. When they went out walking , the father always went ahead of the mother as though he were half-ashamed of her. They seldom quarrelled with one another, but would sit on the verandah for hours on end without a word ever passing between them. The silence between them would occasionally be broken by a passing reference to friends and relations in the old country.

The parent-child relationships: were unsatisfactory. The parents never appeared to take an active interest in the affairs of their children, for there was always that insuperable cultural barrier between them. The parents grew to be afraid of their children because they were acquiring an education and a smartness which they themselves lacked and

which bade fair to widening the chasm between them. The children in time developed a special contempt for the father, because he was " a religious fanatic with his face buried in the past"; and they rebelled against attending the daily religious services, because they felt that it was somehow divorced from the immediate realities of life. The parents were never actually cruel to the children, but they could not understand the new world to which they now belonged. The children could not come to the parents with their daily problems. They were inclined too readily to put their children in the wrong without considering the facts of a matter which had weighed in their favour. The children as a result grew up with a sense of loneliness and developed a feeling of inferiority. Home became of sort of prison from which the children sought to excape. Nevertheless the parents showed great concern for the children when they were ill, and the children, in turn, had a certain compassion for the parents.

Sibling relations: The children got on well together when they were young, but when they left school and went to work, they began to drift slowly apart. Each had his own interests, and the differences in salary earned engendered certain jealousies among them, but were not serious enough to disrupt their day-to-day relationships.

(2) Psychiatric investigation of the patient:

(a) History of the present disorder: The age of the patient at the onset of the present condition was 18 years. He had always been highly strung, and his state of nervous tension became worse at about the age of 16 years, when he developed difficulties of a sexual nature. Once while playing in the backyard a girl cousin sat on his knees. He developed an orgasm and had a seminal emission, the nature of which he did not understand. He caught a fright, but found, nevertheless, that the sensation was not unpleasant, and he developed the habit of masturbation. He used to hear from his friends that masturbation was a cause of insanity; and as a result he made every effort to break his secret habit. He thought he would be able to overcome it by becoming friendly with a young attractive girl in the neighbourhood. He bought her a present for her birthday, and took her out once or twice to the bioscope. One day his mother noticed that the boy who was usually morose had now become too happy, and when she found out that a girl was the cause of this change, she warned him that it would be dangerous for him to carry on his affair, as the girl would make him spend all his money and ruin him in various ways. The patient protested that it was only an innocent affair, but his mother said he was getting some dangerous ideas into his head. She reminded him that he had to,help to support the family for many years yet. As the months went by patient began to find the home atmosphere stuffy and burdensome. On Sundays he would leave home soon after breakfast and yhen go for a long walk to the Kensington Koppies. Here he would sit and dream and look at the tall city buildings in the far distance. Once towards nightfall, things became suddenly dark in front of his eyes, and he thought he was going blind. He became afraid of being there alone. He made for home queickly and ran a good deal of the distance. When he arrived home that night his family were at the table finishing their supper. They asked him sternly where he had been and why he looked so strange. He then looked into the mirror and said:"Do I look strange?", and went straight to bed with his clothes on. As the months went by, patient began to lose all confidence in himself and could not face up to his job. He began to forget to do things, and had endless trouble with his firm. Patient now became suspicious, and believed that different people were persecuting him. He began to say strange things such as :"My father is always laughing , always confused, and is something of a gangster, but he is not the

husband of my mother, nor the father of his children". Patient's behaviour remained tolerably fair for a few months more. At a later stage he found himself faced with the problem of choosing between two jobs. He found this "an extremely difficult task" and chose the one with the lower salary. But he was soon asked to leave, the reason given being that he couln't concentrate and couldn't remember". Patient then became a rolling-stone, going from job to job. He became in turn an office boy, a clerk, an assistant window-dresser, and finally a learner salesman, but only for a very short time. Patient felt that he couldn't carry on. He was in despair, and harboured thoughts of suicide. Patient was treated by his family doctor for several months with sedatives, but his condition deteriorated, and finally he was admitted, on the certificate of two psychiatrists, to the -----Hospital, with the diagnosis of "simple schizophrenia query anxiety neurosis".

(b) General appearance and demeanour of patient as at October, 1952.

Patient sat slumped in the chair and looked downcast all the time. He had a confused stare; he laughed in a childish superficial manner; he was hypomanic, had slight feelings of unreality, and evinced a tendency to theatrical mannerisms. He did not know what he was doing in the ----- Hospital. He said he had been uncertain of things all his life. He blamed himself "for not fighting back". He volunteered that he had never had sexual relations; he "never gave it a thought", as he was afraid his girl friend would lose respect for him. He "just wanted friendship". He hoped the woman he would one day marry would be a virgin. He complained of feeling strange. "Half the time", he stated, "I don't know where I am.....Am I mad?"...."A noise comes into my sleep and wakes me. I feel scared that I might be found out and certified mad or something like that...Why does not God get rid of me? He can't help me". Patient complained further that he was being done in by "a great agony, by some mix-up", and he proceeded to demonstrate this with his open hands around his head. He felt that he was now being punished by God for his misdeeds. He felt strange. "I'm sure I am not myself", he said. "I keep on testing myself. I understand now - I am scared the whole time". He was ashamed of his mother because she lived in poverty. He wanted to commit suicide.

Disturbances of cognition were manifest in the patient. His mental processes were autistic in character and bor little or no relation to his objective environment. His attention was difficult to hold and could be mobilised only with great difficulty. He was only momentarily able to grasp the purport of a leading question, and he would then wander away into irrelevant talk, resisting every attempt made to direct him back to the original question. Patient was highly disorientated for time and, to a lesser extent, for place; was also disorientated as regards personal identity. He did not know that he was actually in the ----- Hospital. Patient showed obvious deviations of comprehension. When shown a penny and a watch he knew that they were but could not state what their difference in value was. Patient's powers of logical association were completely impaired. Thus he could not answer such questions as :"What do you do when you are cold?" "What do you do when you are hungry?" Patient's memory for remote and recent events was impaired, but his memory for current events was fairly good. Patient's powers of retention and recall were impaired. He was not able to recall a figure of three digits. His powers of reasoning were impaired. Patient's general insight into his mental condition was nil. Patient had delusions of reference

and auditory hallucinations. He said a noise came into his head at night and commanded him to wake up.

Patient's mental age, as estimated on the individual scale of the South African National Bureau of Educational Research was 3.6 yrs.

Disturbances of affect were manifest. Throughout the interview the patient looked depressed and nervous, and his occasional laughter was superficial and only a mask to the basic tension which dominated the clinical picture. There appeared to be a high degree of dissociation between patient's mood and content of his thoughts.

Disturbances of conation were manifest. Patient's capacity for voluntary activity was diminished and was accompanied by a fair degree of psychomotor retardation. He showed a tendency to reamin in the same stereotyped position, and at times to do the opposite of what was requested of him.

3. Physical examination of the patient:

(a) General examination of the patient:

Patient was an asthenic type. His nutritional status was poor. No other abnormalities were manifest. His height was 5'7" and his weight was 120 lbs.

(b) Central Nervous System:

Speech deviations were present. Patient occasionally talked a great deal but failed to convey anything tangible to the listener. The entry of a medical attendant into the interview room would set him off uttering numberless words. which conveyed no meaning. The motor side of the patient's speech was intact, but it was peculiar in that it was characterised by an absence of modulation.

Cranial nerve functions were intact.

Motor functions could not be adequately assessed on account of the patient's lack of comprehension and negativistic disposition. It was thus not possible to determine patient's motor power, muscular co-ordination , and muscle tone. Abnormal muscular movements were not present.

Sensory functions could not be assessed mainly on account of patient's negativism and shallowness of affect.

Reflexes: Superficial abdominal reflexes were absent or sluggish, but plantar reflex was flexor. Deep reflexes were just present , but not exaggerated.

Trophic functions were normal .

The eye: Pupils reacted sluggishly to light and accommodation. The fundus oculi was normal in appearance.

(c) Cardiovascular System: No abnormalities were detected by ordinary clinical methods. The B.P. was 105/70; the P.R. was 72; and the beat regular, equal in time and force.

(d) Haemopoietic System: Investigation of blood was not indicated by the clinical examination of the patient. The Blood Wassermann was negative.

(e) Lymphatic System: No adenopathy was present .

(f) Alimentary System : Patient had several carious

teeth and also a degree of halitosis. His tongue was furred.

(g) Respiratory System: Nil.
(h) Genito-urinary System: There was no clinical evidence of renal dysfunction. There was no albumen, sugar, or pus in the urine.
(i) Endocrine System: Nil.
(j) Locomotor System: Patient had a stooping gait and tended to have his eyes fixed on the ground while he walked. His movements were generally slow.
(k) Cutaneous System: Marked acne of face and back.

Patient was put on High Dosage Insulin Therapy which was applied over aperiod of approximately eight weeks. He was given 28 comas.

CASE NO. 4.

(1) Patient's personal history:

(a) Patient -----, an European female , aged 37 years, the eldest of 6 children; born in Port Elizabeth; single ; by occupation a short-hand typist; had been in 7 different jobs, and was repeatedly obliged to give up work on account of recurring nervous breakdowns; passed Form III, and left school at the age of 15; earned £27.10.0 a monthat her last position at the -----School, Johannesburg; and was entirely self-supporting; shared a furnished room with another girl at -----Bldgs.; Braamfontein, Johannesburg; has had 5 changes of residence in Johannesburg since her demobilisation from the Army in 1845; has lived apart from her parents since the age of 20 years and has worked at various times in Port Elizabeth, Bloemfontein, Pretoria, and finally in Johannesburg; belonged to the -----Church, and was deeply devoted to her religion ; was not addicted to alcohol; patient was wont to take A.P. Caff., luminal and passiflorine to allay her nervousness, but was never hopelessly addicted to these drugs.

Past medical history: Patient's birth was normal, but her mother suffered from albunimuria and hypertension towards the close of the pregnancy, and labour had to be artificially induced. During infancy, patient had the usual illnesses like measles, chicken pox, whooping cough and scarlet fever. These ailments were not attended by any serious complications. She developed a running ear during her bout of scarlet fever, but this rapidly cleared up under treatment. During adolescence patient developed a marked acne of the face, which made her extremely self-conscious. She felt that this made her most unpopular among the boys and the girls at school. Some of the girls used to avoid her thinking that she had a "dreadful blood disease". The condition of her face grew worse after puberty, and her menstral irregularities worried her a great deal, too. It happened quite frequently that her periods were late or even absent; and when she told her mother about it, the latter regarded her with suspicion , and secretly feared that she had "yielded to the temptations of the flesh". The mother's first impulse was not to call in a doctor but to order the father to give her a sound thrashing. This the father did not hesitate to do. Several months later the patient was struck down with typhoid fever, and was laid up in Hospital for several weeks. The father then told her that she had been punished for her sins, and that he would be praying for her soul. Patient became afraid of her parents, and because of their suspicion of her morals, was made to obey their every wish and command. Patient subsequently developed

insomnia. Her appetite became poor; she lost weight, and began to look thin and scraggy. This made the father all the more impatient with her, and he began to call her "the long slab of misery"and say. "Why don't you go out and do a day's work instead of monkeying about the house?"

Social participation: Patient failed utterly to make friends at school and also after leaving it. She had a desire for male company, and, like other girls, was eager to be taken out by young men. But she was always dreafully self-conscious about her facial acne, and firmly believed that this was the cause of men finding no interest in her. She was ill-at-ease and inhibited in men's company, and just could not let herself go. She was afraid that " one thing might lead to another" , and she had remembered her parents stern warning about the "sins of the flesh". Men found her uninteresting, and then dropped her after a first outing to a show or some other public function. Patient subsequentlyntook to staring at herself in the mirror for hours at a time and then stick her tongue out and laugh at herself.

(b) Patient's parental family history: The age of the father was 63 at the time of his death, the mother 60; the father was Irish and the mother Italian ; the father was born in Ireland and the mother in Italy; father passed Std. V and mother had a similar education; father was by occupation a blacksmith and farrier, and the mother was a housewife; father's net earnings varied from £30-£50 a month; father had only one change of occupation; parents had only 3 changes of residence in a period of 15 years.

Medical history: Father suffered from chronic bronchitis and emphysema for a number of years and finally died from heart failure at the age of 63; he was a withdrawn and sullen man, and always looked very stern, but in later vears his children found him out to be a moral coward and grew to despise him. Mother was a short obese woman who suffered from hypertension and chronic nephritis ; she had always been an ailing woman, and a great deal of the burden of bringing up the family fell on the shoulders of the patient; there had been nohistory of mental disorder in the family.

There were 6 children in the family, aged 37, 35, 30, 27, and 25 respectively.

The father-mother relationships were unhappy. There was no real love between them. Father seemed to be incapable of showing any tenderness to his wife, and regarded her primarily as a biological animal whose job it was to,bring a brood of children into the world. Occasionally the father would have bouts of alcoholism, especially when things went badly with him at his work. He would then come home in a flaming temper and curse his wife for "tricking him into a marriage that he never really wanted". On one occasion, when he was beside himself, he pulled the table-cloth off the breakfast table and smashed all the plates. These outbursts invariably took place in the presence of the children, but whenever he came to, he would become ashamed of himself. The mother would then burst into tears, and,lock herself in the bedroom with the children. After about an hour or two the father would come to the door and ask for forgiveness. He would usually say that he had not been feeling well and that he had been suffering a great deal .

Parent-child relations: were most unsatisfactory. The father regarded the children as a great burden. He often complained that it was all too much for him, that he could not stand the demands which were being constantly made on him. He always counted the days when his children would be able yo go out to work and "help pull the bloody cart". The children, and the patient in particular, felt that,they were

not wanted in the home. Patient dreamed of an early marriage as a means of escaping from her wretched home environment. But she was discouraged by her mother, as she was required by her to drag up the rest of the family. Once patient went out with an old school friend, She would look quite happy on these occasions; but her father would then remark that she was happy because she was "tempted" by the sins of the flesh".

Sibling relations: were indifferent. There was neither hated nor love among them. They took each other for granted, so to speak, and each went his own way as the years passed by. They seldom spoke to one another, and drifted further and further apart after some of their number got married. It was as if each did not wish to be reminded of their wretched home environment.

(2) Psychiatric investigation of the patient:

(a) History of present disorder:

The age of the patient at the onset of her present disorder was 26 years. The mode of onset appeared to be sudden. At that time she was employed as a shorthand-typist at the -----Petrol Station, Bloemfontein, and to the members of the staff she appeared to be quite normal at first. But after about four weeks she developed the habit of just staring vacantly when spoken to, and it would take her several minutes to bring herself to attention. Her strange behaviour was at first put downby the staff to lack of sleep or perhaps to some worrying time at home. Late she formed the habit of standing rigidly in front of the office mirror with her hat on; and when told to get on with her work she would give burst of laughter, return to her desk and 'phone the police to inform them that she was a respectable girl and that she was in respectable employment and earning her own keep. The office staff thought her behaviour queer, and called in the Union doctor to examine her. He in turn called in another doctor, and the two together, after several days observation, issued a certificate to the effect that she was certifiable under the Mental Disorders,Act and that she should be admitted as soon as possible to the ----- Hospital, Hermental condition at this time, that is in,1941, was most striking. She was then in a most excited state, and displayed wide emotional oscillations, flight of ideas and over-anxiety. She was then aurally,and visually hallucinated. She stared wildly at the ceiling and said that people there wanted to throw spiders at her. Her conversation was disdisjointed and disconnected, and her attention could not be engaged. She was restless and noisy, and great difficulty was experienced in keeping her in bed. There was an incoherence about her train of thought, which was also accompanied by emotional disturbances. She had strange impulsive senseless mannerisms. She was most suggestible, and her conduct was easily influenced by those about her. There was a wild look in her eyes. She made stereotyped movements with her hands and fingers. She kept on crossing her chest and repeated words and phrases which she ended with the word "Amen!" Patient improved under treatment at the ----- Hospital and was later discharged, but subsequently, on 12/9/44 she was re-admitted. The Medical Report at this time stated that patient was frequently tearful. She whispered and laughed to herself and was hallucinated; when she swallowed water she could "feel it spilling allover her chest inside, because she "had no gullet". She said she was given to having complete blackouts, and that when alone she heard voices. The words came right into her mouth, and she could feel them coming in. She said he ears were broken, but could nevertheless understand what the voices said. Sometimes the voices spoke foreign languages. She kept saying "I can't get better because everything anyone says goes

through me". She said her gullet was disconnected, and the food just went everywhere in her body. She could hear voices wherever she went. She said her thoughts were being read and that she could not sleep on account of the voices she heard.

Patient was discharged as improved after a long period of treatment inHospital. Subsequently she felt well enough to accept a position as shorthand-typist and bookkeeper at the -----School, in Johannesburg. Here she worked for several months, but her behaviour was always considered strange by the other members of the staff. She always seemed nervous and afraid of making a mistake in her work. She was always shy and self-conscious, and could not mix very easily. She kept herself aloof, and took her lunch on her own. She always came to work earlier than the other girls, and always asked permission to go home at closing time. On account of her punctilious habits, she was nick-named "the sweet goody-goody". mPatient's behaviour became somewhat more strange as the months went by. She developed the habit of putting her hat on every time she left the office to go to the toilet room, and then forgot to take it off when she returned to her typewriter. On one occasion, at about 3 in the afternoon, she got up from her desk to tell the chief clerk that she was tired and was going to bed, and then in his presence began to remove her clothes. An attempt was made by the staff to restrain her, but she resisted and cried out wildly: "Don't go near my body.....There are voices there, beautiful voices, calling me". Dr. ----- was immediately 'phoned , and he remembered Miss ----- as the patient whom he had treated some years before for schizophrenia paranoides. Patient was admitted to -----Hospital on January 15, 1951.

(b) General appearance and demeanour of patient as at November 1952.

Patient was a tall well-built woman who did not really look older than her years. She preferred to stand throughout the interview; she had a pleasant expression and was quite affable. Her coat and her handbag were worn and faded. She appeared to be agitated. There was a wild look in her eyes. She made stereotyped movements with her hands and fingers. She kept on crossing her,chest and repeated certain words and phrases which she ended with the word "Amen!" Patient said she had been a good bookkeeper, but that unfortunately she had been criminally assaulted, and that ever since people had wanted to throw spiders at her. She resented being kept in -----Hospital, as she thought there was nothing wrong with her. She demanded to know when she would be let out. Patient occasionally stopped abruptly in the middle of a sentence, and asked to be escused as she had a number of very important letters to write. The following letter is one of many which she tirelessly addressed to imaginary male persons:

"Dear Jimmy,
Thanks ever so much for your notification of the fact that you intended paying me a visit on Saturday or thereabouts, but I must inform you that I have written to you a week or two prior to this letter to state that I cannot be introduced to you in person as your former or divorced wife really wished to re-marry you. Really you must accept this last letter as final as I discovered the fact that you are too middle (sic) aged by ten years for me ever to accept the marriage proposal if should you ever have had the intention of actually proposing to me. Therefore I must request you not to pay the promised visit; and to discontinue corresponding with me in future, I really have no intention of insulting you, but this letter must be final. I am a patient here in the Mental Hospital and have been hospitalised for

over 2½ yrs.now,and fully intend departing by illicit means by running away alone and regaining an office position as a Sale-Book-Keeper/Typist at Senior Salary; and afterwards to invest Capital in a Business as Co-Proprietress/Book-keeper/Typist and full charge of office and part charge of purchasing to interview Travellers and Gentlemen Partner Co-Proprietor to have charge over Sales Gentlemen and Manager of business or Sales side of business. Goodbye forever, and should you ever correspond again I shall not reply. Wishing you everyting of the best, and trusting your daughter will have married happiness,

Yours sincerely,
M----- ."

Disturbances of cognition were clearly displayed by the patient. Her thought processes were largely autistic, and she was very much withdrawn from the world of reality. Patient was disorientated for time, but not as to her personal identity or her immediate environment; thus she knew that she was in the -----Hospital. Her attention could be engaged, but held only with great difficulty; her mind was constantly being diverted by the belief that she had been criminally assaulted. Patient's power of comprehension was somewhat impaired; thus she knew the difference between water and milk, and could tell the difference between a dog and a horse. Patient could not give superior answer to the"ball and field" problem, i.e., item 44 in the I.S. of the N.B.E.R. Patient's power of logical association was impaired; thus she could not construct a sentence from the words: Boy-river-stone. Patient's memory for remote events was impaired, and she could only recall recent and current events. Her powers of retention and recall were impaired; thus she could not repeat a figure of six digits; nor could she recall the contents of a brief news item read out to her. Her general insight was impaired, a fact which was reflected in her lack of understanding of the nature of her mental condition. Patient's mental age as calculated on the Individual Scale of the National Bureau of Educational Research was approximately 10. Patient still had auditory and visual delusions, and she still carried on a conversation with imaginary people; and she still believed that women patients were really men in disguise who were committing sexual offences on her.

Patient's affective disturbances varied a great deal. Thus sometimes she would be profoundly withdrawn and emotionally unresponsive, and at other times she would be agitated, and then there were days, too,when she was incongruously euphoric; dissociation between thought content and mood was evident.

Patient's conation was disturbed to the extent that she was abnormally suggestible ; thus she would recite the whole of the Lord's Prayer when only the first line was whispered into her ear.

(3) Physical examination of the patient:

(a) General physical appearance:

Patient was a tall athletic type. Her nutritional status was good,and apart from a high colourshe had no other apparent abnormalities. Her gait was somewhat stiff. Her height was 5'2" and her weight 141 lbs.

(b) Central Nervous System :

The motor side of the patient's speech was intact; she spoke rapidly and in a low monotone, as though there were no feeling behind her spoken words.

The cranial nerve functions were intact.

The motor functions with reference to motor power, muscular co-ordination, and muscle tone could not be satisfactorily assessed. Abnormal muscular movements were not present. Sensory functions could not be satisfactorily assessed. Thus at times patient would say that she could feel a pin-prick in a given area, and at other times she would say she could not. The superficial and deep reflexes ere sluggish, and the plantar reflexes were flexor. The trophis functions were normal. the Pupils reacted sluggishly to light and accommodation, and the fundus oculi was normal in appearance.

(c) Cardiovascular System:
No abnormalities were detected by the usual clinical methods. The B.P. was 140/95; the P.R. was 70, and the beat regular and equal in time and force.

(d) Respiratory System: nil.

(e) Haemopoietic System: Investigation of the cellular content of the blood was not indicated by the clinical examination of the patient. The Blood Wassermann was negative.

(f) Lymphatic System: No adenopathy was present.

(g) Alimentary System:
Patient had two carious teeth in her lower jaw. Her tongue was heavily furred, and she had a degree of halitosis, indicating some gastro-intestinal disturbance.

(h) Genito-urinary System:
There was no clinical evidence of renal dysfunction. Albumen and sugar were absent from the urine.

(i) Endocrine System: nil.

(j) Locomotor System: Patient's gait was normal, although her steps were short and quick, which was in keeping with her general agitated condition.

(k) Cutaneous System: No abnormalities were detected.

Patient responded to High Dosage Insulin Therapy which was applied over a period of approximately ten weeks. She was given 30 comas.

CASE NO. 5

(1) Patient's personal history:

(a) Patient ------, an European, male, aged 22 years; third eldest of 8 children; born in Jeppe, Johannesburg; single; by occupation an itinerant handyman; had at least 6 changes of occupation; left school in Std. V; had earned £15-£20 a month, but now impecunious; resided at Westdene, Johannesburg; has had 7 changes of residence in the space of 10 years; was a member of the -----Church; was addicted to alcohol, and took a bottle of brandy a week; was not addicted to drugs.

Past medical history: Patient's birth presented obstetrical difficulties, and instruments had to be used for delivery, but no injury was inflicted on the cranium. During infancy, patient had the usual childhood ailments like measles and whooping cough; but infantile diarrhoea at the age of 4 years, and a mild attack of acute anterior poliomyelitis at the age of 10, greatly affected his health and outlook. At one stage during his attack of infantile diarrhoea, he suffered from convulsions which were controlled with luminal, hot baths, etc. Patient later developed nocturnal eneuresis, which condition continued up to the age of 14 years. During adolescence patient contracted bacillary dysentery, glandular fever and infective hepatitis at various times.

and as a result of these protracted illnesses he lost 2 years of schooling. Patient had difficulty in applying himself to his school work, and he found mathematics and physical science his great stumbling block. He just could not remember things as other boys and girls. He failed his exams., and subsequently suffered from insomnia for long periods. The boys in his class began to mock him for being a failure , and this worried him a great deal. It worried his parents,too,as they had set high hopes on a fine future for him

Social participation: Patient had but two friends at school, but as they passed into High School and were two years ahead of him, they dropped him. Patient was deeply hurt by the collness of his former friends; He felt that they were somebody and that he was just nothing. He tried to study on his own for the matric.,but he just couldn't do it. His mind always seemed blocked and confused. Patient's thoughts subsequently turned to sex, and in this he was largely influenced by some rough characters in the neighbourhood. He secretly admired their devil-may-care manner , and later emulated the example of their promiscuous sexual adventures. Patient's own character coarsened as a result of this.

(b) Patient's parental family history: Father died at the age of 54 from pulmonary tuberculosis, when patient was 17 years; mother was active and was aged 55 years; father was Portuguese, born in Lourenco Marques; mother was English and born in England. Father was just literate, but had no general education; mother went as far as Form III. Father was by occupation an underground miner, and for the last three years of his life had been on pension on account of miners' phthisis. When father died, mother went out to work in a City restaurant, and the children had in the main to fend for themselves. Father was in the same occupation for a great many years. The family could not make ends meet and had constantly to seek assistance from the Rand Aid or the Social Services. Family frequently moved from one home to another, mainly on account of ejectment orders which were served on them for not paying their rent on due date; they had 8 changes of residence in 7 years. The family finally established themselves in a small semi-detached cottage where they had to sleep four in a room and with two sharing a bed.

Medical history: Father had ailed for years before he died from pulmonary T.B. He had often wanted to commit suicide ,as he said he could not stand the din and the noise of the children. He wanted to sleep and rest, but he said the children wouldn't let him.

There were 8 children in the family - three boys and five girls, the patient being the eldest of the boys.

The father-mother relationships were passably fair. The father was somewhat jealous of the mother's superior educational standing, and he would hide his sense of inferiority behind a mask of stern inflexible resolution. The children when young mistook this for great strength of character, but as they grew up they saw through their father's pose and began to regard him as a fake. When her husband contracted T.B. she was warned not to occupy the same bedroom as himself , lest she become infected herself. The husband became suspicious of his wife's fidelity and believed that she had transferred her affections elsewhere. Although there was no truth in this , it led to bitter quarrelling and recrimination. One day when the father lost his temper he coughed up a lot of blood and spewed on the floor, and accused his wife of murdering him. His last words to his wife and children were:"You'll hang for all this - the lot of you!" Curse you all!"

Parent-child relations were quite satisfactory when the children were small, but as they grew up the father became more and more withdrawn from them. He felt that they were not respecting his authority, and that there was some veiled compact between the mother and the children, a compact from which he was excluded! The father used to use foul language with the children on the slightest provocation, and if any of the children dared to stand up to him, he would order them out of the house and tell them to earn their own living. The children grew to hate their father, for he was kind and accommodating to the world outside, but brutal and callous to the members of his family. And so they regsrded him as a fake.

Sibling relations: The children got on tolerably well with one another; they tried to help one another, as they felt that they had all suffered equally.

(2) Psychiatric investigation of the patient:

(a) History of present disorder: The age of the patient at the onset of his present disorder was 15 years. He was in Std. VI at the time. One day he came home from school to say that his "head was bursting", and that "he didn't know where he was". He went to bed for three days, and said he was afraid he was going to die. He was afraid to fall asleep because of the fear of impendind death. He said that something had happened to him. He could no longer do the things he used to be able to do. He could no longer add, subtract, or multiply. He would constantly call out in the night to his mother, and say:"Mother, what is going to happen to me! I've lost two years already!" The he would begin to sob hysterically and finally fall asleep from sheer exhaustion....The patient did not return to school. The father felt that he had had enough fo the boy's nonsense, and ordered him to go out to work and earn his own living. Patient got a job as an outfitter's assistant and the first £5 he earned he bought himself a bicycle. He took great pride in his bicycle, and he cleaned it and polished it every day. Once he had himself photographed with his bicycle at his side, and kept the photograph on a small table right next to his bed. Whenever he looked at the photograph his face would beam with happiness and then after a while, give way to sadness. Patient still dreaded the night and he was afraid of dying in his sleep. He became very religious believing that this would enable him to overcome his fears. He went to bed every night with a prayer book clasped in his hands....Patient subsequently developed sex difficulties in the form of frequent masturbation, In order to overcome the habit he was advised by some one to go out with the boys and have a good time. Patient's manner changed after this, and from being mild and withdrawn he became boastful, aggressive, and arrogant. Once he contracted gonorrhoea and this nearly put him out of his mind. He thought he had been punished for his sins and again became depressed and withdrawn. Patient felt ashamed, and he left home for several months, thinking that his presence in the household was no longer desired. He left one job after another, and his usual excuse was that his colleagues at work were always rubbing it in for him. He was quite sure that they always talked disparagingly about him, and that his presence was generally obnoxious to them. Patient later began to say that he must be a descendant of Jesus, because, like Him he was "despised and rejected". He began to pray a great deal because , as he said, he,wanted to be delivered from his enemies. One day when he was alone in church he said he heard the voice of the Angel Gabriel calling to him. Patient's parents at this stage began to be alarmed about his mental condition. Dr. -----, a specialist psychiatrist was called in and he diagnosed the case as "simple-

schizophrenia" . Patient was admitted to the -----Hospital in July, 1952.

(b) General appearance and demeanour of patient as at August, 1952.

Patient was tall and very flat chested and was obviously under weight for his height. He came into the Interviewing Room with a stooping gait, and spoke in a slow drawling tone of voice. He sat in a slumped down position in his chair and stared dreamily into space, with his hands kept together as if in prayer. At no time did his facial expression change. Speaking came as a great effort, and he rarely replied to questions unless they were repeated several times. His voice was subdued and devoid of modulation, and his speech constrained and fragmentary. He was unable to give a sustained account of his past experiences. He expressed vague persecutory delusions on being asked direct questions. "Everybody is against me", he said, "yes everybody. They are set on punishing me because of my sins". Asked whether he ever touched liquor or drugs, he replied:" Sadness - Everybody hated me ". He admitted to masturbating on occasion, but he rationalised his behaviour by the statment:"My friends forced me to do so, now I see they were trying to harm me". Patient was fully orientated for place, but to a much lesser extent for time, and he showed a lack of emotional expression and some blocking of thought. There was usually a long pause before he replied to questions. When patient was interviewed again some three weeks later, he described auditory hallucinations, saying:" It is not other people's voices I hear, but only the voices of my own thoughts". Patient at this stage showed a degree of intellectual deterioration.

Disturbances of cognition were not of a grave character. The pattern of the patient's thought was mildly autistic. He knew the medical attendants and male nurses by name. He knew that he was in,the ----- Hospital, and had very vague insight into the nature of his illness, but he was somewaht disorientated for time and as to personal identity. His memory for current events was better than his memory for recent events and his memory for the latter was better than that for remote events. The patient's attention was mobilised with a little difficulty, and difficult to hold. There would be an interval of silence after some questions, and then suddenly he would wake up and make an irrelevant remark, such as : " I have sinned! I am ashamed to have had dealings with native women!" He would also say that he couldn't keep his spirit in his body", and would then grin fatuously, and, without a murmur. Patient's powers of comprehension were impaired; thus he failed to apply the superior plan in the "ball-and-field" problem, i.e. item 61 in the Individual Sclae of the N.B.E.R. Patient's powers of logical association were imapired; thus he could not construct a logical sentence from seven disarranged words, i.e., he failed on item 63 of the I.S. of the N.B.E.R.. Patient's powers of retention and recall were impaired; thus he could not repeat a figure of five digits forwards or in reverse . His M.A. on the Individual Scale of the N.B.E.R. was 11.9 yrs.

Disturbances of affect were expressed in the patient's emotional shallowness. Patient was somewhat indifferent to his welfare , and he appeared to be withdrawn and emotionally unresponsive and apathetic.

Disturbances of conation were also a feature of the condition. He was suggestible, and not at all negativistic. Patient was fond of composing hymns, and when the first line of one of his compositions was read out to him, he would recite the rest and go on repeating it. One of the patient's compositions entitled:"A Child's Prayer" read as follows:

"I lay me down to sleep
How I wish my God to
Take me and keep.
So I may not get me
Into darkness too deep".

(Copyright reserved because
I might send it to some
Magazine some money to
get, for you know
what!)

Mental age of patient before treatment was 11.9 years.

(3) Physical examination of the patient:

(a) General physical appearance:

Patient was a tall, flat-chested individual with a stooping gait and is asthenic in type. He was poorly nourished and appeared to be in a poor state of health. He had a slight degree of genu valgum, but no other abnormalities which were clinically obvious. His height was 5'9½" and his weight 144 lbs.

(b) Central Nervous System:

The motor side of the patient's speech was intact; but he spoke in a slow drawling monotone, as though speech were some thing most painful to him. The cranial nerve functions were intact. The motor functions were somewhat affected; thus motor power was weak, muscle tone was poor, and muscular co-ordination, although accurate, was slow. Sensory functions were difficult to ascertain, especially in regard to light touch; patient did not wince a great deal on the application of a pin-prick. The superficial and deep reflexes were present, but sluggish, and plantar reflex was strongly flexor. The trophic functions were normal. The fundus oculi was difficult to examine in this case on account of a light reflex. Pupils were equal, but reacted sluggishly to light and accommodation.

(c) Cardiovascular System:
Clinically the heart was of normal size, and no murmurs were present. The B.P. was 100/70; the P.R. was 68, and was regular, equal in time and force.

(d) Respiratory System: N.A.D.
(e) Haemopoietic System:
Investigation of blood was not indicated by clinical condition of the patient. The Blood Wassermann was negative.

(f) Lymphatic System:
No adenopathy was present.

(g) Alimentary System:
Patient's teeth were generally in a poor condition. Abdominal examination showed absence of hepatomegaly and splenomegoly, and there was no tenderness to palpation.

(h) Genito-urinary System:
There was no clinical evidence of renal dysfunction or genital abnormality. Albumen and sugar were absent from the urine.

(i) Endocrine System: nil .
(j) Locomotor System:
Patient's gait was slow and stooping in character.

(k) Cutaneous System:
Patient had a marked acne on the back.

Patient showed progressive improvement under H.D.I. Therapy, which was applied for approximately 8 weeks. He received altogether 28 comas.

CASE NO. 6.

(1) Patient's personal history:

(a) Patient -----, an European male; aged 21 years; the second of four children; born in Johannesburg; single; by occuaption a farm-hand; had 3 changes of occupation, and was in turn farm-hand, road-worker, and a handyman; left school in Std. V; earned £15-£25 a month at his last employment; resided with parents in Mayfair, Johannesburg; moved about a great deal in connection with his work which took him to various towns on the Reef; had 5 changes of residence in 3 years; was attached to the -----Church; was not addicted to alcohol or to drugs.

Past medical history: Patient's birth presented no obstetrical difficulties, although labour was delayed several hours. During infancy patient had measles, scarlet fever and mumps, and at the age of 12 years contracted diphtheria, for which he was adequately treated with diphtheria antiserum. During adolescence patient had virus pneumonia and infective hepatitis at the age of 15 years and 17 years respectively, and for the latter condition was hospitalised for 2½ months; patient was not considered to have virus encephalitis at this time.

Social participation: Patient had always been a shy nervous child, and although he liked to be befriended, he could not make friends easily. When he left school, he used to attend a juvenile debating society, and like the other boys he was anxious to express his opinions, but whenever he stood up to speak, he became confused and could never complete a sentence. Patient also belonged to a youth club in the neighbourhood, but he could not bring himself to mix freely with the others. His manner was stiff and forced, and his friends regarded him as "something of a dark horse", and so used to shun his company. Often he would ask his mother "Why do my friends avoid me? What is there wrong with me? Why do I seem different from everybody else?"

(b) Patient's perental family history: The age of the father was 47, and of the mother 46; the father was English and the mother Afrikaans, and each belonged to a different religious denomination. The father was born in Pietersburg, and the mother in Lichtenburg, Transvaal. The father passed Std. VI and the mother likewise. The father was by occupation a farmer, a painter, and a salesman, and the mother a housewife. Father earned from £40-£60 a month. Parents had four changes of residence over a period of 12 years.

Medical history: Father: was a "moderate drinker", and used to consume a bottle of brandy a week. It never agreed with him, as he subsequently developed a duodenal ulcer and also cirrhosis of the liver. He used to vomit up blood occasionally, and whenever this happened he would accuse his wife of "driving him to an early grave". Father was once hospitalised for 6 weeks on account of liver cirrhosis and ascites, and when he came out he found that his old job had been filled. This made him sullen and morose. He then said he was no longer able to support a large family. He gradually lost his self-confidence, and finally his dignity and self-respect. He visited the local bar and began clowning before his cronies. One day he came home drunk, and said he was going to become a hobo and tramp the country from end to end. In fact je became friendly with the hoboes who mooned about in John Ware Park; but one day his wife's brothers beat him up and reminded him that he had a wife and children to support. The mother had often been ill and suffered from anaemia brought on by "a bleeding from the womb". She was subsequently investigated in the Gyneycological Department of the Johannesburg General Hospital and found to

have fibroids of the uterus. A total hysterectomy was performed on her, and at the present time she has no uterine haemorrhage. There was no history of grave mental disorder in the family.

There were 4 children in the family, aged 21, 19, 16 and 12.

Father-mother relationships: left much to be desired, The fidelity between husband and wife appeared to be only physical in character, and was lacking in the elements which made for understanding on the psychological level.. Thus whenever they attended celebrations such as weddings and birthday parties the husband would begin to drink, make himself tipsy and then become the laughing-stock of everybody about him. The wife and children used to be humiliated by these performances, and when they returned home they used to remonstrate with him about throwing away his dignity and making himself appear as a worthless individual. The father would then have remorse, and for days on end would remain sullen, and go to bed without ever speaking to anybody. But later the storm would break, and he would hurl ugly epithets at his wife in the presence of the children. The children would then run out of the house and call the neighbours to stop the row. These scenes were often repeated, and always led to bitter quarrelling.

Patent-child relations: The mother was more tender to the children than the father was, and he used to accuse her of alienating their affection from him. The father's attitude to the children was domineering in character , while the mother's was protective and possessive. Once after a family row, the patient, who was the eldest of the siblings, took the part of the mother; whereupon the father made the jibe that he was not really his son. The father was asked by the mother to take the remark back and apologise, but he didn't and that night the patient walked out of the house never to return.

Sibling relations: were fair. There were jealousies of a minor character, but on the whole they seemed to pull together. The younger children hero-worshipped their elder brother as he was the first to earn his own money, and able to buy them little things.

(2) Psychiatric investigation of the patient:

(a) History of the present disorder:

The age of the patient at the onset of the present disorder was ~~19~~ years; and the mode of onset appeared to be insidious; but for about 7 years before the patient had complained of insomnia and general nervousness. He was always afraid of dying in his sleep, and was quite sure that he wanted never to live beyond the age of 21 years.

Patient practised onanism from the age of 16 years, and had in fact believed that masturbation had pulled him down in health, and had made his mind weak. Whenever he masturbated, he pictured himself seducing various girls and teachers. Patient used to dream a great deal previous to the onset of his present illness, and his dreams which were always of an amorous character, used to be accompanied by nocturnal emissions. His amorous fantasies were directed to his teachers whom he pictured in gym costumes, but sometimes he saw himself playing the role of a hero in front of his mother. Patient had always looked thin and scraggy, and to build himself up he began to take iron tonics which he saw advertised in the press. Around the age of 19, patient began to complain that he could not remember things well, and it worried him a great deal that he could never remember where he left his bicycle when going out on errands for his firm.

Because of this patient was "fired" from his last place of employment. After this patient began to reproach himself for "his sins and indecnet thoughts". He also believed that people were talking about him because of these indecnet thoughts. Patient was subsequently treated by Dr.----- , and although for a while the patient's "indecent thoughts" disappeared, they returned later in a much worse form. Patient began to grin and grimace in a somewhat fatuous manner, and resolutely refused to disclose the nature of his "indecent thoughts" because as he said, "they were not fit for any woman to hear". With the grave changes setting in, the patient was admitted to the -----Hospital with a diagnosis of schizophrenia hebephrenica. Patient was kept in hospital for about a year , and was treated by conservative methods as his relatives refused to consent to E.C.T. or H.D.I. Therapy. Patient was discharged improved after seven months' hospitalisation. At first he spent most of his day lying on his bed dozing, and he believed that this was probably the reason why he did not sleep too well at night. At times he became irritable and spoke abruptly to the members of his family, but he never resorted to physical violence; and although patient went back to the house of his parents, his general behaviour was harmless; he nevertheless appeared "queer" to his brothers and sisters who were afraid to be left alone with him. One of the sisters was constantly afraid that she might be sexually assaulted by patient, for the reason that he repeatedly spoke of his unclean thoughts. He saw indecency in nearly everything he read. For example he might be reading a book and see the word "elope", and then the thoughts would come into his mind:"Fancy eloping with the Lord". This flight of ideas would sometimes change to the theme:"Fancy seducing my mother". Or, sometimes, when his father had to travel along the Reef, he would entertain the hopw that his father would get killed. He would then have remorse and say that he did not really mean it, and that his thoughts came into his mind against his will. These peculiar thoughts were not confined to his parents, but would also be directed to his friends, and even to strangers on the streets. Whenever the wireless was switched on he would hear voices saying that they were going to kill him. They called him "the biggest imbecile in the world". He could hear them repeating his thoughts. He had thoughts of committing suicide because of these delusions and hallucinations. In view of the deterioration in the patient's condition, it was found necessary to re-admit him to -----Hospital on --August, 1952. The diagnosis at this time was schizophrenia paranoides.

(b) General appearance and demeanour of patient as at August, 1952.

Patient was a short, undernourished individual, with a shrewd anxious wily look, an a rather fatuous grin. Patient sat himself down on the chair in an aggrssive manner, and volunteered the belief that masturbation had pulled him down in health and had made his mind weak. He addressed these remarks as though he were entirely oblivious to the presence of the interviewer in the room. The character of his voice at first appeared to be serious, but was always followed by a fatuous grin and a foolish chuckle.

Disturbances of cognition were partly reflected in the patient's disorientation for time, place, and as to personal identity, and also in the strongly autistic character of his thought processes. His attention could not be easily engaged, as he appeared to be completely preoccupied with the sense of moral guilt arising from his indecent thoughts. The degree of impairment of patient's powers of comprehension was indicated by the fact that he failed to give an answer to such questions as :"When you are sleepy, waht do you do?" He could, however, recognise familiar objects like a penny, a watch and a box of matches. Patient's memory for current events was greatly impaired, and his memory for recent and remote

events was nil; his powers of retention and recall were also greatly impaired; thus he was unable to repeat a word of six syllables or to repeat a figure of six digits. Patient showed a complete lack of insight into the nature of his disorder. His intelligence quotient as calculated on the Individual Scale of the N.B.E.R. was 25.3. Patient had definite auditory hallucinations, and he appeared to be listening most intently to these voices; he also suffered from the delusion that these voices were personalised forces intent on killingm him. He wished to commit suicide because of these persecutory voices. (M.A. was 3.8. yrs.)

Patient's affective disturbances were marked. He was extremely withdrawn, was emotionally blunted and apathetic, and he displayed some incongruity between his emotional tone and thought content.

The degree of disturbance of conation was reflected in patient's suggestibility which later appeared to give way to passive negativism. Patient displayed a degree of catalepsy and echolalia.

(3) Physical examination of the patient:

(a) General physical appearance:

Patient was a short, undernourished individual with a fixed stare and a sallow complexion. His general state of health appeared to be poor. He was of the pyknic somatype. His height was 5'9", and his weight 119 lbs.

(b) Central Nervous System:

The motor side of the patient's speech was intact; but the few words he spoke were articulated with great difficulty. The cranial nerve functions were intact. Motor power, muscle tone, and nutrition of muscles were poor; muscular co-ordination could not be elicited on account of patient's inability to co-operate; and sensory functions could not be determined for the same reason. The superficial and deep relfexes were sluggish, and plantar reflex was flexor. The trophic functions showed no impairment. The fundi oculi could not be examined on account of the light reflex; pupils were small, regular, and reacted to light and accommodation.

(c) Cardiovascular System:

Clinically the heart showed no enlargement; the sounds were all closed and no murmurs were present. The B.P. was 105/75 and the P.R. was 70 per minute and equal in time and force.

(d) Respiratory System: nil.

(e) Haemopoietic System:
Investigation of the cellular contents of the blood was not indicated by the clinical condition of the patient. The Blood Wassermann was negative.

(f) Lymphatic System:
No adenopathy was present. The spleen was not palpable.

(g) Alimentary System:
Patient had several carious molars in lower jaw. His tongue was furred and halitosis was present. There was no hepatomegaly. The descending colon appeared to be spastic on palpation.

(h) Genito-urinary System:
There was no clinical evidence of renal dysfunction; albumen and sugar were absent from the urine. Patient had a very slight degree of hypospadies,

(i) Endocrine System:
There was no clinical evidence of thyroid, adrenal, or pituitary dysfunction.

(j) Locomotor System:
Patient's gair was slow and deliberate, but otherwise normal.

(k) Cutaneous System:
Patient had small areas of leucoderma on back.

Patient was put on H.D.I. Therapy and given 28 comas over a period of approximately 8 weeks.

CASE NO. 7.

(a) Patient -----, an European male, aged 28 years, the youngest of three children; single; born in Johannesburg; by occupation a salesman in a pet animal shop; left school in Form III; has had 4 changes of occupation; economic status was fair, having earned approximately £30 a month; resided with parents ina semi-detached cottage in Jeppestown, but periodically lived on his own "for no accountable reason"; his spatial mobility, which amounted to about 9 changes of residence in the space of 8 years, was confined to Johannesburg, except for the war period when he spent two years in Egypt and Palestine; was not formally attached to any Church or religious organisation; was not addicted to alcohol or drugs.

Past illnesses:
Patient's birth was not attended by any obstetrical difficulties.
During infancy patient had measles, whooping cough, and broncho-pneumonia.
During adolescence patient had herpes zoster and chicken pox, and was operated on for tonsillitis and appendicitis.

Social participation: Patient ws a friendly, well-disposed child up to the age of about 13 years, but after puberty he showed a tendency to keep away from children of his own age and to associate with children much younger than himself. Patient was sternly reprimanded for this by his parents, and he was made to feel that there was something wrong with him and that he was not like other boys of his age. The mother, in particular, used to hold up other boys as an example,but this made the patient all the more stubborn snd kept more and more to himself. He took a strong dislike to his teachers and to most of the boys in his class, and he expressed a desire to leave home and "make his own way in the world".

Parental family history: Age of father 56, and of mother 53. Father and mother were European and of the same ethnic stock and of the same religious faith. Father and mother were born in the Transvaal, and their schooling ended in Std. V. Father was a blacksmith and farrier for a number of years, and earned between £20-£25 a month, but with the coming of motor cars he was forced to find a new job, and became an underground miner; but after about seven years he was pensioned off as he had shown a progressive loss of weight; and finally he became a liftman at a Departmental Store in town. The mother was a housewife. Parents lived in same house for 18 years before they moved in their present premises.

Father almost a total abstainer, but was inclined to dose himself with all sorts of patent medicines at the slightest signs of illness; the family medicine chest was literally full of these patent medicines. Father suffered from haem-

orrhoids at one time, and was operated for the condition; but while convalescing he developed a pulmonary embolism, and then what seemed to be a right-sided heart failure; he was kept hospitalised for about 4 weeks, and his working capacity after he left became greatly impaired.

Mother was not a strong woman. She once suffered from jaundice and was operated upon for gall stones. Later she suffered from high blood pressure and chronic nephritis, and periodically she got attacks of severe itching allover the body, which the doctors ascribed to a high blood urea.

There was no history of mental disorder in the family.

There were three children, an elder son aged 28 years, and two girls aged 26 years and 20.

The father-mother relationships could not be called happy. Their quarrels were only of a petty kind, and they never abused one another, but they both seemed to be borne down by the cares of existence. There appeared to be no joy in their lives, and they seemed to be incapable of giving it to their children.

The parent-child relations were unsatisfactory in the sense that the attitude of parents to their children was one of neglect. They took no interest in,the children's day-to-day problems, and were inclined always to blame their children whenever they were involved in conflict with their teachers or their fellow pupils at school. The children smarted under these parental injustices, grew up with a feeling of resentment towards the parents, and developed a deep sense of personal inferiority.

Sibling relations were likewise unsatisfactory, the children despising in one another the inferiority complex with which each was burdened.

(2) Psychiatric investigation of the patient:

(a) History of the disorder:

The age of the patient at the onset of the present disorder was 25 years. It was difficult to say whether the mode of onset was sudden or gradual, as the patient's behaviour had been peculiar ever since the age of 17 years. He had alwasy been irritable and excitable, and at school the boys like to tease him as he could be easily aroused. Patient, even after he left school, retained a fear of being persecuted, snd whenever he would visit a public place, like a tea-room or a bisocope, he would become self-conscious, thinking that all eyes were being fixed upon him. He also took most seriously remarks which were made in a light-hearted sort of way. In this way he lost all his friends, and more and more found himself living an isolated existence. Patient began to put the blame on the district in which the family lived, and he begged his parents to move to a more fashionable neighbourhood where they would all be taken more notice of. Eventually the parents did move to a better neighbourhood, but in spite of this the patient' s behaviour difficulties continued. He was never in any job for long; the longest he ever spent in any one firm was 18 months. The complaint against him of his employers was that he seemed to go running out in circles without doing the things which were immediately required and necessary. Once one of his bosses told him that he was "always doing the wrong thing at the right time". Patient came hom with the story one day and thought it was terribly funny, but when he became hilarious about it, his father slapped him in the face and told him he was down right mad. Then, from being over-hilarious patient became instantaneously sullen and depressed, curled

himself up on the sofa on the verandah, and said he wished to be left alone to die. Patient subsequently found a job at an animal pet shop, and then developed the habit of imitating the sounds emitted by the various animals sold there. He would become amused at himself, and laugh aloud. This used to upset the household. The girls, who were growing up, used to be afraid of inciting friends to the house, from fear of being humiliated by the behaviour/peculiarities of their brother. The sisters encouraged their brother to go up North, thinking that that would make a new man of him. But in the Army patient turned out to be a real problem to the medical authorities, and he was considered useless for military duties; he was sent back home. Patient was finally admitted to -----Hospital as a Voluntary Boarder in December 1948. His condition was diagnosed as a psycho-neurosis (anxiety state), and he was discharged improved in January, 1949. Patient was subsequently referred in June, 1952, to the Mental Health Society by the Governor General's National War Fund, from which body he had sought financial assistance. This was refused for the reason that he was a 100 per cent pensioner for schizophrenia, and that he had served a term of imprisonment for sodomy. The Mental Health Society of the W'W'Rand, in the face of many difficulties undertook the administration of his pension. One of the first problems to be solved was the accommodation of the patient. Various places were tried, and he was finally placed,with a family where he remained for three months. Patient then went to live with his sister, as he stated that the people with whom he had been living had heard of the sodomy charge and had been accusing him flagrantly. Patient's behaviour continued to be most peculiar. He was quite irresponsible in money matters, and incurred innumerable debts. He found employmentfor a short while as a shop assistant; but he soon gave this up as he was afraid that his pension would be suspended. It was found necessary to refer patient to the Johannesburg General Hospital. Here he was seen by a psychiatrist who advised that patient be immediately admitted to the ----- Hospital. The diagnosis made at this time was <u>schizophrenia heb.</u>

(b) <u>General appearance and demeanour of patient as at November, 1952</u>.

Patient was a short poorly nourished individual with an <u>asthenic</u> constitution. His manner was peculiar in that he talked very slowly and peculiarly with a fatuous grin on his face. He kept looking away when spoken to, and he interrupted our question with the remark that he had not worked for two years because two cockerels spoke to him and told him to give up his old job and to assume his rightful place as Minister of Finance in the Union of South Africa. He stated that when he heard this from the two cockerels, he immediately gave Dr.----- of the -----Hospital 21 guineas to buy him a tailcoat for ceremonia occasions. Patient then turned on us in a forbidding and patronising manner and said that he got messages from the spirit world and that he was shortly going to visit a certain scientist in Denmark who would give him the inner secrets of the atomic universe. (This patient, who was of Danish parentage, addressed himself in the three languages - English, Afrikaans and Yiddish).

<u>Disturbances of cognition</u> were manifest in the patient and his thought processes were essentially <u>autistic</u>, having no relation to objective realities. He was orientated for place and personal identity, but not for time. He had amnesia for current events,but not for remote and near events, His <u>attention</u> could be engaged only with the greatest difficulty as he appeared to be utterly preoccupied with his fantasies. Patient's <u>powers of comprehension were</u> impaired. Thus he failed to answer item 20 and 25 of I.S. of

N.B.E.R., i.e., to differential colours like red, green, blue and yellow or to comprehend a question like: "When a wheel falls out of your bicycle , what dod you do?". Patient's powers of retention and recall were impaired; thus he could not do item 16 on the I.S., nor could he recall "375 Eloff Str." after 5 minutes. Patient's powers of logical association were impaired. Thus he could not construct a sentence from the three words: boy - river - stone. (Item 42 on I.S. of N.B.E.R.). His M.A. as calculated on the Individual Scale of the National Bureau of Educational Research was 4 years 10½ months. Patient had delusions of grandeur and ideas of reference ; he believed he possessed millions of pounds and that people were constantly saying evil things about him. He also had auditory hallucinations, and believed he could see as well as hear evil whispering voices. He had no insight into his mental or physical condition. The patient at this stage was regarded as paranoid schizophrenia

Affective disturbances were also present; and he hallucinated a great deal. Thus at one moment patient appeared to be withdrawn and depressed, and towards the end of the interview he became greatly agitated, and jumped up in a startled manner at every sound. (acousticophobia).

Conative disturbances were manifested by patient at several interviews. He appeared to be over-cooperative and over-willing to please. He was highly suggestible, and would run to carry out any simple request made by the medical attendant. (hyperprosexia).

(3) Physical examination of the patient:

(a) General physical appearance:

Patient was tall in stature and had an asthenic type of constitution. His nutritional status was poor. His height was 6' and his weight 155 lbs.

(b) Central Nervous System:

The motor side of the patient's speech was intact, but its tone and rhythm appeared to fluctuate with the alterations in the patient's mood.

The cranial nerve functions appeared to be intact; The motor functions were normal, although there was some difficulty in getting the patient to co-operate in testing for muscular co-ordination, and for the same reason, the patient's sensory functions could not be satisfactorily assessed. Patient showed a fine tremor of the hands which was regarded as functional in origin. The superficial and deep reflexes were very tense, and the plantar reflex was flexor. The trophic functions were normal. The pupils reacted briskly to light and accommodation, and the fundus oculi was normal.

(c) Cardiovascular System:
No abnormalities were detected. The B.P. was 115/72 and the P.R. was 68, and the beat regular, equal in time and force.

(d) Respiratory System: N.A.D.
(e) Haemopoietic System: Investigation of the blood was not clinically indicated. The Blood Wassermann was negative.
(f) Lymphatic System: No adenopathy was present. The spleen was not palpable.
(g) Alimentary System: Patient had several carious teeth in upper and lower jaw and a degree of pyorrhoea was present. He was not tender to abdominal palpation, and his spleen and liver

were not palpable. His tongue was furred, and halitosis was present.

(h) Genito-urinary System: There was no clinical evidend of renal dysfunction. The urine was free from albumen and sugar.

(i) Endocrine System: There was no clinical evidence of endocrinopathy.

(j) Locomotor System: Patient's gait was normal.

(k) Cutaneous System: No abnormalities were detected.

Patient was put on H.D.I. Therapy , and was given 32 comas over a period of 10 weeks.

CASE NO. 8.

(1) Patient's personal history:

(a) Patient was a female European, aged 32 years; the third eldest of a family of 8 children - 4 boys and 4 girls; divorced ; born in Lithuania and brought out by parents to South Africa at the age of 8 years; by occupation a milliner and dressmaker in a City establishment; left school in Std. VI at the age of 15 years; earned up to £35 a month at the height of her career; had kept to the same occupation for years; had lived with parents in Doornfontein until her marriage at the age of 24 years, and had never moved about; was attached to a religious faith; was not addicted to alcohol and drugs.

Past illnesses:

Patient's birth was uneventful. During infancy patient had the usual childhood illnesses, but nothing serious like rheumatic fever or diphtheria. During adolescence , patient had 'flu very badly, and her life at one stage of her illness was almost despaired of. She was operated on for acute appendicitis at the age of 18 years. She suffered from facial acne for a number of years, and she was advised that it would disappear when she got married and became a mother.

Social participation:

Patient did not make friends easily as a girl; she somehow felt thst she could not keep up with her friends at school and at work, as they seemed to be generally smarter and more alert than she was. She always felt self-conscious in company, and her mother often reproached her for not paying sufficient attention to her appearance. There was always something in her manner which did not make her acceptable to the opposite sex. Her brothers used to tease her and say that "she wore the wrong kind of hat, and used the wrong kind of lipstick".

Parental family history:

The age of the father was 53 (at the time of his death) and of the mother 58. Father and mother were Europeans, born in Lithuania, of the same ethnic stock, and of the same religious faith. They had no schooling, and they had taught themselves to read and write, and that they were able to do only laboriously. The father was a bootmaker, and ran his business in a back street in Fordsburg, and earned £30-£50 a month; he plied the same trade all his life. Parents had only one change of residence in 20 years, and that was when they moved to the Hospital Hill area.

Father was almost a total abstainer, and never took drugs of any kind except on a doctor's prescription. He frequently suffered from stomach trouble, and although a gastric ulcer was suspected, it was never proved radiologically. He was always afraid of dying, and he brooded what

might happen to the children. He was a sad and depressed man, who had no faith in himself. It was his constant prayer that his children might be able to speak and read and write English fluently, and so bedifferent from the wretched greenhorn father who never enjoyed much cultural luxuries. Father began to lose weight rapidly round about 53, and the doctors considered that his old gastric ulcer had become cancerous. Father used to look pitifully at himself in the mirror and cry:" Is this the end? Is this the end?" It was the end, for he died several months later.

Mother was a shy and sensitive woman. She felt socially inferior on account of her foreignness, and it seemed that this feeling of inferiority was transmitted to the children. Mother was a strong and healthy woman until the age of 35 years when she contracted rheumatic fever. At this time, too, the younger children were laid up with scarlet fever, and as there was nobody to nurse them, she had to get up from her sick bed to attend to them herself. Her heart gave in as a result and for many years she was confined to bed for long periods at a time. She finally died at the age of 58 years from heart failure following on several attacks of coronary thrombosis. The death of the parents was a great blow to the patient, as the burden of looking after the family fell largely upon her shoulders. This burden eventually became too great for the patient to bear, and she sought a way out of her difficulties in a marriage of convenience to a man 15 years older than herself. The ages of the other surviving children were 30, 28, 23 years, 20, 18, 15 and 13 years. There was no history of psychotic mental disorder in the family.

The father-mother relations were of a spiritual character. There was much tender feeling between them; they shared common memories of the old countries, and both cherished the hope of better days to come.

The parent-child relations were good, although the parents failed often to understand the different needs of their children who were making contact with a culture which was entirely foreign to them.

The sibling relations were quite fair but deteriorated somewhat as the older children married and set up new loyalties.

(2) Psychiatric investigation of the patient:

(a) History of present disorder:

The age of the patient at the onset of the present disorder was 29 years, about 4 years after her marriage. She deferred motherhood for as long as she could as she was not in love with her husband. He was inclined to treat her as an article of furniture which was his by right of purchase, and he was also unnaturally jealous of her youth, and excessively greedy for immediate attention. Patient began to resent him, and later to despise him largely because he had failed to keep his promise to assist in the bringing up of the younger members of her family. Once she threatened to leave him when he began actively to persecute her family; and finally, believing that a child of their own might soften his nature, she consented to becoming a mother. During her pregnancy, however, especially after the fourth month, the husband began to pass some rather rough remarks about her altered physical appearance. At one stage patient began to have a great deal of morning sickness, which the doctor diagnosed as a toximia of pregnancy, and later she developed eclamptic fits. This upset the husband a great deal, and he used to tell her to "stop behaving like a bloody old

cow". Patient's pregnancy was artificially terminated, and when it was all over, a noticeable change took place in her behaviour. She began alternately to laugh and to cry, and then maintain silence for hours at a time. Once on a Friday night patient got up from the table, laughed hysterically, and tried to set herself alight with the candle light. The family doctor was called in, and on hearing the account of the patient's behaviour, advised her to be removed to the -----Home for observation. The diagnosis of schizophrenia simplex was made by a specialist psychiatrist. The patient was duly certified, and finally admitted to the -----Hospital in September, 1952.

(b) General appearance and demeanour of patient as at October, 1952.

Patient was a poorly nourished individual of average height and with an asthenic constitution . She would answer no questions, and her face remained dull and expressionless throughout the interview. We asked her what her name and age was, where she came from, and what time of the day it was, but she seemed to hear nothing and to understand nothing. After a few moments she got up quietly from the chair, and put her crumpled handkerchief to her eyes, but without weeping; then she went into a corner and stood-still in a fixed position until she was led away by a member of the nursing staff.

Disturbances of cognition; affect and conation were strikingly present in this patient. Her thinking pattern was autistic in character. Her attention could not be engaged(aprosexia). She was disorientated for time and place, and as to her personal identity. Her memory for remote, recent and current events could not be tested at the time of examination. Her reasoning, her powers of comprehension, retention and recall could not be tested. She had visceral hallucinations, believing that she had no gullet and that she had been criminally assaulted. Her insight into her mental and physical condition and her mental age could not be determined. She would not partake of food in the ordinary way,but had to be fed through a stomach tube. Her facial expression was always wax-like, and she showed a tendency to maintain a limb in the position in which it was placed (Flexibilitas cerea). Patient's I.Q. could not be measured at this stage. Her condition was subsequently diagnosed as schizophrenia catatonica.

(3) Physical examination of the patient:

(a) General physical appearance:

Patient was a poorly nourished individual with an asthenic constitution. She had a wax-like expression, a hunched back and a slow moving gait. Her height was 5'8" and her weight 141 lbs.

(b) Central Nervous System:

The speech functions, the cranial nerve functions , the motor and sensory functions could not be adequately tested on account of the patient's extreme negativistic state. The superficial and deep reflexes were sluggish, and the plantar reflex was likewise. The pupils were widely dilated and reacted briskly to light and accommodation; and the fundus oculi was of normal appearance.

(c) Cardiovascular System:

Clinically, the heart showed no abnormalities. The B.P. was 90/60, and the P.R. was 65 and equal in time and force.

(d) Respiratory System: nil

(e) Haemopoietic System:
Investigation of the blood was not indicated by the clinical condition of the patient. The Blood Wassermann was negative

(f) Lymphatic System:
No adenopathy was present, and the spleen was not palpable.

(g) Alimentary System:
Patient's teeth were in a fair condition; her tongue was furred, and the breath was heavy; no hepatomegaly was present and abdominal tenderness could not be elicited. The descending colon appeared to be loaded with faeces.

(h) Genito-urinary System:
There was clinical evidence of renal dysfunction. Menstrual functions were stated to be normal. Albumen and sugar were absent from the urine.

(i) Endocrine System:
Patient showed no clinical evidence of endocrine dysfunction.

(j) Locomotor System:
Patient's gait was slow, and she dragged her feet on the ground. She had a marked degree of pes planus.

(k) Cutaneous System:
Patient had seborrhoea capitis in a marked degree.

Patient was subjected to H.D.I. Therapy about three weeks after admission. She was given 30 comas over a period of 9 weeks.

CASE NO. 9.

(1) Patient's personal history:

(a) Patient, an European female ; aged 38 years; the youngest of a family of 3 children - 2 boys and a girl; divorced; born in Johannesburg; by occupation a school-teacher, later becoming an administrative clekr in a Mining House; had University education; and majored in Latin and History for her B.A.; had earned at one stage about £30 a month as teacher; had lived with her parents in Parktown until her marriage at the age of 22 years; was attached to a religious faith; was not addicted to alcohol or drugs.

Past illnesses:

Patient's birth involved the use of instruments; but she sustained no injuries as a result thereof. During infancy patient had measles, whooping cough, scarlet fever, and laryngeal diphtheria; her throat showed an old tracheotomy scar. During adolescence, patient had an attack of paratyphoid fever, and was treated for this condition in Hospital. She was operated on for an ovarian cyst at the age of 22. She had facial hirsutism, and this used to make her self-conscious, especially in the presence of the opposite sex.

Social participation:

Patient was extremely socially ambitious, and was made to be so by her mother who wished to advance herself socially through the instrumentality of her educated daughter. Many young men, chiefly of the student class, used to be invited to the home, but none of them ever established a warm friendship with her as they felt that her family were socially pretentious and were not natural and sincere. Patient always strove to move in the smart social sets, but she was invariably cold-shouldered, as it was known that she did not possess the material means to support her pretensions. Patient

began to experience a sense of isolation, and she sought to escape from her painful situation by marrying a persons of substance, who was,however, poorly educated, and some 18 years older than herself.

(b) Patient's parental family history:

Father was aged 34 years and the mother 21 years at the time of their marriage. Father died 12 years ago at the age of 64 and mother was still active at the time of the patient's breakdown. Father was born in Rhodesia; mother was born in Pretoria; were of same religious faith and the same ethnic stock. They had an ordinary primary school education. The father was a produce merchant, and was in same business for very many years; made just a fair living, but sufficient to keep his family in everyday social respectability. Parents had only two changes of residence, and moved from a poorer to a better area when the children were still in their very early teens. Father was a total abstainer, was a healthy man until the age of about 50, when he started to get high blood pressure. He used to get attacks of giddiness and fainting, but he never complained, as he was afraid to appear burdensome in th eyes of his ambitious young wife. Mother was an attractive stylish woman, who aimed to mover in the best social circles, and in order to maintain the family style of living, she used to keep table boarders. Mother used to feign illness and call in young fashionable doctors in the hope of interesting one or other of them in her daughter. But they somehow failed to become interested aand so. she began to urge her daughter to marry for money, "which was after all the basis of social power and respectability". The mother subsequently died in a uraemic coma following a long standing chronic Bright's disease.

There was no history of psychotic mental disorder in the family, although the mother was regarded in the neighbourhood as "somewhat queer and eccentric".

The father-mother relations were outwardly normal, but there were hidden tensions. The father could not keep up with the financial requirements and the social demands of his ambitious wife. The mother always acted as though she had been cheated by her husband and often bemoaned that she had married "a stick-in-the-mud" years older than herself. The father would hear these jibes in silence , and sought comfort in the thought that he had done the best for his children, and in the hope that they would one day reward him with gratitude. The mother subsequently sought an outlet for herself by working herself to death on the committees of a number of charitable organisations. She was always termendously keen to get her name into the social columns of the daily newspapers, but always with the view to pushing her daughter into the circle of eligible bachelors. The father became completely overlooked and he was made to,feel that his presence in the home was no longer necessary; and as a result he withdrew more and more into his shell. He finally died of carcinoma of the large bowel.

The parent-child relations: erred on the side of overprotection, and especially where the patient was concerned. The mother fussed a great deal over her, always dressed her prettily and wanted the world to believe that she was exceptionally clever as well as beautiful. When patient was aged 14, the mother continued to dress her in the clothes of a child of 10 , the idea being to give the impression that her child was extremely brilliant for one so young. The excessive attention given to the daughter by the mother, aroused the jealousy and resentment of the two sons, and their attachment to their mother was motivated more by a sense of duty than by a spirit of love. The sibling relationships were accor-

dingly not as satisfactory as they might have been.

(2) Psychiatric investigation of the patient.

(a) The age of the patient at the onset of the present disorder was 24 years. Her breakdown occurred shortly after her marriage to a man who was some 18 years older than herself. She had entered into matrimony in the belief that her husband-to-be was a man of great material substance, but it turned out later that , although he was a respectable person, he was of modest means. The mother,however, in the belief that her son-in-law was really a wealthy man, began to order clothes and underwear for herself at the smartest shops in town - but all at her son-in-law's expense. This and several other matters led to bitter recriminations. Finally, the patient decided that by continuing in the estate of marriage she would be sacrificing too much for a man who was poor, ignorant, and years older than herself. Patient began to brood over what was for her a disastrous marriage. She blamed her mother for everything, left home, and went back to teaching; but as the weeks went by she began to suspect that her fellow teachers were taking a malicious pleasure in her misfortune. This happened when she found a note on her desk one afternoon and bearing the words:"The path of true love never runs smooth". Thereafter patient kept largely to herself, and she began to lose the excessive self-assurance which was once so characteristic of her; she began to suffer from insomnia and from extreme anxiety; her behaviour became more eccentric and withdrawn in character in the next few years. She began to speak of herself as being "sexless", and to regard St. Joan as her ideal of womanhood. She began constantly to refer to Bernard Shaw's play by that name, and to adopt a pose of the heroine in her last moments before death as played by Sybil Thorndike. The pose consisted in keeping her chin tilted upwards as she spoke. This irritated her friends all the more, and they mockingly referred to her as " The Maid St. Joan ". This was more than the patient could stand, and she left the school, mainly on the Principal's advice. Thereafter the pateint's behaviour became more and more theatrical. She began wearing a garland of artificial flowers around her neck and going about in children's socks and sandals. Later she developed a variety of strange fears. She refrained from, riding in tram-cars because she was afraid they might topple over; and she became afraid of anybody in uniform because she felt that they were wanting to tie her up and burn her alive. Patient was eventually certified by two medical practitioners as a schizophrenic, and she was admitted to -----Hospital in August 1952 as schizophrenia catatonica.

(b) General appearance and demeanour of patient:

Patient was unkempt and slovenly attired; she appeared to be dull and somewhat indifferent. Her conversation was disconnected and irrelevant. During the interview she remained seated on a couch, and after a while she pulled up her legs under her and sat on her feet. Her replies to questions were utterly nonsensical, but in making then she made a pretence at being smart and clever. She would start giggling for no apparent reason, and she behaved more like a girl of 12. Whenever she giggled she would stick her finger into her dimpled cheek and then keep looking straight at the interviewers as if to make them feel self-conscious. The patient's conduct in the wards was observed to be frequently silly and childish. She was constantly writing foolish love letters to well known people on the social world and each would be rounded off with the same quotation from Shelley's "Lines to an Indian ":

"I arise from dreams of thee,
And a spirit in my feet

Has led me - who knows how
To thy chamber window sweet".

This feature of the patient's behaviour was regarded by the writer as a form of palilalia. Sometimes she would mount herself on a table and say that she was a parson and was going to hold a seance.

Disturbances of cognition: were very limited in their extent. Thus patient was mildly autistic, but knew her age and was orientated for time and place, and was able to appreciate the nature of her surroundings. Her memory for remote and recent events was much impaired, but less so for current events. She had no insight into the nature of her condition, nor did she understand the reason for her detention in the -----Hospital. Patient's attention could be easily engaged, but could not be held for very long. Patient's powers of comprehension were impaired; thus she could not answer item 60 on the I.S. of the N.B.E.R. Patient's powers of logical association were impaired; thus she failed to pass item 63 on the I.S. of the N.B.E.R. Patient's M.A. as calculated on this scale was 10.1. Patient had no hallucinations, and did not have any definite delusions, but at times she expressed persecutory delusions which had reference to her brothers. She believed that all her friends were gloating over her misfortune, and she would use obscene and blasphemous language and repeat it all over again even while in an euphoric mood. This was the only example of coprolalia noted by the writer in the group of female patients investigated.

Patient's affective disturbances were expressed in excessive restlessness. Her emotional shallowness alternated periodically with her excessive euphoria. There appeared to be a slight degree of incongruity between her cognitive and affective functions.

The patient's conative functions were also affected; thus she was suggestible to a degree, but there was no gross active or passive negativism. With careful handling she could be made to co-operate.

(3) Physical examination of the patient:

(a) General physical appearance:

Patient had a dysplastic habitus. She was poorly nourished. Her height was 5'7" and her weight was 118½ lbs.

(b) Central Nervous System:

The motor side of the patient's speechwas unaffected, but the tone and rhythm varied with the patient's moods which were observed on several occasions. The cranial nerve functions were generally difficult to determine, especially those of the Olfactory, of the three sensory divisions of the Trigeminal, and the sensory portion of the Glossopharygeal. The motor functions were only slightly affected. Motor power and muscle tone were moderately good; muscular co-ordination was normal, but patient took a little time in carrying out the finger-nose test and the ankle-knee test. The sensory functions were difficult to ascertain as patient was not very co-operative. The superficial reflexes were brisk; the plantar reflex was flexor and very active, and pressure on sole of foot led to a grasping movement by toes (foot-grasp reflex); and the placing of a object in the hand was followed by flexion of digits (grasp-reflex). The deep reflexes were exaggerated. The trophic functions were normal. Ankle Clonus and Knee Clonus were absent. The pupillary skin reflex was normal. The fundus oculi

could not be examined on account of lack of co-ordination on part of the patient. The pupils were equal, and reacted briskly to light and accommodation.

(c) Cardiovascular System:
Clinically the heart was normal in size; the sounds were all closed and no murmurs were audible. The B.P. was 90/60 and the P.R. was 65 per minute and equal in time and force.

(d) Respiratory System:
Breath sounds were normal vesicular, and no adventitious sounds were present.

(e) Haemopoietic System:
Investigation of the cellular contents of the blood was not indicated by the clinical condition of the patient. The Blood Wassermann was negative.

(f) Lymphatic System:
No adenopathy was present. The spleen was not palpable.

(g) Alimentary System:
Patient's teeth were in fair condition. Her tongue was furred. There was no hepatomegaly and no abdominal tenderness to palpation. The descending colon appeared to be spastic and loaded with faeces. Halitosis was present.

(h) Genito-urinary System:
There was no clinical evidence of renal dysfunction, and albumen and sugar were absent from the urine. The labia minora were considerably stretched, suggesting masturbation. Patient's menstrual functions were impaired. Her periods were irregular, and occasionally she would have amenorrhoea.

(i) Endocrine System:
There was no clinical evidence of adrenal or pituitary dysfunction. The thyroid was clinically normal at the time of examination, but became enlarged temporarily during menstruation.

(j) Locomotor System:
Patient's gait was peculiar in that she kept her knees slightly flexed all the time as she walked.

(k) Cutaneous System:
Patient had a sallow complexion which was very likely associated with her chronic constipation.

Patient was put on Electro-shock Therapy some three weeks after her admission to -----Hospital.

CASE NO. 10.

(1) Patient's personal history.

(a) Patient, an European male, aged 27 years; the eldest of a family of three children, - one boy and two girls; was married for one year, and then divorced; born in Johannesburg; by occupation a lecturer; was a M. Sc., and had a most distinguished University career; earned approximately £750 a year as a lecturer; had lived with parents in Dunkeld all his life except for a period in the Army and for the year he spent abroad in post graduate research work;

was attached to the -----Religion, and came from a deeply religious home; was not addicted to alcohol or drugs, or to gambling; was only a moderate smoker.

Past illnesses:

Patient's birth was not attended by any unusual obstetrical difficulties. During infancy, patient had measles, scarlet fever, and broncho-pneumonia, but made a good recovery. During adolescence patient had undulant fever, which invalided him for almost three months.

Social participation:

Patient had been popular and sociable at school and at the University; he was always preoccupied with his studies, and his father, who was an academic person of distinction, was constantly reminding him that he had a family academic tradition to maintain. Patient seldom brought his friends home, as he was afraid that his parents might scrutinise them too carefully and find them wanting in social background. Patient was encouraged to go out only with his sisters, and to find his enjoyments in the atmosphere of the class room and the home.

(b) Patient's parental family history:

The age of the father at the time of the investigation was 60. The mother died two years ago at the age of 57 years. Father and mother were Europeans, born in Britain, of the same ethnic stock and of the same religious faith. The father who came from a home of poverty and hardship had a brilliant academic career, and made his way through High School and University by means of scholarships which he won with little difficulty. The mother had a High School education, and came of a good middle class family with fine social and religious ideals. The father was an electrical engineer and earned about £1500 a year. Father and mother were not addicted to alcohol or drugs. The father was always in good health, but the mother was a frail woman for whom the burden of bringing up three children according to the high standards demanded by the father proved a very great strain. The home atmosphere was very restrained and sombre, and table talk was invariably directed towards academic issues. There was little laughter in the home, and the children were made to feel that they were born into the world for a very serious purpose, and that there was no time for trivialities of any kind.

The father-mother relations were obviously most correct. The father was the dominant partner, and the mother a highly strung and diffident woman, very submissively and fatalistically accepted the inferiority of her position in the family constellation. Their marital relationships were, however, marred by the presence in the household of the husband's sister who was a spinster. This spinster aunt, a highly unbalenced person and prone to mood swings and suspiciousness, assumed in the household a degree of authority which placed the wife in a position of inferiority which she deeply resented but which she was powerless to alter. Furthermore, the aunt monopolised the emotional attention of the children, and particularly of the son who was later to become our patient. This became a source of hidden tension in the family. The son began to resent the excessive emotional interest taken in him by the aunt, as he felt that she was concerned more with her own well-being than his own, and that she was using him as an emotional outlet for her perseonal frustrations.

The parent-child relationships were inadequate. The father was essentially a good persons but he had a domin-

eering manner and was concerned almost exclusively with the intellectual development of his children. He took little emotional interest in them and hardly ever displayed the tenderness for which they yearned. The children were afraid of questioning the authority of the father, and the authority of the father was always upheld by the paternal aunt.

The sibling relations were just fair, but the patient got on better with the older sister, who seemed to have a better understanding of the causes of the family tension.

(2) Psychiatric investigation of the patient.

(a) History of present disorder:

The age of the patient at the onset of the present disorder was 23, but his childhood history showed that he had always been very sensitive,and that he had been significantly affected by the conflictful influences of his mother and aunt. Patient's ambivalent attachment to his aunt was shown by his fixed belief that "it was the duty of everyone to get married on attaining to adulthood". Patient entered the University of -----, and subsequently got his M.Sc. with first class honours in record time. In World War II he joined the S.A.A.F. and rendered valuable service as a technical expert. Patient was subsequently awarded a research scholarship which enabled him to go to -----University, England, and here he obtained distictions at the final degree examinations, and headed the list in physics and mathematics. After this, under the driving influence of his father, proceeded to do research for the D. Phil. in mathematics. In the middle of his work, however, patient began to experience a sense of loneliness and acute anxiety and he got married to a schoolteacher whom he had known in South Africa. The father was thoroughly upset by the son's marriage, thinking that it would interfere with his doctoral researches. Thereafter, patient became prone to sudden outbursts of temper, and could no longer apply himself to systematic investigation. Patient was subsequently seen by a psychiatrist who considered that the precipitatory factors in the patient's illness were the following: (i) Gross overwork: Patient had, it seemed, been given a far too hard a line of research for a D.Phil. It should have had no time limit. (ii) Work and marriage responsibilities interfering with one another. Father of patient thought he should never have married at this time with so much pressing work to accomplish. Patient had certainly found it hard to co-ordinate the two. (iii) Physical relations between patient and his wife were only partially satisfactory and for some weeks just before patient's admission patient and wife had had almost no intimate relationships. (iv) Patient was often disturbed by letters from home. There was his mother's fatal illness, and the interference of his aunt in the family affairs. (v) The wife's family and the patient's family were constantly at loggerheads.

The patient's illness began insidiously in January with paranoid ideas. He became tired very quickly, and began to get phantastic notions regarding possible solutions he had found to very obtruse problems in his work. As the patient's illness developed he became mildly pyrexial and tachycardic. He was confused about recent events, and full of unspecified fears. Patient's illness worked up to a crisis some three months later, when he became filled with religious phantasies and diffuse paranoid delusions. He believed, for example, that he and his wife were " part of an act". He deliberately burned his right wrist on the electric fire. He had one catatonic period a day. He suggested mutilating himself further as a religious act of expiation. Finally he went into a state of violent catatonic excitement, scream-

ing, talking incoherently, and misidentifying people around him. On account of these drastic changes in his behaviour, he was admitted forthwith to the -----Mental Hospital. In hospital, patient's behaviour varied from catatonic inertia to impulsiveness, and frequently accompanied by physical contortions which were related to distressing hallucinations. He broke window-panes, and often needed manal restraint. His mind was engrossed in religious phantasies which were connected with his intimate relationships with his wife and masturbation, all of which was mixed up with severe guilt feelings. He came to believe that his wife was the Mother of Christ, and at other times he misidentified her as one or other member of the staff. He was, in effect, in an acute catatonic and paranoid episode. At this time, patient appeared to be fit physically, although he was somewhat undernourished. The burn on his right wrist, was only slight, and healed well. Patient calmed down only slowly and remained delusional and highly labile affectively. After a week of observation the patient was given his first course of E.C.T. with considerable improvement in mood, but insight still remained impaired. He slowly slipped back again into a state of mild paranoid depression with ideas of reference and guilt feelings, and with some general confusion about events around him. Affectively he was labile. He felt he ought to help other patients in the hospital without being fully clear why and how. Accordingly, patient was put on a course of H.D.I.C.T. The course lasted approximately six weeks, but despite 20 comas, the results were disappointing, the patient remaining very changeable, impulsively trying to escape occasionally without in any way being able to explain his motives; he remained, too, mildly derealised in a confused way, labile emotionally and at times paranoid in thinking. Yet there were increasing rational periods, one of which occurred when he was informed of his mother's death. As his usual mood remained low, he was given immediately after a further course of E.C.T. with considerable improvement in mood, but without complete remission of the state of psychogenic confusion and derealisation. Patient, however, invariably slipped back again into a state of emotional lability and guilt-feeling whenever he received a visit from his father, who was incapable of showing him the necessary understanding. Nevertheless, patient held firm at a level of partial remission, and he was accordingly discharged about five months after his admission.

During patient'd stay at the hospital, psychometric tests carried out showed a great improvement in his intellectual functions. However, although he showed a special aptitude for mathematics, his general intelligence was not high.

The prognosis of the patient at this stage was considered doubtful. It was thought to be possible that the patient's present remission might hold and that he might get back to his Doctoral researches - provided that he did not come again under severe occupational and psychological stress.

After his discharge, patient went with his wife for two weeks' holiday, during which period he felt generally well with occasional "cloudings" of his mind, wherein he lost rapport. On his return to the -----Hospital, patient was seen once again as an outpatient in September, 1950 by Dr.-----, and on this occasion he was somewaht disturbed about his condition, as he was in a state of tension and bewilderment, completely devoid of any insight into his illness, and with paranoid tendencies ih his ideation. When the University term was about to begin, the patient tried to start work again, but found concentration very hard. He became increasingly depressed and withdrawn, and finally, soon after the,

beginning of October , was clearly relapsing into a state of schizophrenic withdrawal, with bizarre ideation; such as needing to change his religion on the grounds of his wife changing her clothes, and with increasing disturbance of behaviour. This finally led him to try and stab himself impulsively with a bread knife, and to bang his head on the furniture saying that he wanted to be dead.

After an extremely disturbed night on 11th October, the patient was readmitted, as a matter of urgency, at 2 a.m. in the capacity of a voluntary patient. On admission, he was withdrawn, apathetic, showing evidence of confusion and thought, blocking, but not overtly disturbed in ideation. His memory, however, seemed extremely patchy, and he had a very poor insight. As time went by patient became increasingly prone to violent attacks, starting with excess of psychomotor restlessness, but soon proceeding to impulsive aggressive outbursts, during which he would attack patients, or break windows. On these occasions, considerable physical restraint would be necessary, and invariably the patient's thought content would be found to be highly paranoid in flavour, including, for instance, the belief that other patients had special designs against him. On other occasions it seemed pretty evident that the patient was aurally hallucinated. When the acute outbursts had died down, the patient would be abject and penitent, but also bewildered and confused, and at other times still paranoid in thinking. He frequently showed evidence of tension and anxiety , even when lying quietly in bed, his general lack of comprehension of his mental state and of outside events, appearing to conduce to this anxious tension. Domestic strife, particularly between the patient's father and his family on the one hand, and the patient's wife and her family on the other, made the whole situation of his management even more difficult than it would otherwise have been. Shortly after the patient's admission, his wife, who was clearly in a very tense state of mind as a result of having to nurse the patient in the last months, decided, after consultation with her mother, to return to South Africa. She later sent word to say that she was instituting divorce proceedings. Full legal responsibility from the time of the patient's wife's departure was later taken over by the patient's father.

The patient was at first treated with mild sedation, occupational therapy, and supportive psycho-therapy. As, however, his condition deteriorated and violent impulsive outbursts became more frequent, it was found necessary to nurse him almost completely in bed with heavy sedation , viz. sodium amytol and paraldehyde. Even this sedation, however, was insufficient to prevent impulsive outbursts, and finally in December, it was felt that E.C.T. previously withheld, because of its tendency to make patient more confused, bewildered, and amnesic, was now an urgent necessity to reduce the gross affective pressure, as patient's father was averse to the patient's undergoing E.C.T. at first, but ultimately gave his consent after a second opinion had been obtained. The patient was given a course of 16 E.C.T. comas with considerable affective improvement, lessening of tension and better rapport. The paranoid ideation, though never completely in abeyance, went very much under the surface, as a result of E.C.T., and the hallucinosis subsided. There was still some considerable bewilderment, and insight remained poor, although the patient was aware that he had been through a mental illness. The improvement resulting from E.C.T. made it possible for arrangements to be made for the patient to fly back to South Africa accompanied by his father. The patient left -----Hospital in January, 1951. Suitable sedation was given to the father to take with him.

The patient's prognosis at this time was considered poor. Despite superficial improvement which had resulted

from E.C.T., it seemed almost certain that the patient was in process of progressive paranoid schizophrenia , which had not been arrested by the full course of deep insulin coma treatment. The impression, accordingly, was that the ultimate prognosis was very poor.

Treatment of this patient was subsequently continued at the -----Hospital in South Africa.

(b) General appearance and demeanour of patient:

Patient was investigated by the writer on a number of occasions in the fourth quarter of 1952, after he had been hospitalised and treated for about six months. Patient was well-nourished at this time, physically he looked fit. H e had an athletic constitution . Patient looked very withdrawn, and his face was dull and expressionless. His expressionless countenance was but a cover for an underlying tension which appeared to be very extreme. Patient looked at the interviewer as though he (the interviewer) was an object of suspicion to him, and he would then turn his head away and gaze at a far corner of the ceiling in a bewildered way. His behaviour was that of a persons who expected to receive only injury at the hands of people with whom he came in contact. The writer was subsequently able to ascertain the the patient's father and aunt had a similar suspicious way of looking at people.

Disturbances of cognition were evident in the patient. His pattern of thinking was autistic. He knew who the medical officer and the male nurses were, but he had difficulty in identifying them by name, and would occasionally confuse one with the other. He was somewhat disorientated for place; thus, while he knew that he was in -----Hospital, he did not know the particular town in which the Hospital was situated. His orientation for time was impaired. Hi memory for recent and remote events was impaired, but less so for current events. His attention could be gained only with difficulty, and he appeared to be preoccupied with the memory of some catastrophic experience he had passed through. He mentioned, in fact, that his wife had recently divorced him, but he had no insight into the nature of his condition. Patient's powers of comprehension were impaired. Thus he could not give an answer to the question:"Why do you save money?"- nor could he re-arrange the words in a dissected sentence in a proper meaningful order. Patient's powers of recall were also slightly impaired; thus he could not repeat a number of six digits after 1 minute. Patient's powers of logical association were impaired in that he could not solve the "Ball and Field" problem (Superior plan). Likewise, his powers of reasoning were impaired in that he could not find a solution to problem presented in item 69 (1a) on the Individual Scale of the N.B.E.R. Patient was only mildly hallucinated at this stage. Once in the course of the interview he abruptly turned hsi head away and gazed up into the ceiling as though he had heard the voice of someone calling. He was also deluded; thus he believed that his divorced wife was the Virgin Mary and that he personally was responsible for the second coming of Christ. Patient's M.A.at this stage as measured on the Individual Scale of the N.B.E.R. was 10.2 years.

Disturbances of affect were clearly shown by the patient . He looked utterly withdrawn and repressed, but as if harbouring a hidden desire to avenge some wrongs which had been inflicted on him. Patient broke down and wept in the course of the interview and called for his wife.

Disturbances of conation were shown in the patient's

periodic outbursts of violence. This would happen particularly during a visit by his father. This violence took the form of breaking windows, and this was possibly associated with a suicidal tendency.

(3) Physical examination of the patient.

(a) General phusical appearance:

Patient was a well nourished individual, with an athletic build, and appeared to be in a fit physical state. His height was 5'8½" and his weight was 164 lbs.

(b) Central Nervous System:

The motor side of the patient's speech was intact, but he always lingered before speaking a sentence. The cranial nerve functions were difficult to examine on account of lack of co-operation on the part of the patient. The Second, Third, Fourth, motor division of the Fifth, the Sixth, Seventh, Ninth, Tenth, Eleventh, and Twelfth cranial nerves appeared to be intact. The motor functions wer not affected; muscle tone was good; muscular co-ordination and the sensory functions could not be adequately ascertained on account of lack of co-operation on the part of the patient. The superficial and deep reflexes were brisk, and the plantar reflexes were flexor. The trophic functions were normal. The fundus oculi could not be examined, as the patient appeared to be terrified of the ophthalmoscope. The pupils were equal and contracted; reaction to light and accommodation doubtful.

(c) Cardiovascular System:

The heart was not enlarged clinically; heart sounds were all closed; no murmurs were present. The B.P. was 150/90 at one stage when the patient was in a state of anxious tension; but later came down to 130/80 when patient was in a more relaxed condition. The P.R. was 80, regular, equal in time and force.

(d) Respiratory System:
No abnormalities were detected.

(e) Haemopoietic System:
Investigation of blood was not indicated by clinical condition of the patient. The Blood Wassermann was negative.

(f) Lymphatic System:
No adenopathy was present.

(g) Alimentary System:
Patient's teeth were in a fair condition. Tongue was furred and halitosis was present. There was no hepatomegaly or splenomegaly, and no abdominal tenderness to palpation.

(h) Genito-urinary System:
There was no clinical evidence of renal dysfunction or genital abnormality. There was no albumen or sugar in the urine. Patient had a functional polyuria.

(i) Endocrine System:
There was no clinical evidence of pituitary, thyroid, or adrenal dysfunction.

(j) Locomotor System:
No abnormalities were detected. Patient's gait was firm and elastic and his quick steps were in keeping with his general psychomotor activity.

(k) Cutaneous System:
No abnormalities were detected.

Patient was put on High Dosage Insulin Therapy, and he received approximately 32 comas altogether. Treatment took approximately 2½ months.

(B) THE "B" GROUP OF PATIENTS.

CASE NO. 1.

Patient -----, aged 44, an insurance agent, consulted us in June 1951. His complaint was that he had been unable to concentrate on his business affairs for several months and that he had been getting tired easily and forgetting to attend to his diarised appointments. He had also been having outbursts of temper, and had taken to drinking in a big way - a thing which he had never done before. Recently he began boasting to his wife and friends that he was "related to the Governor General of South Africa, and that one day he would be Prime Minister and make everybody sit up". He also began to hear "strange noises" in his head which were sometimes like voices; and he squandered his money on all sorts of people whom he didn't even know. Patient's wife began to be suspicious of his mental condition, and arranged for him to be investigated.

The findings on examination were as follows: Patient's pupils were unequal, reacted to accommodation but not to light. The optic fundi were definitely pale, suggesting early optic atrophy.

The knee-jerks were increased, and the plantar reflex was extensor.

The tongue was termulous, and the speech was slow and slurred.

Patient's handwriting was markedly termulous in character and he omitted a number of words from the sentence he was asked to transcribe.

Patient's blood and cerebrospinal fluid gave a strongly positive Wassermann reaction. The C.S.F., in addition, gave a definite paretic curve; also there was a lymphocytosis of 150 cells per c.mm., and globulin was determined by the Nonne-Apelt reaction,, was present.

The patient's condition was accordingly diagnosed as dementia paralytica or general paralysis of the insane.

Patient was treated with 2,000,000 units of crysticillin daily for a period of 6 weeks. His blood Wassermann and the Wassermann in the C.S.F. was now only one + positive. The degree of improvement was shown in the fact that whereas the patient's mental age before treatment was 11.9 years, after treatment it was 14.9¼ years. The improved mental age was consistent with the advance which had taken place in the integration of the patient's psychic functions.

CASE NO. 2.

Patient -----, aged 53, a propagandist for a Johannesburg charitable organisation, consulted us in April, 1952. His complaint was that he had been suffering from violent headaches for the past four months. The headaches were always worse at night and were so excruciating that he was unable to sleep. The headaches were mainly parietal in character, and often, as a result of exhaustion, he would

fall asleep over his work during the day. On a number of occasions, while walking to his bus-stop, he became giddy, and had to hold on to a lamp-post. About two months ago, patient began having convulsions, especially after excitement, and some while later his speech became affected, and his left arm and left leg became weak. Patient had also become very irritable, and this would invariably be followed by a state of stupor. More recently he began to harbour the delusion that "the income tax authorities were after him, and were going to kill him".

The findings on examination were as follows: Pupils were unequal, reacted to light but not to accommodation. Optic neuritis present in both fundi, but more marked on the right side. Ptosis of the right eye was present, indicating involvement of the 3rd cranial nerve. Internal strabismus of right eye was present with a resulting diplopia indicating involvement of the 6th cranial nerve. Patient's hearing was affected, and when asked to smile, the right side of the mouth did not move - indicating involvement of both the 7th and 8th cranial nerves. A spastic paralysis of the left arm and leg was present; the supinator and knee jerks were greatly exaggerated, and the Babinski was positive, indicating an upper motor neurone paralysis.

The Wassermann reaction in the blood and the cerebrospinal fluid was positive, and the Lange reaction gave a luetic curve. There were approximately 200 lymphocytes present per c.mm. of the C.S.F., and globulin was absent.

The condition was accordingly diagnosed as cerebral syphilis.

Patient was treated in a Nursing Home and given 2,000,000 units of crysticillin daily for 2 weeks, and repeated after an interval of 5 days. Patient's general condition improved. The improvement effected was particularly noteworthy in the case of his psychic functions. Thus, before treatment, patient's mental age was 10.6 years and after treatment it became 15.3 years; which was a measure of the advance which had occurred in the integration of the patient's psychic functions.

CASE NO. 3.

Patient -----, a married woman, aged 58, consulted us in August 1952. She was brought by her elder daughter, and her main complaint was that her skin had become excessively dry, that the hair of her head was falling out, and that generally she was not half so mentally active as she used to be.

The findings on examination were as follows: Patient had an expressionless face, and her eyelids drooped somewhat. The tongue appeared to be bigger, and the lips thicker than normal. Her face had a yellowish tint with a pink patch on the cheek. The skin was dry and rough, and hair had fallen away from the region of the temples. The subcutaneous tissue, particularly in the region of the neck and ankles, was oedematous, but did not pit on pressure. The gait and all movements were slow and deliberate. The heart appeared to be clinically enlarged, and the cardiac sounds appeared to be distant and weak on auscultation. The blood count showed a degree of anaemia, with 4,220,000 red cells per c.mm. The Blood Wassermann was negative. The temperature was subnormal. The Basal Metabolic Rate was reduced to 30 per cent.

Psychiatric examination revealed a marked disturbance of the functions of cognition, affect, and conation. Thus

her memory was defective, and her general cerebration very slow. Periodically she became irritable and restless, and at one of the interviews she had visual hallucinations. The mental age of the patient at this time was 7.5 years on the Individual Scale of the N.B.E.R.

The patient's condition was diagnosed as myxoedema. Patient was subsequently admitted to the Johannesburg General Hospital by her general practitioner. Here she was again fully investigated. Radiographic examination of her chest showed gross enlargement of all the chambers of the heart, and the electrocardiogram showed an extremely low voltage.

Patient was treated with thyroid gland, beginning with a dose of gr. ¼ b.d. and gradually increased to gr. V daily. Patient made rapid progress under treatment. After four weeks she lost 25 lbs. in weight and her heart became normal in size. When we examined her after her discharge, we were able to note a remarkable improvement in her psychiatric condition. The improvement extended to all the categories of the psyche, and the increased efficiency of their functions was reflected in the fact that her mental age was now 14.7½ years on the Individual Scale of the N.B.E.R.

CASE NO. 4.

Patient-----, a caretaker's wife, aged 61, consulted us in April 1952. Her main complaint was that she had "a swelling in the throat which had been getting worse for the last six months, and that she had been getting breathless on exertion, and that her eyesight was failing.

The findings on examination were as follows: Patient had a hard nodular swelling lying transversely across the base of the neck, the right side being rather larger than the left. The pulsation of the carotid arteries was marked. Patient had a staring expression with a bilateral exophthalmos, and had positive Dalrymple's, von Graefe's, Mobius', Joffroy's, and Stellwag's signs. Her heart sounds were very loud and an apical systolic murmur was present. Her pulse rate was 110, with an irregular irregularity, indicating auricular fibrillation. Her blood pressure was 150/90. Her skin was mosit and warm. Her Basal Metabolic Rate calculated from Read's formula: B.M.R. - 0.683 (P.R. - 0.9 P.P.) - 71.5 was increased by 40%. Patient had a fine tremor affecting the whole of the upper extremeties.

Psychiatric exmaination showed a marked disturbance of the functions of cognition, affect, and conation. Patient was very restless and excitable at the time of examination but a few days thereafter, when she suddenly went into cardiac failure, she showed acute anxiety with visual hallucinations and persecutory delusions. Patient's mental age at the time of the examination was 10.10. years on the Individual Scale of the N.B.E.R. Patient's condition was diagnosed as Exophthalmic Goitre. Patient was treated with Lugol's Iodine mv, t.d.s. for ten days and thereafter with propyl thiouracil 0.2 gm. t.d.s. for 10 days, the dose of the latter being then reduced to 0.2 gm. daily for a period of 4 weeks. The patient's cardiac condition was treated at the same time with digitalis.

The response to treatment was dramatic; a great improvement occurred in the patient's clinical and psychiatric condition. The improvement in the patient's psychic functions was reflected in the mental age which was determined 6 weeks after the commencement of treatment and estimated to be 16.8 years.

CASE NO. 5.

Patient -----, a Railway pensioner, aged 72, consulted us in June,1952. He complained of great general weakness, some loss of weight, and of pallor. His wife,however, gave the further information that he had been maniacal and confused of and on,and believed (quite wrongly) that the police were hunting for him all over the City.

The findings on examination were as follows: Patient looked extremely anaemic, and his skin had a yellowish tint. His tongue was sore, smooth, and atrophic. He had paraesthesia of the extremeties. His spleen was barely palpable. His blood pressure was 90/60 and pulse rate 90;he had albumen in the urine. The red cell count was 1,800,000 per c.mm. and the white cell count 2000 per c.mm. The Colour Index was 1.2 and the Haemoglobin was 7 gms. The blood smear showed anisocytosis and poikilocytosis,and a number of nucleated red cells. On the basis of these findings the condition was diagnosed by the writer as pernicious anaemia. The degree pf psychic disorganisation present in the patient before treatment was estimated from the fact that the mental age on the Individual Scale of the N.B.E.R. was 11.9 years.

Patient was admitted to the Johannesburg General Hospital shortly after our preliminary investigation, Further investigations carried out here yielded the following additional findings:

The mean diameter of the red cells was increased,being 8.3. The reticulocytes were 2%. The mean corpuscular volume was increased, being 140 c.u. The mean corpuscular haemoglobin and colour index were increased. The mean corpuscular average thickness was increased, being 2.1 u.

The leucocytes were reduced in number to 25% per c.m. The lymphocytes were relatively increased to 50%. The neutrophils showed increased lobulation, showing a shift to the right on Arneth's Count. Turk's stimulation cells were present.

The blood platelets were scanty and numbered 50,000 per c. mm.

The serum had a yellowish tint, and the indirect van den Bergh was positive, and the icteric index was 12.

A bone marrow biopsy showed numerous megaloblasts, normoblasts and normal red cells were scanty. Active phagocytosis of red cells by large reticula-endothielial cells of bone-marrow was present.

The coagulation time was increased, and the blood-sugar curve was normal.

The above evidence was confirmatory of the diagnosis of pernicious anaemia. Patient was treated with Vitamin B_{12} injections in daily doses of 100 micrograms, and after a few weeks of treatment his red cell count returned to normal. Patient's general clinical condition and psychiatric status improved considerably, A psychiatric exmaination carried out on the patient after his discharge from hospital showed that his cognition, affect, and conation were better integrated, a fact which was reflected in his higher mental age of 15.9 years.

CASE NO. 6.

Patient -----, an European male aged 47 yearsm employed as a clerk in a State Department,consulted us inSeptember,1952,on account of a gonococcal infection which he

recently contracted. This, however, was not his only problem. He was addicted to alcohol and suffered from the effects of chronic alcoholism. It became necessary to treat the patient for his alcoholism as well.

The findings of our physical examination were as follows:

Patient's facies was congested and naevi were present. His nose was red, and the conjunctivae were watery. His alimentary system was greatly disturbed; his tongue was furred, and his breath was heavy. He suffered from mausea and anorexia, especially in the morning. His voice was husky. He had a tremor of hands and tongue. He had an hepatomegaly, due to cirrhosis, and periodically he had bouts of haematemesis. He had signs of peripheral neuritis in his lower limbs; he had exquisite tenderness in his calf muscles, tingling, and hyperaesthesia; his knee jerks were absent.

Psychiatric examination revealed a marked disturbance of the functions of cognition, affect, and conation. Patient's memory, concentration, and insight were greatly impaired; he was very irritable and generally emotionally labile; and he took little interest in his work. Patient's menatal age at this time was 11.9 years, which was in keeping with the defective integration of the categories of his psyche.

Patient subsequently developed lobar pneumonia, following an all night exposure at the Central Station. For this he was treated in the Johannesburg General Hospital. About 10 days after his discharge, patient became restless and depressed, and was unable to sleep well; he bagan to have bad dreams, and he imagined that he saw rats and snakes moving on the walls of his room. Psychiatrically examined at this stage, patient showed loss of orientation for time, place, and personal identity; he confabulated a great deal; but his powers of reasoning were the least affected of his mental functions. The symptoms now displayed indicated that patient had a Krosakow's psychosis. Patient was subsequently admitted to Northlea, Bergvlei, outside Johannesburg, where he is still hospitalised. The writer had an opportunity of observing the patient here on three different opportunities in January, 1953, and was able to note a great general improvement in his psycho-somatic status.

. . . . . .

The writer has had, in addition, opportunities of observing in the wards of the Fever Hospital of the Johannesburg Municipality cases of meningococcal and pneumococcal meningitis and of virus encephalitis presenting a schizoform symptomatology, and, in the wards of the Johannesburg General Hospital, cases of tuberculous meningitis, congestive cardiac failure, chronic nephritis with uraemia, idiopathis epilepsy, pellagra, cerebral cysticercosis, cerebral tumour, disseminated sclerosis, and paralysis agitans exhibiting a schizoform symtomatology; and he has noted, too, that the schizoform symptomatology engendered by the somatic disorganisation disappeared in those cases where specific therapy was applied, namely, in the cases of meningococcal, pneumococcal, and tuberculous meningitis, and in congestive cardiac failure, pellagra, and disseminated sclerosis. The other cases failed to respond to therapy or were beyond surgical interference, as the case might be.

CHAP. III.

ANALYSIS OF THE DATA AND CONCLUSIONS.

Analysis of the case records presented above of patients exhibiting schizophrenic or schizophreniform symptoms shows that they have necessarily to be classified into two main groups, namely (A) the "A" group, or the functional group, of cases, in which no organic basis could be found for the schizophrenic symptomatology, and (B) the "B" group, in which an organic basis could be found for the schizophreniform symptomatology.

(A) ANALYSIS OF THE "A" GROUP OR FUNCTIONAL GROUP OF CASES.

Analysis of data in respect of this group is directed to

I. The identification of possible causal factors, emerging -
   - (i) in the personal history of the patients;
   - (ii) in the family history of the patients;
   - (iii) in the physical segment of the personalities of the patients;
   - (iv) in the psychic segment of the personalities of the patients.

II. The evaluation of the symptomatology projected by the patients.

III. The evaluation of the response of patients to treatment.

I. ANALYSIS OF DATA DIRECTED TO THE IDENTIFICATION OF POSSIBLE CAUSAL FACTORS EMERGING-

(a) IN THE PERSONAL HISTORY OF THE PATIENTS:

(i) The age factor

The onset age of schizophrenia in this group of cases

is indicated in Table I.

Table I.

The onset age of schizophrenia in the "A" group of patients

Case No.	Age	Case No.	Age	Case No.	Age
1	20	6	19	11	26
2	34	7	25	12	28
3	18	8	29	13	32
4	26	9	24	14	21
5	15	10	23	15	23

Average age : 24.2 years.

This study suggests that schizophrenia is mainly a disorder of early adult life - a finding which we were able to confirm by an analysis of the corresponding age data of a large sample of cases examined at Sterkfontein Hospital.

Table II.

Age onset of 50 European Cases of Schizophrenia investigated at Sterkfontein Hospital.1952.("X" Group)

Age group	16-19	20-29	30-39	40-49	50-59
No.	5	21	13	9	2
%	10	42	26	18	4

It emerges from the above data that the vast majority of schizophrenic patients, i.e., 78 per cent, at the time of the onset of their disorder belong to the age group 16-39 years, and that the peak incidence of the disorder is in the age group 20-29 years.

(ii) The sex factor.

The sex factor as a determinant of susceptibility to the schizophrenic process could not be evaluated from the "A" group of cases which we intensively studied, nor from the 50 case records which we examined both at Sterkfontein Hospital and the Neuro-psychiatric Department of the Johannesburg General Hospital. Accordingly, reliance was placed upon an analysis of data culled from other sources. Analysis of such data indicates that men are, as a rule, more liable to schizophrenia than are women. The extent to which this is so is reflected in Table III.

Table III.

The sex distribution of schizophrenia among European (x) patients resident in the mental hospitals of the Union.

Year	No. of cases		M/F
	Male	Female	
1944	1282	1108	1.15
1945	1277	1133	1.12
1946	1298	1164	1.11
1947	1320	1158	1.14
1948	1284	1156	1.11
1949	1299	1170	1.11

It will be observed from the above data that over a six year period males were constantly more susceptible to schizophrenia than were females.

(iii) The factor of race:

The factor of race as a determinant of susceptibility to schizophrenia could not be evaluated through the group of patients which we investigated, as they were all of European stock. Information of a statistically reliable character in respect thereto could be obtained only from an analysis of relevant data presented in the Annual Reports of the Commissioner for Mental Hygiene of the Union of S.Africa.

Table IV.

The distribution by race of first admissions to the mental hospitals in the Union of South Africa in respect of schizophrenia, 1937-1949. (xx)

Year	Total all/races	Europeans		Natives	
		No.	% of total	No.	% of total
1937	709	143	20.22	458	64.6
1938	838	194	23.03	546	65.2
1939	930	185	19.89	636	68.4
1940	1030	269	26.1	661	64.1
1949	927	165	17.79	639	67.9

		Asiatics		Mixed, etc.	
1937	709	27	3.8	82	11.5
1938	838	21	2.5	77	9.2
1939	930	20	2.2	89	9.6
1940	1030	25	2.4	75	7.3
1949	927	22	2.3	101	10.9

(x) Vide Annual Reports of the Commissioner for Mental Hygiene of the Union of S.A., for the corresponding years.
(xx) Vide Annual Reports of the Commissioner for Mental Hygiene of the Union of S. Africa, 1937-1949.

It emerges from the foregoing figures that the Native races form the bulk of all first admissions to mental hospitals in the Union,and are followed by the Europeans,the mixed races, and the Asiatics, in that order.The inference, however,is not drawn by the writer,namely, that the incidence of schizophrenia among Europeans,the Bantu, the Asiatics, and the "mixed races" is in proportion to the relative percentage frequency of schizophrenia obtaining among all first admissions.Only by examination of the racial composition of the Union of South Africa for the corresponding years can one decide whether the racial distribution of first admissions is, or is not,in proportion to the racial composition of the population.Population figures for the Union are not available for each of the years 1937-1949. In order to make a comparison possible,an average figure is computed (i) for the racial distribution of first admissions during the years 1937, 1938, 1939, 1940 and 1949;and (ii) for the racial composition of the Union for the Census Years 1936 and 1946. The computations are presented in Table V.

Table V.

Comparative analysis of racial distribution of first admissions in respect of schizophrenia to mental hospitals in the Union of South Africa, and racial composition of the Union population, (x)

Year	Average % racial distrib. of first admissions				Racial composition of Union population			
	E	N	A	C	E	N	A	C
1936					20.9	68.8	2.3	8.0
1937	20.02	64.6	3.6	11.5				
1938	23.03	65.2	2.5	9.2				
1939	19.89	68.4	2.2	9.6				
1940	26.1	64.1	2.4	7.3				
1946								
1949	17.79	67.3	2.3	10.9	20.8	68.8	2.5	8.1
Average	21.16	66.4	2.64	9.7	20.85	68.7	2.4	8.05

It emerges from the above data that South African Europeans formed a higher percentage proportion of first admissions for schizophrenia than their percentage proportion of total population, that the Bantu formed a correspond-

(x) Cf. Annual Reports of the Commissioner of Mental Hygiene for the Union of S. Africa for the corresponding years.

ingly lower proportion, and the Asiatics and the Coloureds a correspondingly higher proportion. The inference may be accordingly drawn - subject to the proviso that hospital accommodation for the schizophrenics of all races is maximal - that the incidence of schizophrenia is higher among the European, the Asiatic, and Colored races, than among the Bantu. The validity of this inference is, however, subject to the criticism that the Bantu are, possibly, more reluctant to report mental disorder than are the Europeans.

(iv) The factor of heredity:

The frequency of mental disorder in the families of the various groups of patients investigated is reflected in Table VI.

Table VI.
Frequency of mental disorder in the families of different groups of schizophrenic patients.

Group of patients	Type of mental disorder	Member of patient's family affected	No. of patients with an affected family member.
"A" Group (15 cases)	Schizophrenia	Father	2
	Epilepsy (idiopathic)	Father and Brother	1
	Anxiety neurosis	Father and Mother	1
"X" Group (Sterkfontein Hospital Group (50 cases)	Schizophrenia	Sister	1
	Senile psychosis	Grandfather (paternal)	1
	Manic depression psychoneurosis	Mother	1
"Y" Group (JHB. Hospital 50 cases)	Schizophrenia	Father	1
	Schizophrenia	Twin sister	1
	Senile psychosis	Grandfather (maternal)	1
	Manic depression	Twin brother	1
	Manic depression	Mother&brother	1

The following findings emerge from the above data;

(i) In the "A" Group of cases only 2 patients in 15 had a schizophrenic heredity, and that in the form of a schizophrenic father. A second patient had an epileptic father and brother; and a third had a psycho-neurotic background in both his parents.

(ii) In the "X" Group of cases, one patient had a sister with schizophrenia who was being treated in a Mental

hospital; a second patient had a grandfather who was a senile psychotic ,and a third had a mother who was a psychoneurotic (query- manic-depressive), and who was being treated in the Neuro-psychiatric Department of the Johannesburg Hospital.

(iii) In the "Y" Group of cases,one patient had a schizophrenic father, a second had a schizophrenic co-twin sister; a third had a maternal grandmother who was a senile psychotic; a fourth had a twin brother who was a manic depressive; and a fifth had a mother and brother who were manic depressives.

The above data are inadequate from the point of view of statistical analysis, as in none of the different groups of cases was information obtainable in all instances in regard to the incidence of schizophrenia or of mental disorder in the grand-parents, parents, and siblings of affected patients. It appeared understandable to us that the close relatives of patients should be loath to surrender information of this kind because of their dread of the stigma which the general public attached to mental disorder. Although no conclusions can be drawn from these data in regard to the part played by heredity in the determination of susceptibility to schizophrenia, there are certain findings which invite consideration. Thus in all the groups constituting a total of 115 cases, there were 2 cases of parents with manic-depression who had schizophrenic off-spring; one case where both parents with anxiety neurosis had schizophrenic off-spring; one case where the one parent, an idiopathic epileptic, had a schizophrenic off-spring; two cases where grandparents, who were senile psychotics, had schizophrenic grandchildren; and only two cases where parents, who were affected with schizophrenia, had schizophrenic off-spring. The inference which seems to emerge from these data is that a particular mental disorder like manic depression and anxiety neurosis in parents does not necessarily re-produce itself in the same form in the offspring. In

effect, as the data indicate, a manic depressive parent, or a psychoneurotic parent, may have a schizophrenic offspring, and that schizophrenic parents may have manic depressive offspring or just psychoneurotic offspring. The inference emerges at this stage that a particular disorder in the parents may lead to any form of mental disorder in the offspring. But while this may be so, it will be argued on the basis of facts to be analysed later in the text that the genetic factor does not operate independently of, other factors in the causation of mental disorder, e.g., schizophrenia. Thus, the data relating to the family background of our group of patients will show that an adverse emotional environment in the home plays a most significant role in the emergence of the schizophrenic process.

(v) The factor of birth order:

The birth-order of the "A" Group of patients investigated is indicated in Table VII.

Table VII.

Birth order of "A" group of patients and size of parental family in each case.

Patient No.	Birth order	No. of siblings in family
1.	1	5
2.	1(2nd marriage)	7(- 6 step children)
3.	2	7
4.	1	6
5.	3	8
6.	2	4
7.	3	3
8.	3	8
9.	3	3
10.	1	3
11.	2	5
12.	4	4
13.	3	6
14.	1	1
15.	1	3

It emerges from the above data that of the group of schizophrenic patients investigated 5 were the eldest, 3 were the second oldest, 3 were the third oldest, and 3 were the youngest members of their particular groups, and 1 was on only child.

These figures may be presented in the form of a frequency distribution, thus -

Distribution of "A" Group of patients by birth order

Birth order	No. of patients	Average No. of siblings in family
1	6	4.1
2	3	5.3
3	5	5.6
4	1	4

Examination of these figures shows that the birth order of the schizophrenic patients tended to be high up in their respective sibling group. Further, reference to the family histories of these patients shows (i) tha the eldest and the elder siblings were the first to be subjected to the full impact of the disorganising family background while the younger siblings either escaped that impact altogether or else suffered through it to a lesser extent,and that,by virtue of the fact that the elder siblings had served as a psychological buffer between them and the maldajusted parents;(ii) that the 3 siblings who were youngest in their families and who succumbed to schizophrenia had been subjected to the solicitous over-protection of one or other parent. The inference emerges that attitudes of parental domination and parental neglect,which operated in the first series,and the attitude of parental over-protection and over-love which operated in the second instance, both produced the same psychological effect, namely the fear that is born of repression, and which is the soil in which the schizophrenic process establishes itself.

(vi) The factor of nativity.

The nativity or birthplace of the schizophrenic patients investigated,and also of their families, is indicated in Table VIII.

Table VIII

Birthplace of the "A" Group of schizophrenic patients.

Patient No.	Birthplace of patient
1.	Johannesburg
2.	N. Transvaal
3.	Johannesburg
4.	Port Elizabeth.

Table VIII (cont.)

Patient No.	Birthplace of patient.
5.	Johannesburg
6.	Johannesburg
7.	Johannesburg
8.	Lithuania
9.	Johannesburg
10.	Johannesburg
11.	Dublin
12.	Lichtenburg
13.	Johannesburg
14.	Pretoria
15.	Jerusalem

The question as to whether the factor of nativity played a significant role in determining the liability of an individual to psychotic mental disorder like schizophrenia could not be settled from an analysis of the limited data with respect to the "A" Group of cases. Thus, of the 15 cases in this group only 3 were born outside the Union. But the quaetion as to whether foreign nativity serves as an aggravating factor can only be settled by an analysis of more extensive data such as those contained in the 1936 Annual Report of the Commissioner of Mental Hygiene for the Union of South Africa. Analysis of such data does in fact suggest that the birthplace of an individual, if foreign, may increase his liability to a mental disorder like schizophrenia.

Table IX.

Birthplace of European First Admission to Mental Hospitals in the Union of South Africa, 1936.

Birthplace	Population Census 1936	No. of first admissions	Admission rate per 100,000 populat.
British S.A.	1765250	665	37.6
Other Afr.countires	4790	16	334.0
England	98799	55	55.6
Ireland	10622	12	112.9
Scotland	32856	19	57.9
Wales	3698	1	27.4
United Kingdom	675	-	-
Gibraltar & Malta	177	-	-
Austria	913	-	-
Belgium	562	2	355.8
Bulgaria	11	-	-
Czecho-Slovakia	162	-	-
Denmark	649	2	308.1
Estonia	62	-	-
Finland	67	-	-
France	1043	-	-
Germany	13440	10	74.4
Greece	1872	1	53.4
Holland	6389	4	62.6

Table IX (cont.) (x)

Birthplace	Population Census 1936	No. of first admissions	Admission rate per 100,000 populat.
Hungary	147	-	-
Italy	2001	-	-
Jugo-Slavia	523	1	191.3
Latvia	3443	1	29.0
Lithuania	13285	4	30.1
Norway	1403	2	142.5
Portugal	711	2	281.3
Roumania	156	-	-
Russia	16236	7	49.3
Poland	4224	-	-
Spain	139	-	-
Sweden	803	-	-
Switzerland	877	2	228.0
Turkey	154	-	-
Other Europ. countries	667	-	-
Other countries	15914	11	69.9
Unspecified	937	104	11099.0
Total	2,003,857	921	45.9

It emerges from the above figures that the admission rate to mental hospitals in the Union of South Africa for persons born in South Africa is 37.6 per 100,000 of population born in South Africa, and that the admission rates for foreign-born South Africans exceed in every case that for South Africans born in South Africa, with only three exceptions, viz., Wales, Latvia, and Lithuania. The rank order of foreign countries (from which immigrants derive) with reference to the admission rates is indicated in Table X.

Table X.

Admission rates of immigrants to mental hospitals in the Union of South Africa in rank order of their countries of origin and compared with the admission rate for South African born South Africans, 1936. (xx)

Countries of origin	Admission rate per 100,000 popul. of same immigrant group.	Ration of admission rate to that of S.A. born S.Africans.
Belgium	355.8	9.4
Other African countries	334.0	8.9
Denmark	308.1	8.2

(x) Vide Annual Report of Commissioner of Mental Hygiene of the Union of S.A., U.G.,No.4, 1936.
Note: More recent statistical data of a comparable character were not available,

(xx) More recent statistical data of a comparable character were not available to the writer.

Table X.(cont.)

Countries of origin	Admission rate per 100,000 popul. of same immigrant group.	Ratio of admission rate to that of S.A. born S.Africans.
Portugal	281.3	7.5
Switzerland	228.0	6.1
Jugoslavia	191.3	5.1
Norway	142.5	3.8
Ireland	112.9	3.0
Germany	74.4	1.9
Other countries	69.9	1.8
Holland	62.6	1.6
Scotland	57.9	1.5
England	55.6	1.4
Greece	53.4	1.4
Russia	49.3	1.3
BRITISH S. AFRICA	37.6	1.0
Lithuania	30.1	0.8
Latvia	29.0	0.7
Wales	27.4	0.7

It emerges from the above Table that the admission rate for Belgian settlers in South Africa for the year 1936 was greater than that for any other nationals,and was followed by those for immigrants from "other countries",Denmark,Portugal,Switzerland,Jugoslavia,Norway,etc. Thus the inference emerges that the liability of Belgian settlers in the Union to mental disorder was 9.4 times greater that that of South African born South Africans,and that the liability of settlers from "other African countries",Denmark,Portugal, Switzerland,Jugoslavia,Norway, etc. was respectively 8.9, 8.2, 7.5, 6.1, 5.1 and 3.8 times greater thannthat of native born South Africans.It may be postulated that the greater the admission rate for a particular immigrant group,the less is their capacity for adaptation to the socio-cultural environment in which they are projected,and the less is their sense of psycho-social security.In so far as this is so,it may be stated that those immigrants with a high admission rate have a high susceptibility to mental disorder,and therefore also to schizophrenia. Accordingly,of the immigrant groups referred to,the Belgians would have had, for the year 1936, at any rate, the highest susceptibility to schizophrenia, and the Latvians and the Welsh the lowest.

While therefore it appears to be true that the fact of

an individual's foreign birth may increase his liability to schizophrenia,there is also the further fact that persons born in South Africa of foreign parents may,in certain circumstances,also be more liable to schizophrenia than the generality of native South Africans.Reference to the subjoined Table will throw some light upon the question.

Table XI.

Birthplace of the "A" Group of schizophrenic patients and of their parents.

Patient No.	Birthplace of patient	Birthplace of parents	
		Father	Mother
1.	Johannesburg	Belgium	Belgium
2.	N. Transvaal	Transvaal	Cape
3.	Johannesburg	Latvia	Latvia
4.	Port Elizabeth	S. Ireland	Italy
5.	Johannesburg	L. Marques	England
6.	Johannesburg	Pietersburg	Lichtenburg
7.	Johannesburg	Transvaal	Transvaal
8.	Lithuania	Lithuania	Lithuania
9.	Johannesburg	Rhodesia	Pretoria
10.	Johannesburg	Scotland	Scotland
11.	Dublin	New York	Johannesburg
12.	Lichtenburg	Worcester	Velddrift
13.	Johannesburg	Germiston	Rustenburg
14.	Pretoria	Pretoria	Krugersdorp
15.	Jerusalem	Riga	Libau

It will be noted from the above data that there were 8 instances where the parents of patients were of foreign birth. A careful study of the relevant case histories showed that the disorganising process was initiated or intensified by the culture conflict which obtained between the foreign-born parents and their South African born children, To exhaust the question further, the correlation of the birthplace of patients with the birthplace,ethnic stock,and religion of their parents yields information which is of furtherinterest.

Table XII.

Birthplace of the "A" Group of schizophrenic patients, and the birthplace, ethnic stock, and religion of their parents.

Patient No.	Birthplace of patients	Birthplace of parents		Ethnic Stock	Religion.
		Father	Mother		
1.	Johannesburg	Belbium	Belgium	Same	Same
2.	N. Transvaal	Transvaal	Cape	Same	Same
3.	Johannesburg	Latvia	Latvia	Same	Same
4.	P. Elizabeth	S.Ireland	Italy	Differt.	Same
5.	Johannesburg	L.Marques	England	Differt.	Differt.

Table XII(cont.)

Patient No.	Birthplace of patients	Birthplace of parents: Father	Birthplace of parents: Mother	Ethnic stock	Religion
6.	Johannesburg	Pietersburg (Tvl.)	Lichtenburg (Tvl.)	Differ.	Differ.
7.	Johannesburg	Transvaal	Transvaal	Same	Same
8.	Lithuania	Lithuania	Lithuania	Same	Same
9.	Johannesburg	Rhodesia	Pretoria	Same	Differ.
10.	Johannesburg	Scotland	Scotland	Same	Same
11.	Dublin	New York	Johannesb.	Same	Same
12.	Lichtenburg	Worcester	Velddrift	Same	Same
13.	Johannesburg	Germiston	Rustenburg	Differ.	Same
14.	Pretoria	Pretoria	Krugersdorp	Same	Same
15.	Jerusalem	Riga	Libau	Same	Same

It will be noted from the above data that over and above the factor of,culture conflict, there operate in four instances the additional factor of ethnic incompatibility, and in two instances the additional factors of ethnic plus religious incompatibility,as against seven instances wherein the ethnic stock and religion of the parents were identical. The inference which emerges from the analysis is that while differences as regards nativity,ethnic stock,and religion may be among the contributory factors in schizophrenia,mere identity of birthplace, ethnic stock,and religion is by itself, no guarantee of immunity from psycho-social insecurity, and therefore, from schizophrenic attack.

Table XIII.

Marital status of the groups of schizophrenic patients investigated.

Marital status	"A" Group		"X" Group		"Y" Group	
Single	7)		19)		22)	
Divorced	4)	12	11)	34	8)	35
Separated	1)		4)		5)	
Married	3)		16)		15)	
Total	15		50		35	
% married	80%		68%		70%	
Grand total			115			
Total unmarried			81			
% unmarried			70.5%			

It emerges from the above data that 70.7% of the combined group of schizophrenic patients investigated were single or unmarried. As approximately 50 per cent of these patients were in the most marriageable age groups,it may be

postulated that the unmarried state, with all that it implies in the way of personal isolation, and therefore personal insecurity, increases susceptibility of an individual to the schizophrenic process.

(viii) The factor of occupational status:

The occupational status of the group of patients investigated is indicated in Table XIV.

Table XIV.

Occupational status of the groups of schizophrenic patients investigated.

"A" Group:

Farm labourer	2
Salesman	2
Foreman in Navy	1
Short-hand typist	1
Handyman	1
Milliner and dressmaker	1
School teacher	1
Lecturer	1
Dentist	1
Medical student	1
Garage proprietor	1
Medical practitioner	1
Clerk	1
	15

"X" and "Y" Groups:

Clerk	17
Farmer	6
Housewife	5
Scholar	4
Cabinet maker	4
Electrician	3
University student	3
Fitter-and-turner	3
Plumber	3
Bricklayer	2
Plasterer	2
Commercial traveller	2
Wood-machinist	2
Moulder	2
Miner	1
Fisherman	1
Boiler-maker	1
Gardener	1
Typist	1
Panel-beater	1
Policeman	1
Lorry driver	1
Rigger	1
University lecturer	1
Shop-assistant	1
Labourer	1
Film-projectionist	1
Rope-worker	1
Airman	1
Maizemiller	1
Optical mechanic	1

Table XIV (cont.)

Sailor	1
Postman	1
Male nurse	1
Bookkeeper	1
Storeman	1
Unemployed or occupation unspecified	8
Trained for no occupation	7
	100

Examination of these occupational groupings shows that 80 out of 115, or 69.3 per cent of the European patients, whose occupational status is specified,are engaged in indoor work.This finding,however,does not permit of the inference that Europeans who are engaged in indoor occupations are generally more liable to schizophrenia than are those engaged in outdoor occupations.In order to prove that this is so,it would be necessary to establish that the total number of European persons engaged in indoor occupations in Johannesburg are responsible for a much higher proportion of schizophrenics than is the total number of European persons engaged in outdoor occupations. This analysis could not be accomplished for we were advised by the Director of Census and Statistics that "it was not possible from the Census data for the year 1946,to distinguish between indoor and outdoor occuaptions as there were too many borderline or unclassified cases".(x)

(ix) The factor of occupational mobility:

The number of changes of occupation experienced by patients prior to the onset of their disorder could be determined only with respect to the "A" group.

Table XV.

Frequency of occupations change in the "A" group of patients

Patient No.	Frequency of occupational change.
1.	4
2.	2
3.	6
4.	7

(x) Personal communication from the Director of Census and Statistics,Union of South Africa,(Received 1.9.1953).

Table XV (cont.)

Patient No.	Frequency of occupational change.
5.	6
6.	3
7.	4
8.	0
9.	2
10.	1
11.	4
12.	3
13.	5
14.	4
15.	6
Average frequency	3.7

The average frequency of occupational change per patient was 3.7. It was difficult to decide whether the occupaional mobility of this group of patients was the cause or the effect of an incipient schizophrenic disorder, but it appeared to us to be reasonably certain that in 11 instances the occupational mobility was an effect rather than a cause of the schizophrenia; but quite regardless of whether it was an effect or a cause, occupational mobility, with its increasing burden of adjustment to new situations, intensified the schizophrenic process, howsoever it was begun.

(x) The factor of economic status:

The data in regard to the economic status of the different groups of patients suggest that it may play a significant role in the causation of schizophrenia.

In the case of the "A" group of patients the data were as follows:

Table XVI.

Patient No.	Monthly earnings	Economic status of parents.
1.	£35	£40-60 a month
2.	?	£30-40 (could not make ends meet)
3.	£20-25	£40-50 (" " " ")
4.	£27.10.0	£30-50 a month
5.	£15-20	£30 a month
6.	£15-25	£40-60 a month
7.	£30	£20-35, and later £70
8.	£35	£30-40 per month
9.	£30	£80 per month
10.	£62.10.0	£120 per month
11.	£18	£40-50 per month

Table XVI (cont.)

Patient No.	Monthly earnings	Economic status of parents.
12.	£25	£80-100 per month
13.	£20-25	£100-150 per month
14.	£50	£120 per month
15.	£30	£25-30 per month.

It is apparent from the above data that all patients in this group,with but four exceptions,belonged to the category of "poor" or "very poor" who could not make ends meet. Of the 11 patients in this group,who were inmates at the Sterkfontein Hospital,7,or 63.6 per cent were "non-paying".which fact signified that they were impecunious at the time of their admission,and furtherthat their close relatives were not in a financial position to contribute towards their maintenance at the hospital.

An idea of the economic status of the "X" group was obtained from the fact that they were classified in the case records as "Paying" or "Non-paying",as the case might be. Thus, of 50 cases in this group,35 or 70 per cent were non-paying patients. The rest were able to pay from 4/- a day and upwards for their accommodation and treatment.It may be inferred from this,too,that the non-paying patients were derived from the poverty-stricken section of the population; and accordingly it may be postulated that absolute poverty - in a socially differentiated community - may enhance the liability of an individual to mental disorder like schizophrenia.

An idea of the economic status of the "Y" group of patients could be obtained from a study of the occupational status and residential status of individual patients. Thus, of the 50 cases investigated,37 were wage-earners,for whom the prospect of economic security seemed uncertain; and the remainder of this group - of whom 7 were unemployed clerks or artisans,2 University students,3 schoolboys, and 1 a housewife - were economically dependent upon others. The inference which flows from this finding is that relative

poverty, with the anxiety associated therewith in maintaining one's place in a particular social stratum of the community, may increase the susceptibility of an individual to a mental disorder like schizophrenia.

(xi) The factor of educational status:

The data in respect of the educational status of the "A" Group of patients are presented in Table XVII.

Table XVII.

Educational Status of the "A" Group of schizophrenic patients.

Educational Standard		Number	%
I.	Primary School Std. IV-V	4	26.6
II.	Secondary School		
	Std. VI-VII	4	26.6
	Std. VIII - Matric	4	26.6
III.	University	3	20.0

Data in respect of educational status could only be obtained in 31 of the 100 schizophrenic cases in the "X" and "Y" groups. The educational status of these groups of patients is indicated in Table XVIII.

Table XVIII.

Educational Status of the "X" and "Y" groups of schizophrenic patients.

Educational Standard		Number	%
I.	Primary School Std. III-IV	6	19.3
II.	Secondary School		
	Std. VI-VII	8	25.9
	Std. VIII-x	13	41.9
III.	University	4	12.9

The interpretation of the above data is not simple, in as much as several questions have to be considered therewith, e.g, was the relative inferiority of educational status in the first and second groups due to economic factors, or was it due to the interruption of the educational training by the onset of the schizophrenic process? Although the smallness of the sample precludes the presentation of far-reaching

conclusions,yet from an analysis of the case histories of the patients to whom these data refer - mainly in the "A" group - one would state (a) that among the group which had reached a standard of education from Std. IV to Std.VII,the economic factor, in combination with a number of psycho-social factors deriving therefrom, was predominantly responsible for the sense of frustration which had ushered in the schizophrenic process; (b) that among the group which had reached a standard of education from Std. VIII to University level,the factor of emotional insecurity within the family constellation, caused for example by parental domination parental neglect, or sibling rivalry,was predominantly responsible for the onset of the schizophrenic process which in turn interrupted the further educational progress of the individual concerned;and lastly,(c) that once an individual's educational career had been retarded by an incipient schizophrenic process,then the sense of frustration arising therefrom would intensify that process further in the manner of a vicious cycle.

(xii) The factor of overcrowding in the home:

An analysis of the addresses of patients in all the three groups investigated throws some light on the relationship of overcrowding and population density to schizophrenia. For the purpose of this analysis,only the addresses of patents living in Johannesburg could be utilised.All the patients in the "A" group were resident in Johannesburg,and of the 100 patients in the "X" and "Y" groups 59 were resident in Johannesburg.Examination of the addresses of 74 patients in all three groups combined showed that they were distributed in suburbs which could be categorised as "areas of low population density","moderate population density","high" population density",and "very high population density",Suburbs with a population density of 1-10 persons per acre were classed as "low population density areas";those with a population density of 11-20 persons per acre were classed as "moderate population density areas";those with a population

density of 21-30 persons per acre were classed as "high population density"; and those with a population density of over 31 persons per acre were classed as "very high population density areas". The distribution of the combined group of Johannesburg patients by area of population density is indicated in Table XIX.(x)

Table XIX.

Distribution of the combined group of Johannesburg patients by area of population density.

Population density	No. of patients	%
Low population density	7	9.1
Moderate population density	16	21.8
High population density	35	47.3
Very high population density	16	21.8
Total	74	100.0

It emerges from the above data that the great majority of the Johannesburg group of schizophrenic patients, namely 69.1 per cent, derived from those areas of the city which have a "high population density" and a "very high population density". The question, however, as to whether this finding permits of the general inference, namely, that the factor of high population density may increase the susceptibility of an individual to schizophrenia, can only be settled by estimating from our own figures the incidence rate of schizophrenia for the various areas of population density. The relevant data are presented in Table XX.

Table XX.

Incidence rate of schizophrenia for Europeans in the diverse areas of population density in the City of Johannesburg.

	Population (1951)	Average pop. density (Persons per acre)	No. of schiz. pats.	Incidence rate per 100,000 pop.
Low density areas	19,557	5.7	7	35.8

(x) The areas of the suburbs from which the combined group of Johannesburg patients derived were obtained from the Annual Report of the City Engineer of Johannesburg, (1952); and the population figures for those areas, as at 1951, were obtained from the Union Bureau of Census and Statistics, Pretoria.

Table XX (cont.)

	Population (1951)	Average pop. density (Persons per acre)	No. of schiz. pats.	Incidence rate per 100,000 pop.
Moderate density areas	57,470	16.6	16	27.8
High density areas	75,397	24.7	35	46.4
Very high density areas	64,895	48.0	16	24.7

It emerges from the above data that the incidence rate of schizophrenia in the suburban communities of Johannesburg is not directly proportional to the population density obtaining among them. Thus in the areas where the average population density is least, viz. 5.7 persons per acre, the incidence rate is 35.8, whereas in the two areas where the population density is approximately 3 and 8 times higher than this, the incidence rate is appreciably less. It appears from this analysis that the factor of high population density does not participate in the causation of schizophrenia. Nevertheless, it may be argued that this analysis is inexhaustive for the following reasons: (i) The residential locations examined are those of patients who have been admitted either to the Sterkfontein Hospital or to the Neuropsychiatric Department of the Johannesburg General Hospital, and who do not represent the total number of persons suffering from schizophrenia in Johannesburg; (ii) A large number of schizophrenic patients living in the "high density" and "very high density" areas of the City may not be able to obtain admission to our mental institutions on account of lack of accommodation; and (iii) A large proportion of schizophrenic patients residing in "low density" and "moderate density" areas are likely to be treated in private institutions, It is thus not possible to be sure of the actual distribution of schizophrenic patients by population density.

The factor of overcrowding in the home was examined only with reference to the "A" Group of patients. Of the 15

patients in this group, 3 lived in an area of "low population density", 1 in an area of "moderate population density", 7 in an area of "high population density",and 7 in an area of "very high population density". The degree of overcrowding was determined from the number of persons per room in each household.

Table XXI.

Distribution of the "A" group of patients by area of population density,and the number of persons per bedroom in the households of patients.

Area of population density	No. of patients	No. of persons per bedroom in each household.
Low population density	2	1
Moderate population density	1	1
High population density	6	3
Very high population density	6	4

The above figures indicate that the degree of overcrowding per room was greatest in the households of those patients who lived in "very high population density", and "high population density" areas,that is,in the poverty-stricken areas of the city,where,according to our data,the incidence of schizophrenia is highest.The inference emerges that the factor of domiciliary overcrowding,which is associated with greater inter-personal tension,and which is in turn determined by the factor of relative poverty,will increase the liability of an individual to schizophrenia.

(xiii) The factor of spatial mobility:

The factor of spatial mobility was examined only with reference to the "A" Group of patients.

Table XXII

Spatial mobility of the "A" Group of patients.

Patient No.	No. of changes of residence	Period during which changes of residence took place.
1.	6	12 years
2.	1	34 "
3.	5	2½ "
4.	8	16 "
5.	7	10 "
6.	5	3 "
7.	9	8 "
8.	1	24 "
9.	1	22 "
10.	2	25 "
11.	11	24 "

Table XXII(cont.)

Patient No.	No. of changes of residence	Period during which changes of residence took place.
12.	6	8 years
13.	3	20 "
14.	4	15 "
15.	4	12 "

The foregoing figures may be presented in the form of a frequency distribution, thus -

Distribution of "A" group of patients by frequency of residential change

No. of patients	No. of residential changes	Average year period in which residential changes occurred.
2	1	23.3
1	2	25
1	3	20
2	4	13.5
2	5	2.75
2	6	10
1	7	10
1	8	16
1	9	8
1	11	24

If we regard as our criterion of excessive spatial mobility one or more residential changes occurring in a period of 2 years, and if we regard as our criterion of moderate spatial mobility one residential change occurring in a period of 4 years,and if we regard fewer changes than this as representing a neglible mobility,than we may say with reference to the "A" group of patients that spatial mobility was excessive in 8 cases,moderate in 2 cases,and "negligible" in the remaining 5 cases.The inference accordingly emerges that excessive spatial mobility is not necessarily present in every case of schizophrenia.It was,infact,difficult to say in the case of the 8 patients in the above group,whether the schizophrenic process was a cause or an effect of the spatial mobility.It is,however,possible that escessive spatial mobility,by virtue of its call for continual adjustment to changing social situations,increased the vulnerability of some patients to the impact of the schizophrenic process.

(xiv) The factor of religious affiliation or non-affiliation:

Twelve of the patients in the "A" group were attached to varying religious faiths,and 3 to no faith at all.It was outside the scope of this investigation to enquire into the depth or the genuineness of the religious faith of particular patients;but,superficially,it would appear from our findings that neither faith nor faithlessness in their case served a a guarantee of immunity from misery.

(xv) The factor of addiction:

In the "A" group , three patients gave a history of

alcoholism,and four a history of narcotism. Of the patients who were addicted to alcohol,one consumed a bottle of brandy a week,one 4 glasses of gin and lime a day,and one 4 to 6 tots of whisky a day;and of the patients who were addicted to narcotics,one took 3 grains of nembutal a day as a soporofic;one took A.P.Cod.(Gelonida) and luminal tablets gr. 1½ as a sedative;one took secconal capsules,gr.iii a day,as a soporofic;and one took 3 half-grain tablets a day as a sedative. It appeared to us from the clinical history and examination of these cases that addiction, whether to alcohol or drugs,was an effect rather than the cause of the emergent schizophrenic process.

(xvi) The factor of physical ill-health in childhood and adolescence.

Seven of the 15 patients in the "A" Group suffered from severe illnesses during childhood and adolescence.These illnesses,which included otitis media,typhoid fever,bacillary dysentery,infective hepatitis,glandular fever,diphtheria, undulant fever, and rheumatic fever, could have had a retarding effect upon the educational progress and personal development of the patients concerned, and so could have rendered them more vulnerable to the schizophrenic process.But the inference does not emerge that severe physical illness 'per se' is the sole determinant of the schizophrenic process;because,if this were so,then all patients who have suffered from severe illnesses,such as those herein referred to, ought to become schizophrenic.As this,in fact,is not the case, it may be postulated that other factors,over and above,or even regardless of,the factor of physical illness,are operative in the causation of schizophrenia.Again,the fact that 8 of the 15 patients in the "A"group had no severe illness during childhood and adolescence shows that at least in some instances other factors than physical disease,namely psychological factors, may be responsible for the emergence of the schizophrenic process in a particular individual.

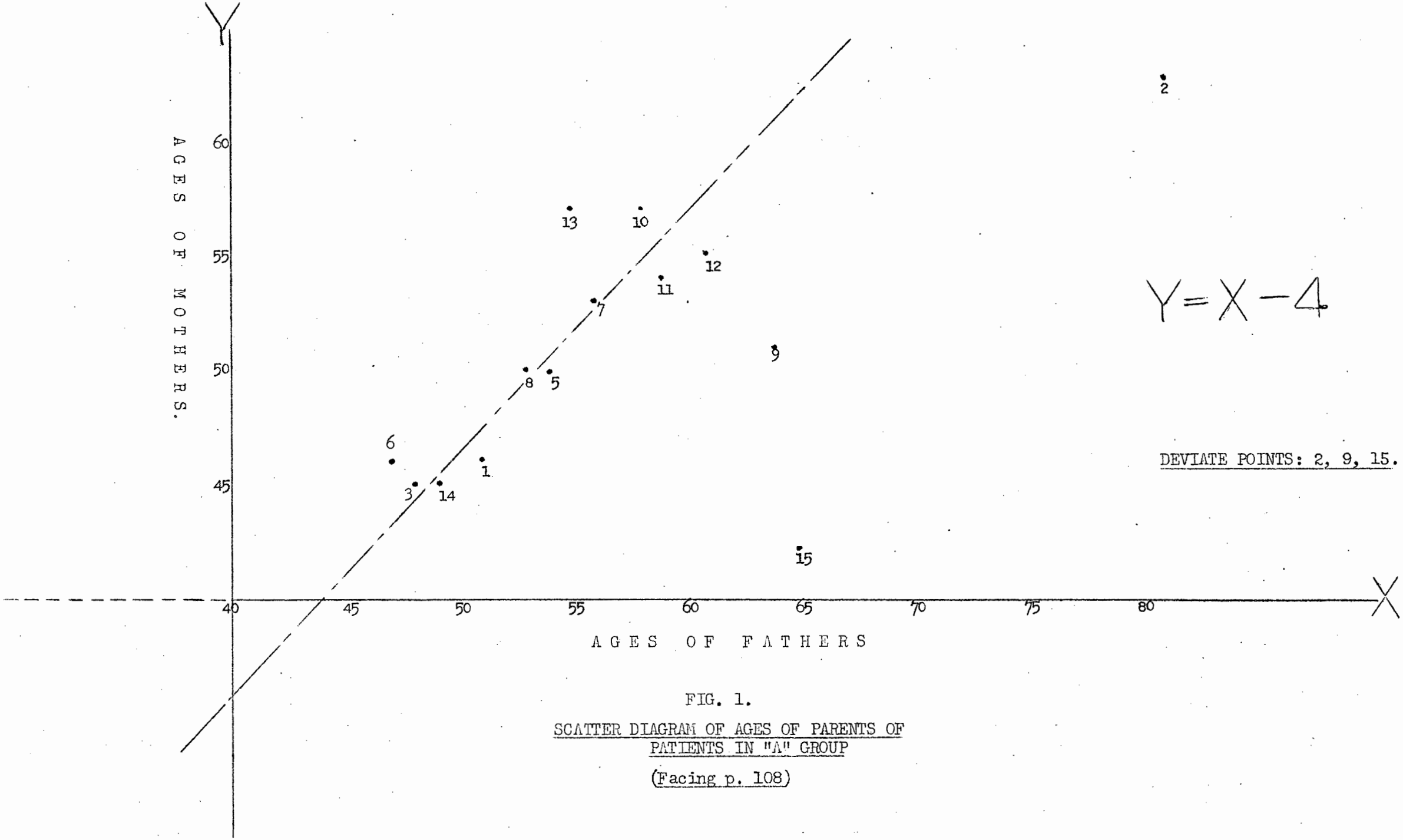

FIG. 1.

SCATTER DIAGRAM OF AGES OF PARENTS OF PATIENTS IN "A" GROUP

(Facing p. 108)

(b) IN THE FAMILY HISTORIES OF THE PATIENTS.

These data are examined with a view to identifying the factors which have contributed to the emotional deprivation or traumatisation of the patient and which, by inducing in him a sense of insecurity, have possibly augmented his susceptibility to the schizophrenic process. Examination of the data shows that these factors are variously projected (1) by disorganised mother-father relationships, (2) by disorganised parent-child relations, and (3) by disorganised sibling relationships. The factors which contributed to the diverse categories of human disorganisation found in the family background of the "A" group of patients must be considered:-

(i) The factor of age difference:

The age differences of the parents of the patients in the "A" group are indicated in Table XXIII.

Table XXIII.

Age differences of parents of patients in the "A" group.

Patient No.	Age of Father	Age of Mother	Age difference in years.
1.	51	46	5
2.	83(81)	63	18
3.	48	45	3
4.	63	60	3
5.	54(at death)	55(50)x	4
6.	47	46	1
7.	56	53	3
8.	53(at death)	58(50)x	3
9.	64(at death)	65(51)	13
10.	60(58)x	57(at death)	1
11.	59	54	5
12.	61	55	6
13.	55	57	2
14.	49	45	4
15.	65	42	23

The above data are presented in the form of a scattergram (fig.1). It will be noted that in only 3 of 15 instances was there an extreme age difference between the parents. The inference emerges that the factor of extreme age difference was operative, in three instances, in the disorganisation

(x) Representing age of parent at time of death of other spouse.

of husband-wife relations,but careful examination of the relevant data shows that it was not the only factor which was so operative.Furthermore,as the mother-father age differences were of a minor character in the majority of cases,and conformed to the pattern obtaining generally in the European population of Johannesburg,the inference emerges that,generally speaking,this factor plays an insignificant role in the disorganisation of mother-father relations and so in turn of parent-child relations,which may end in the personal disorganisation of an individual sibling.

(ii) The factor of race difference;(iii)the factor of religious difference;and(iv)the factor of educational difference.

These factors are considered together in Table XXIV.

Table XXIV.

Correlation of race,religious,and educational differences among parents with the character of their marital relationship.

Pat.No.	Marital relationship	Race of Father	Race of Mother
1	Most unhappy	Belgian(Jewish)	Belgian(Jew.)
2.	Most unhappy	Afrikaans	Afrikaans
3.	Passively indifferent	Polish(Jewish)	Latvian(Jew.)
4.	Most unhappy	Irish	Italian
5.	Unhappy	Portuguese	English
6.	Most unhappy	English	Afrikaans
7.	Unhappy	Lithuanian	Lithuanian
8.	Happy	Lithuanian	Lithuanian
9.	Unhappy	S.A. English	S.A.English
10.	Unhappy	British	British
11.	Unhappy	English	English
12	Unhappy	English	Scotch
13.	Happy	Afrikaans	Jewish
14.	Unhappy	Jewish	Jewish
15.	Unhappy	Jewish	Jewish

Pat. No.	Religion of Mother and Father	Educational Status	
		Father	Mother
1.	Same	Primary	Primary
2.	Same	Primary	Primary
3.	Same	-------	-------
4.	Same	Primary	Primary
5.	Different	Primary	Secondary
6.	Different	Primary	Primary
7.	Same	Primary	Primary
8.	Same	-------	-------
9.	Same	Primary	Primary
10.	Same	University	Secondary
11.	Same	Secondary	Secondary
12.	Same	Secondary	Secondary
13.	Same	University	University
14.	Same	Secondary	Secondary
15.	Same	Primary	Primary

The foregoing data may be presented in the form of a frequency distribution, thus -

Distribution of "A" Group of patients according to the marital relationship, race, religious status, and educational status of parents.

(i) Marital relationship of parents.

	Most unhappy	Unhappy	Indifferent	Happy
No. of pats.	4	8	1	2

(ii) Race of parents

	Same	Different
No. of pats.	10	5

(iii) Religion of parents

	Same	Different
No. of pats.	10	2

(iv) Educational status of parents

	Same	Different
No. of pats.	10	2

It will be noted from the above data that the marital relations of the parents of the patients in the "A" group were "most unhappy" in 4 cases,"unhappy" in 8 cases,"happy" in 2 cases, and "indifferent" in 1 case. In the four cases where the marital relations were "most unhappy", the racial origin of the parents were the same in 2 instances and different in 2 instances;the religious affiliations were the same in 3 instances and different in one instance;and the educational standards were similar in every instance. In the 8 cases where the marital relations were "unhappy",the racial origin of the parents was the same in 6 instances and different in 2 instances;in the one instance where the racial origin was different,the religious affiliation and the educational standards were different as well;and in the second instance where the racial origin was different,the religious affiliation and the educational standard were the same.In the two cases where the marital relations were "happy",the racial origin was the same in one instance and

different in one instance, while the religious affiliation and the educational standard were the same for each pair. In the one case where the marital relations were "indifferent", the racial origin, the religious affiliation and the educational standard of the parents were the same. The inference which emerges from the above data is (i) that generally speaking, mere identity of racial origin and religious affiliation, and similarity of educational status were not sufficient to prevent the disorganisation of marital relations which in time prepared the ground for the disorganisation of parent-child relations and sibling relations; and (ii) that differentiality of racial origin and religious affiliation, and dissimilarity of educational status may, in the few instances in which this occurs, and then only in certain circumstances, effect disorganisation of marital relations, and so of parent-child and sibling relations.

(v) The factor of socio-economic status; (vi) The factor of occupational status; (vii) the factor of size of the family; (viii) the factor of occupational mobility; and (ix) the factor of spatial mobility.

Analysis of the relevant data showed that these factors played a part in the family disorganisation. They are examined together in so far as they were found to be related to one another.

Table XXV.

The distribution of the parents of the "A" group of patients, by socio-economic status, occupational status, size of family, occupational mobility, spatial mobility and by degree of marital happiness.

Pat. No.	Marital relations	Socio-economic status (earnings per month)	Occupational status.
1.	Most unhappy	£40-£60	Tailor
2.	Most unhappy	£30-£40	Farmer
3.	Passively indiffer.	£40-£70	Outfitter
4.	Most unhappy	£30-£50	Blacksmith&far.
5.	Unhappy	£30	Miner.
6.	Most unhappy	£40-£60	Salesman
7.	Unhappy	£20-£25	Liftman
8.	Happy	£35-£40	Bootmaker
9.	Unhappy	£80	Produce merchant
10.	Unhappy	£120	Electrical engineer.

Table XXV(cont.)

Pat.No.	Marital relations	Socio-economic status(earnings per month)	Occupational status
11.	Unhappy	£40-£50	Bookkeeper
12.	Unhappy	£80-£100	Commercial traveller
13.	Happy	£100-£150	Dentist
14.	Unhappy	£120	Manager in Depart.Store
15.	Unhappy	£25-£30	Storeman

Pat.No.	Size of family	Occupational mobility(occup. changes)	Spatial mobility(residential changes)
1.	5 children	nil	nil
2.	6 "	nil	nil
3.	8 "	nil	nil
4.	6 "	nil	3
5.	8 "	nil	8
6.	4 "	3	4
7.	3 "	3	nil
8.	8 "	nil	nil
9.	3 "	nil	2
10.	3 "	nil	nil
11.	3 "	4	3
12.	2 "	2	2
13.	2 "	nil	1
14.	1 child	2	3
15.	2 children	1	2

The above data may now be presented in the form of a frequency distribution to facilitate analysis:

Marital relations	No. of cases	Cases of poverty	Size of family	Excessive spatial mobility (No.of cases)	Excessive occupational mobility (No.of cases)
Most unhappy	4	4 (av.p.m. £43.5)	(1)5childn. (2)6 " (4)6 " (6)4 " (aver.5.2	1	1
Unhappy	8	4 (av.p.m. £66.9)	(5)8childn. (7)3 " (9)3 " (10)3 " (11)3 " (12)2 " (14)1 child (15)2chidn. (av.size 3.4 childn.)	1	2

Marital relations	No.of cases	Cases of poverty	Size of family	Excessive spatial mobility (No.of cases)	Excessive occupational mobility (No.of cases)
Passively indifferent	1	1 (av.p.m. £55)	8	0	0
Happy	2	1 (av.p.m. £81.5.0)	(8)8childn. (13)2 " (av. size 5 childn.)	0	0

It emerges from the above data that in the class of parents designated as "most unhappy" the marital relations were determined or aggravated in all four instances by the burden of poverty,and by the associated struggle to rear a large family; that in the class of parents designated as "unhappy",the marital relations were determined or aggravated,in four instances,by the burden of poverty and the associated struggle of rearing a large family,and,in the remaining four instances,by factors other than economic.In the one case designated as "passivley indifferent",the marital relations of the parents were determined by a number of factors such as despair born of poverty and the struggle of rearing a large family.Spatial mobility was excessive only in case No.5 and Case No.6,whereas it was absent or neglible in all the other cases. Occupational mobility was excessive in case No.11,moderate in cases Nos.6 and 7, and neglible or absent in all other cases. We could not determine from our analysis whether spatial mobility and occupational mobility were an effect of poverty or a cause or effect of the schizophrenic process; but whether they were,it seemed certain that they served to aggravate the schizophrenic process howsoever it was initiated.

(2) Factors contributory to disorganised parent-child relations.

Disorganisation of parent-child relations,which prepared the soil for the development of the schizophrenic process,was effected largely by certain differences between parents and their children.These differences were cultural,

religious,psychological,educational.

These differences between parents and children engendered fear and resentment in the children,and suspicion and jealousy in the patents.The maladjustment of the parents in relation to their children took the form either of parental domination,parental neglect,or parental over-protection.The frequency of these parental attitudes in the group studied is reflected in Table XXVI.

Table XXVI.

The patterns of parent-child relations presenting in the "A" group of cases.

Pat. No.	Mother-father relations	Pattern of parent-child relations: Parental domination	Parental neglect	Parental over-protection	Sibling relations
1.	Most unhappy	By father		by mother	Jealousy of younger brother
2.	Most unhappy	by step-mother	by father		Friction between sibling &stepchildren
3.	Passively indiffer.		by father & mother		Tolerable
4.	Most unhappy		by father		Indifferent to one another's welfare
5.	Unhappy	by father			Good
6.	Most unhappy	by father		by mother	Jealousies
7.	Unhappy		by father	by mother	Hatred
8.	Happy		by father & mother		Indifferent
9.	Unhappy			by mother & father	Jealousy of younger broth.
10.	Unhappy	by father			Friction with younger sister
11.	Unhappy	by father			Friction
12.	Unhappy		by father	by mother	Jealousy
13.	Happy	------	-------	--------	--------
14.	Unhappy	by father			
15.	Unhappy		by father & mother		Good.

It emerges from the above data that in all the 12 cases where the marital relations of the parents were designated as

"unhappy" and "most unhappy", the parent-child relations were adversely affected in all instances, and the sibling relations in 9 instances; that in the two cases where the marital relations were designated as "happy" the parent-child relations were satisfactory in one instance and unsatisfactory in the other, while the sibling realtions, in one instance were indifferent; and that in the one case where marital relations were designated as "passively indifferent", the parent-child relations were adversely affected while the sibling relations were tolerable.

The frequency with which the diverse patterns of disorganised parent-child relations occurred in this group is of interest. Thus parental domination alone occurred in 6 cases; parental domination plus parental neglect in 1 case; parental neglect alone in 6 cases; parental neglect plus parental over-protection in 3 cases; partental over-protection alone in 1 case; and parental over-protection plus parental domination in 4 cases. It is apparent, then, that in all the 15 cases with but one exception, the patients were adversely conditioned by disorgansing emotional attitudes of the parents which were in addition conflictful in character. It would seem, then, that the disorganised behaviour of the patients in this group was but a symptom of the maladjustment of the parents. The broad inference which emerges from the above analysis is that disorganisation of marital relations, howsoever caused, produces disorganisation of parent-child relations, and in turn - in the majority of instances - disorganisation of sibling relations. The conclusion is thus difficult to resist that this disruption of inter-personal relations, in so far as it involves indifferences on the part of one or other parent to the ego-security needs of their children, and so inducing in them a growing sense of fear, frustration, and repression, prepares the soil for the development of the schizophrenic process.

Roux[1] has drawn the author's attention to a similar finding presented by Ernst Speer in his work,"Die Libesfahigkeit". It is of interest to record,too, the conclusions of Bowlby[2], Bakwin[3][4], Spitz[5], and Spitz et al[6], namely, that deprivation of mother-love in early childhood can have a far-reaching effect on the mental health and personality development of human beings.

(c) IN THE PHYSICAL SEGMENT OF THE PATIENT'S PERSONALITIES.

(i) Constitutional type.

The constitutional typology of patients in the "A" group is indicated in Table XXVII.

Table XXVII

Relative frequency of somatypes in the "A" Group of patients

Somatype	No. of patients	%	Frequency ratio of asthenic to other somatypes.
Asthenic	6	40.0	1
Athletic	4	26.7	1.5
Pyknic	3	20.0	2
Dysplastic	2	13.3	3

It will be noted from the above data that the asthenic somatype occurred most frequently in the group,being 1.5 times more frequent than the athletic, 2 times more frequent than the pyknic,and three times more frequent than the dysplastic.In order to confirm our findings in regard to the relative frequency of the various somatypes in schizophrenia, a large sample, referred to herein as the "X" group, was examined. The constitutional typology of patients in this

(1) A.S. Roux, Head of Dept.of Psychology,University of South Africa,in a personal communication to the author 1953.

(2) J.Bowlby(1951):"Maternal Care and Mental Health",World Health Organisation:Monograph Series,W.H.O. Palais Des Nations, Geneva, pp. 11-15.

(3)H.Bakwin(1942):"Loneliness in infants",Am.J. Dis.Child, 63: 30.

(4) Idem(1949):"Emotional depression in infants",Psychological aspects of paedriatics",J.Pediat.,35:512.

(5) R.A.Spitz(1945)Hospitalism:an enquiry into the genesis of psychiatric conditions in early childhood",(I)in: The psychoanalytic study of the child,I, 53.Internat. Univ. Press, New York.

(6) R.A. Spitz & K.M. Wolf(1946):"Anaclitic depression :an enquiry into the genesis of psychiatric conditions in early childhood",(II)In:The psychoanalytic study of the child,2,313,Internat.Univ. Press, New York.

group is indicated in Table XXVIII.

Table XXVIII.

Relative frequency of somatype in the "X" Group of patients

Somatype	No. of patients	%	Frequency ratio of asthenic to other somatypes
Asthenic	23	46	1
Athletic	10	20	2.3
Pyknic	5	10	4.6
Dysplastic	12	24	1.9

It will be noted that in the "X" group,too,the asthenic somatype occurs more frequently than any of the other somatypes,although the relative frequency of the latter differs from that which obtains in the "A" group.However, the inference emerges from both sets that an individual with an asthenic habitus is more liable to schizophrenia than is one with an athletic,pyknic,or dysplastic constitution.

(ii) Nutritional status:

The nutritional status of patients in the "A" group is indicated in Table XXIX.

Table XXIX.
Nutritional status of the "A" group of patients.

Patient No.	Nutritional status	Associated physical signs.
1.	Poor	Enlarged liver;cheilosis;angular stomatitis;pellagrous skin;tongue smooth; diarrhoea present; (Vit.B deficiency.
2.	Good	Halitosis
3.	Poor	Acne of face and back
4.	Good	Halitosis
5.	Poor	Genu valga;carious teeth;acne of back; (Vit.D. deficiency)
6.	Poor	Carious teeth;furred tongue;halitosis.
7.	Poor	Carious teeth;halitosis.
8.	Poor	Kyphosis.
9.	Poor	Furred tongue;sallow complexion.
10.	Good	-------
11.	Poor	Gums spongy,forming projecting masses around carious teeth; anaemia.
12.	Poor	Dryness of skin affecting especially extensor surface of arms & thighs & flexor sur-

Table XXIX(cont.)

Patient No.	Nutritional status	Associated physical signs.
		face of legs.(Vit. A deficiency)
13.	Poor	Furred tongue;halitosis;constipation.
14.	Poor	Halitosis
15.	Good	Halitosis.

It emerges from the above data that the nutritional status of the patients was good in 4 of 15 cases; i.e., in 26.6 per cent, and poor in 11 of 15 cases, i.e., in 73.4 per cent, and further, that in every case where the nutritional status was poor there was some evidence of disturbance of certain systems of the body, like the cutaneous system, the gastro-intestinal system, etc. It will be noted, too, that in 4 of the cases with a poor nutritional status, there was gross evidence of vitamin deficiency, namely, of Vitamins A, B, C, and D respectively. Are these changes the cause or effect of the schizophrenic process? It may be that Vitamin B deficiency present in Case No.1 was the cause of the schizophrenic psychosis, but in all other cases it could be regarded as the effect thereof. An answer to the question may subsequently be obtained from a study of the condition of the patients after treatment.

(iii) General clinical status:

The general condition of the patients, with reference to the various clinical systems, is indicated in Table XXX.(x)

(x) (The clinical systems like the Respiratory System, the Haemopoietic System, the Endocrine System, the Lymphatic System, and the Genito-urinary System, in which findings were negative, are not included in the tabulation. The Wassermann was negative, and the urine negative for albumen and sugar, in all the cases).

Only the fundamental positive findings are recorded and these are later utilised for the purpose of comparing the clinical status of the patients before and after treatment.

Table XXX.

General clinical status of the "A" group.

Pat. No.	C.N.S.	C.V.S.	G.I.S.	Cut.S.	Loco.S.
1.	Speech functions impaired.Deep relfexes exaggerated.Cranial N.functions&sensory &motor functs.difficult to assess.Pupillary reflexes sluggish.	B.P.125/80 P.R.70	Furred tongue Halitosis	Cheilosis of lips. Pellagrous appearance of hands	Gait slow.
2.	Speech functions impaired.Pupils reacted sluggishly to L.&A.Cranial N. functions&sensory& motor functions difficult to assess. Superficial reflexes absent.	B.P.110/70 P.R.68	Furred tongue Halitosis	Acne of face & back	Gait slow
3.	Speech deviations present.Cranial N. function&sensory& motor functs.difficult to assess.Superficial relfexes absent.	B.P. 105/70 P.R.72	Furred tongue Halitosis	Acne of face & back	Stooping gait.
4.	Speech deviations present.Cranial N. functs.,sensory & motor functs.difficult to assess.Superficial&deep reflexes sluggish.Pupils sluggish to L.&A.	B.P.140/95. P.R.70	tongue furred Halitosis.	---	Stiff gait
5.	Speech deviations present.Motor functions impaired.Sensory functs.difficult to assess.Superficial&deep reflexes suggish.Pupils reacted sluggishly to L.&A. Cranial N. functs.could not be assessed	B.P.100/70 P.R. 68	Nil	Gene on back	Stooping gait
6.	Speech deviations present.Motor functions impaired.Sensory functs.could not be determined.Superficial&deep reflexes sluggish.Pupils reacted sluggishly to L.&A. Cranial N. functs. could not be assessed.	B.P.105/75 P.R.70	Spastic Colon Tongue furred Halitosis	Patches of leuco-derma on back	Slow and deliberate

Table XXX(cont.)

Pat. No.	C.N.S.	C.V.S.	G.I.S.	Cut.S.	Loco.S.
7.	Speech deviations like fluctuations in tone Motor&sensory functions could not be determined.Fine tremor of hands.Superficial & deep reflexes very brisk.Pupils reacted briskly to L.&A. Cranial N.functs. could not be assessed	B.P.117/72 P.R. 68		Nil	N.A.D.
8.	Speech,motor&sensory functions could not be adequately determined.Superficial & deep reflexes sluggish.Pupils reacted sluggishly to L.&A. Cranial N.functs. could not be assessed	B.P.90/60 P.R. 65		Seborrhoea capitis	Slow gait, Kyphosis Pes planus
9.	Speech deviations present.Sensory & motor functions difficult to determine.Grasp reflex present.Superficial&deep reflexes exaggerated.Pupils reacted strogly to L.&A. Cranial N.functs. could not be assessed	B.P. 90/60 P.R. 65	Furred tongue Halitosis Spastic colon	Sallow complexion	Pat. kept knees slightly bent as she walked.
10.	Speech,cranial&motor functions could not be adequately determined.Superficial & deep,& pupillary reflexes doubtful.	B.P. 150/90 P.R. 80	Furred tongue Halitosis	Nil	Gait was quick
11.	Speech normal.Motor & sensory functions could not be satisfactorily determined, and showed no abnormalities.Superficial &deep reflexes brisk. Pupils reacted well to L.&.A. Cranial N. functs. difficult to assess.	B.P.150/85 P.R. 75	Furred tongue Halitosis	Spongy gums Pallor	Gait was quick
12.	Speech hesitant.Motor & sensory functs. normal.Superficial & deep reflexes brisk. Pupils reacted to L.&A. Cranial N. functions difficult to assess.	B.P.140/90. P.R. 72.	Nil	Dryness of skin over certain areas.	Gait firm & elastic

Table XXX(cont.)

Pat. No.	C.N.S.	C.V.S.	G.I.S.	Cut.S.	Loco.S.
13.	Speech slow & staccato.Motor&sensory functs.&cranial N. functs.could not be adequately elicited.Superficial & deep reflexes sluggish.Pupils reacted sluggishly to L.&A.	B.P.80/70 P.R. 60	Furred tongue Halitosis Constipation	Papular acne on buttocks	Gait slow and deliberate.
14.	Speech is fast.Motor functs. impaired.Sensory functs.hyperactive;hyperaesthesia present.Superf.& deep reflexes very exaggerated.Pupils react briskly to L.&A. Cranial N. functs.difficult to assess.	B.P.115/95 P.R. 75	Furred tongue Halitosis Diarrhoea	Nil	Gait fast firm & elastic
15.	Speech slow,hesitant.Cranial N. functs.,motor&sensory functs.could not be adequately determined.Pupils reacted sluggishly to L. &. A.	B.P. 80/65 P.R. 68	Furred tongue Halitosis. Diarthoea	Acne vulgaris of face	Gait slow & stooping in character

It appears from the above data that no disturbance of any particular clinical system could have accounted for the onset of the schizophrenic process in any given case.The inference which seems to emerge is that the schizophrenic syndrome in the above group of cases was projected by a process of disorganisation occurring in the psychic segment of the personality in the first instance. There may be some reasonable doubt,however,as to whether the disturbance of the Central Nervous System and the Gastro-intestinal System noted in the above tabulation were a cause or an effect of the schizophrenic process.This doubt could only be resolved by the writer by noting the post-therapeutic response of this group of patients.

(d) IN THE PSYCHIC SEGMENT OF THE PATIENTS' PERSONALITIES.

The data analysed in Table XXXI throw some light on the psychic dynamisms presented in the "A" Group of cases.

Table XXXI.

Case No.	Mode of onset	Psychic traumata Immediate	Psychic traumata Remote	Earliest symptoms of mental disturbance.
1.	Gradual	Dive-bombing attack	Disorganised family realtionships	Nervousness, anxiety, asociality.
2.	"	Loneliness of farm life	"	Nervousness, backwardness at school.
3.	"	Sexual and amorous frustration.	"	Nervousness, anxiety, asociality.
4.	Sudden	Sexual, amorous, and social frustration.	"	Fear, Loneliness, asociality.
5.	Gradual	General social frustration	"	Fear, loneliness, isolation.
6.	"	General social frustration	"	Nervousness, insomnia, loneliness, isolation.
7.	"?	Persecution by school friends	"	Irritability, excitability, hypersensivity, asociality.
8.	Gradual	Loveless marriage	Too heavy family responsibilities. Culture conflict.	Loneliness, fear, isolation, anxiety.
9.	"	Frustration of high social ambitions Loveless marriage.	Disorganised family relationships	Extreme anxiety, fear, isolation, insomnia
10.	Sudden?	Overwork, conflict between academic and marital obligations.	"	Loneliness, fear, anxiety.
11.	Gradual	Death of parents in motor car accident	"	Anxiety, fear, insomnia.
12.	"	Wife murdered by natives.	"	Loneliness, fear, insomnia, isolation.
13.	"	Failed University exams.	"	Migraine, anxiety, insomnia.
14.	Sudden	Shell-shock	"	Insomnia, anxiety, anorexia.
15.	Gradual	Loss of employment	"	Fugues, sleep-walking, anxiety, "benommenheit".

Table XXXI(cont.)

Case No.	Interval between earliest symptoms and onset of schizophrenic process.	Character of schizophrenic process manifested				
		Affect	Conatus	Cognition	M.A.	Form of Schizophrenia.
1.	approx. 4 yrs.	Impaired	Impaired	Impaired	9.2	Schiz-simplex
2.	"25 "	"	"	"	3.2	Schiz-catatonica.
3.	" 15 "	"	"	"	3.6	Schiz-simplex? anxiety neurosis
4.	" 12 "	"	"	"	10	Schiz-paranoides
5.	" 10 "	"	"	"	11.9	Schiz-simplex
6.	" 7 "	"	"	"	3.8	Schiz-hebeph., Schiz. paranoid.
7.	" 8 "	"	"	"	4.10½	Anxiety neurosis, Schiz. heb., Schiz. paranoid.
8.	" 4 "	"	"	"	?	Schiz-simplex, Schiz. catatonic.
9.	" 2 "				10.1	Schiz. catatonic.
10.	" 1 yr.	"	"	"	10.2	Schiz. paranoid.
11.	" 5 yrs.	"	"	"	9.2	Schiz. simplex
12.	" 3 "	"	"	"	6.6	Schiz. simplex
13.	" 2 "				4.3	Schiz. hebeph.
14.	" 3 "	"	"	"	<4	Schiz. paranoid
15.	" 4 "	"	"	"	<4	Schiz. catatonic.

Analysis of the data presented in Table XXXI yields the following findings:

(1) The mode of onset of the schizophrenic process was gradual in 12 instances, sudden in 2 instances, and doubtful in one instance.

(2) In all instances two sets of psychic traumata operated in the causation of the schizophrenic process, namely, (i) remote or predisposing factors emerging from a disorganisation of primary group relations, and (ii) immediate or precipitating factors resulting from some great personal emotional crisis.

(3) The causal factors, whether remote or immediate, were in every instance frustrational in character, and led to that ultimate state of psycho-social insecurity which prepared the soil for the developemtn of the schizophrenic process.

II. THE EVALUATION OF THE SYMPTOMATOLOGY PROJECTED BY THE PATIENTS.

It will be noted from the preceding data that:

(1) The interval between the emergence of the remote or predisposing factors and the immediate or precipitatory factors, which are responsible for the onset of the schizophrenic process, varied from 1 year to 25 years.

(2) The interval preceding the onset of the schizophrenic process was characterised in every instance by the presence of symptoms which indicated a psychoneurotic picture, and that, accordingly, the final schizophrenic process was but a continuation or intensification of the mental disturbance presenting initially as a psychoneurosis.

(3) Once the schizophrenic process presented, the disorganising impact affected not just one, but all of the categories of the psyche more or less simultaneously, indicating that they were interdependent with, or functionally related to, one another.

(4) The schizophrenic process. like the psychoneurotic process which preceded it, is not static, but dynamic and

variable. Thus a progressive intensification of the schizophrenic process occurred in three instances. In two cases, for example,the schizophrenic process assumed initially a hebephrenic character,and finally a paranoid form;and in one instance it assumed initially a simple,and finally a catatonic form.

(5) The degree of psychic disorganisation,or the degree of dissociation between the categories of the psyche,was reflected in each case in a low mental age of the patient.

(6) The disorganisation of the psyche involved in all cases not one but all the categories thereof simultaneously in greater or less degree.

(7) The process of disorganisation,in every case,was not limited to the psyche,but was transmitted to one or more components of the soma like the central nervous system,the cardiovascular system,the gastro-intestinal system, etc.

III. THE EVALUATION OF THE PATIENTS' RESPONSE TO TREATMENT.

In order to evaluate the response of the schizophrenic patients to treatment,it is necessary to compare(a) their clinical status and (b) their psychiatric status,as they obtained before and after treatment with high dosage insulin shock therapy, The data relative to the former are indicated in Table XXXII.

Table XXXII.

Clinical status of the "A" group of patients before and after treatment with high dosage insulin shock therapy.

Case No.		Before treatment	After treatm.
1.	Weight	131 lbs.	179 lbs.
	Nutritional status	Poor	Improved
	C.N.S.		
	Speech functions	Impaired	Improved
	Cranial N.functs.	Difficult to assess	Normal
	Motor "	Could not be assessed	Normal
	Sensory "	" " " "	"
	Reflexes-Superficial:Abdominal	Present	Present
	Deep reflexes:	Exaggerated	Exaggerated
	Pupillary reflex:	Sluggish	Active

Table XXXII(cont.)

Case No.		Before treatment	After treatm,
1. cont.	C.V.S.		
	B.P.	125/80	130/80
	P.R.	70	72
	G.I.S.		
	Tongue	Furred	Clean
	Halitosis	Present	Absent
	Locomotor S.		
	Gait	Slow	Firm&elastic
	Cutaneous S.	Cheilosis of lips; pellagrous appearance of hands	Skin clear
2.	Weight	142 lbs.	166 lbs.
	Nutritional status	Poor	Improved
	C.N.S.		
	Speech functions	Peculiar deviations	Improved
	Cranial N.functs.	Difficult to assess	Normal
	Motor functions	Could not be assessed	Normal
	Sensory "	" " " "	"
	Reflexes -		
	Superficial:abdom.	Absent	More active
	Deep:(knee jerk)	Sluggish	" "
	Pupillary	"	" "
	C.V.S.		
	B.P.	110/72	120/75
	P.R.	68	70
	G.I.S.		
	Halitosis	Present	Absent
	Tongue	Furred	Clean
	Locomotor S.		
	Gait	Slow and deliberate	Firm&elastic
	Cutaneous S.	Acne of face & back	Skin normal
3.	Weight	120 lbs.	135 lbs.
	Nutritional status	Poor	Improved
	C.N.S.		
	Speech functions	Peculiar deviations e.g.meaningless chatter	Much improved
	Cranial N.functs.	Could not be assessed	Much improved
	Motor functions	" " " "	"
	Sensory functs.	" " " "	Normal
	Reflexes -		
	Superfic.abd.	Sluggish or absent	More brisk
	Deep	Just present	More active
	Pupillary	Sluggish	Active
	C.V.S.		
	B.P.	105/70	115/70
	P.R.	72	70
	G.I.S.		
	Halitosis	Present	Absent
	Tongue	Furred	Clean
	Locomotor S.	Stooping gait	Upright
	Cutaneous S.	Acne of face and back	No skin eruptions.

Table XXXII(cont.)

Case No.		Before treatment	After treatm.
4.	Weight	141 lbs.	157 lbs.
	Nutritional status	Good	Good
	C.N.S.		
	Cranial N. functs.	Could not be assessed	
	Speech functions	Monotonous & emotionless	More animated
	Motor functions	Could not be satisfactorily assessed	Normal
	Sensory "	" " "	"
	Reflexes:		
	Superficial	Sluggish	Brisk
	Deep	"	"
	Pupillary	"	"
	C.V.S.		
	B.P.	140/95	135/90
	P.R.	70	72
	G.I.S.		
	Tongue	Furred	Clean
	Halitosis	Present	Absent
	Locomotor S.		
	Gait	Rapid	Relaxed
	Cutaneous S.		
5.	Weight	144 lbs.	163 lbs.
	Nutritional status	Poor	Good
	C.N.S.		
	Speech functions	Slow,drawling	More animated
	Cranial N. functs.	Could not be assessed	
	Motor functions	Impaired	Normal
	Sensory "	Difficult to assess	Normal
	Reflexes		
	Superf. abdom.	Sluggish	Brisk
	Deep "	"	"
	Pupillary	"	"
	C.V.S.		
	B.P.	100/70	125/75
	P.R.		
	G.I.S.	Nil	-
	Locomotor S.		
	Gait	Slow and stooping	Brisk and upright.
	Cutaneous S.	Acne on back	Back clear.
6.	Weight	119 lbs.	140 lbs.
	Nutritional status	Poor	Good.
	C.N.S.		
	Cranial N. functs.	Could not be assessed	
	Speech "	Poor articulation	Articulation greatly improv.
	Motor functions	Impaired	Improved
	Sensory "	Could not be assessed	Normal
	Reflexes:		
	Superf.abdom.	Sluggish	Brisk
	Deep	"	"
	Pupillary	"	"
	C.V.S.		
	B.P.	105/75	120/80
	P.R.	70	70
	G.I.S.		
	Tongue	Furred	Clean
	Halitosis	Present	Absent.

Table XXXII(cont.)

Case No.		Before treatment	After treatm.
6. cont.	Locomotor S.	Slow and deliberate	Firm&elastic
	Gait		
	Cutaneous S.	Patches of leucoderma on back	Leucoderma persistent.
7.	Weight	155 lbs.	195 lbs.
	Nutritional status	Poor	Good
	C.N.S.		
	Speech functions	Varied with mood	Normal rhythm
	Cranial N. functs.	Could not be assessed	
	Motor functs.	" " " "	Normal
	Sensory "	" " " "	"
	Reflexes:		
	Superf.abd.	Very brisk	Brisk
	Deep	" "	"
	Pupillary	Brisk	Brisk
	C.V.S.		
	B.P.	115/72	130/75
	P.R.	68	72
	G.I.S.		
	Tongue	Furred	Clean
	Halitosis	Present	Absent
	Locomotor S.		
	Gait	Normal	Normal
	Cutaneous S.	Normal	Normal
8.	Weight	141 lbs.	147 lbs.
	Nutritional status	Poor	Improved
	C.N.S.		
	Speech functions	Could not be assessed	Improved
	Cranial N. functs.	" " " "	
	Motor functions	" " " "	Improved
	Sensory "	" " " "	"
	Reflexes:		
	Superf.abd.	Sluggish	Brisk
	Deep	"	"
	Pupillary	Brisk	"
	C.V.S.		
	B.P.	90/60	110/70
	P.R.	65	70
	G.I.S.		
	Tongue	Furred	Clean
	Halitosis	Present	Absent
	Locomotor S.		
	Gait	Slow	Firm&elastic
	Cutaneous S.	Seborrhoea capitis	Seborrhoea persistent.
9.	Weight	118½ lbs.	147 lbs.
	Nutritional status	Poor	Very much improved
	C.N.S.		
	Cranial N.functs	Could not be assessed	
	Speech functions	Variable	Normal rhythm
	Motor "	Slightly affected	Normal
	Sensory "	Difficult to assess	Normal
	Reflexes:		
	Superf.	Brisk	Brisk
	Deep	Exaggerated	Normally active
	Grasp	Present	Absent
	Pupillary	Brisk	Brisk

Table XXXII(cont.)

Case No.		Before treatment	After treatm.
9. cont.	C.V.S.		
	B.P.	90/60	125/70
	P.R.	65	70
	G.I.S.		
	Tongue	Furred	Clean
	Colon	Spastic	Nil
	Halitosis	Present	Absent
	Locomotor S.		
	Gait	Knees flexed on standing	Stance normal
	Cutaneous S.	Sallow complexion	Complexion normal
10.	Weight	164 lbs.	172 lbs.
	Nutritional status	Very good	Very good
	C.N.S.		
	Speech	Hesitant	Normal
	Cranial functs.	Could not be assessed	"
	Motor functions	Could not be adequately ascertained	"
	Sensory "	" " " "	"
	Reflexes:		
	Superf.	Brisk	Brisk
	Deep	"	"
	Pupillary	Doubtful	Active
	C.V.S.		
	B.P.	150/90	130/80
	P.R.	80	70
	G.I.S.		
	Tongue	Furred	Clean
	Halitosis	Present	Absent
	Locomotor S.		
	Gait	Quick stepping	Relaxed&slow
	Cutaneous S.	Nil	Nil
11.	Weight	130 lbs.	148 lbs.
	Nutritional status	Poor	Good
	C.N.S.		
	Cranial N. functs.	Difficult to assess	Intact
	Speech functions	Slow stacatto	Normal rhythm
	Motor "	Difficult to assess	Normal
	Sensory "	" " "	"
	Reflexes:		
	Superf.	Brisk	Brisk
	Deep	"	"
	Pupillary	"	"
	C.V.S.		
	B.P.	150/85	110/70
	P.R.	65	70
	G.I.S.		
	Tongue	Furred	Clean
	Halitosis	Present	Absent
	Locomotor S.		
	Gait	Quick & firm	Quick
	Cutaneous S.	Spongy gums, pallor	Healthy, no pallor
12.	Weight	137 lbs.	163 lbs.
	Nutritional status	Poor	
	C.N.S.		
	Speech functions	Hesitant	Normal
	Cranial N. functs.	Normal	"
	Motor functions	"	"
	Sensory "	"	"

Table XXXII(cont.)

Case No.		Before treatment	After treatment
12 cont.	Reflexes:		
	Superficial	Brisk	Brisk
	Deep	"	"
	Pupillary	"	"
	C.V.S.		
	B.P.	140/90	138/80
	P.R.	72	70
	G.I.S.	Nil	Nil
	Locomotor S.		
	Gait	Firm & elastic	No
	Cutaneous S.	Dryness of skin over certain areas	Normal
13.	Weight	128 lbs.	143 lbs.
	Nutritional status	Poor	Good
	C.N.S.		
	Speech functions	Slow staccato	Normal fluency
	Cranial N. functs.	Could not be satisfactorily assessed	Normal
	Motor functs.	" " " " "	"
	Sensory "	" " " " "	
	Reflexes:		
	Superf.	Sluggish	
	Deep	"	
	Pupillary	"	
	C.V.S.		
	B.P.	80/70	110/72
	P.R.	60	68
	G.I.S.		
	Tongue	Furred	Clean
	Halitosis	Present	Absent
	Constipation	"	"
	Locomotor S.		
	Gait	Slow and deliberate	
	Cutaneous S.	Acne of buttocks of indurated, papular type,	Considerably improved
14.	Weight	134 lbs.	150 lbs.
	Nutritional status	Poor	Good
	C.N.S.		
	Speech functions	Rapid	Slower
	Cranial N. functs.	Difficult to assess	Normal
	Motor functs.	Impaired	Improved
	Sensory "	Hyperaesthetic	Less hyperaesthetic
	Reflexes:		
	Superficial	Brisk	Brisk
	Deep	Exaggerated	Exaggerated
	Pupillary	Brisk	Brisk
	C.V.S.		
	B.P.	115/95	140/85
	P.R.	75	70
	G.I.S.		
	Tongue	Furred	Clean
	Halitosis	Present	Absent
	Diarrhoea	"	"
	Locomotor S.		
	Gait	Rapid, firm & elastic	Slower and more deliberate
	Cutaneous S.	Nil	Nil

Table XXXII(cont.)

Case No.		Before treatment	After treatm.
15.	Weight	128 lbs.	142 lbs.
	Nutritional status	Poor	Good
	C.N.S.		
	Speech functions	Slow and hesitant	More fluent
	Cranial N. functs.	Difficult to assess	Normal
	Motor functs.	" " "	"
	Sensory "	" " "	"
	Reflexes:		
	Superficial	Sluggish	
	Deep	"	
	Pupillary	"	
	C.V.S.		
	B.P.	80/65	110/70
	P.R.	68	70
	G.I.S.		
	Tongue	Furred	Clean
	Halitosis	Present	Absent
	Diarrhbea	"	"
	Locomotor S.		
	Gait	Slow and stooping	Upright&firm
	Cutaenous S.	Cystic type of acne vulgaris of face	Greatly improved.

It emerges from the above data that the physical condition of the patients, as a whole, showed great improvement after treatment in every instance. Thus

(i) The weight, in all instances, showed a considerable increase.

(ii) The nutritional status showed considerable improvement in 13 of the 15 cases, while in two cases the nutritional status was as good before as it was after treatment. The dietary of the patients was the same both before and after treatment.

(iii) The neurological functions as a whole showed considerable improvement after treatment in all instances. Thus (a) the speech functions, which were characterised by various deviations from the norm in all instances, showed considerable improvement after treatment; (b) the cranial nerve functions, which could not be satisfactorily assessed in all cases, were found to be normal after treatment; (c) the motor functions, i.e., muscle power, muscle tone, and muscular co-ordination, which could not be satisfactorily assessed in 14 of 15 cases, before treatment, were found to

be normal after treatment; (d) the sensory functions in respect of touch,pain,pressure,sense of position, and appreciation of vibration,which could not be satisfactorily assessed in 13 of the 15 cases,were found to be normal after treatment.One case, which showed hyperaesthesia to pressure, became far less hyperaesthetic after treatment.

(iv) The blood pressure which was relatively hypotensive in 10 cases,and relatively hypertensive in 4 cases, became relatively more hypertensive in the former broup and more relatively/hypotensive in the latter group,i.e., the blood pressure in all these cases tended to approximate to a more normal level after treatment.

(v) The gastro-intestinal functions showed a marked improvement after treatment. Thus the halitosis present in 14 of the 15 cases, and the furred tongue present in 13 of the 15 cases, disappeared after treatment,and the diarrhoea present in two cases, and the spastic colon present in one case diappeared after treatment.

(vi) The gait,which showed deviations from the normal in 14 of 15 cases,became normal after treatment.

(vii)The skin,which was affected by early pellagra in one case,and by acne vulgaris in 5 cases, cleared up in all cases after treatment; the lips,in one case, which showed evidence of Vitamin B_2 deficiency,cleared up after treatment. As the diet of the patients was the same both before and after treatment,the avitaminosis responsible for the diverse skin manifestations must be attributed to the malabsorption associated with a psychotic condition.

Analysis of the above data permits of the following two postulations, viz.:

(1) The diverse somatic disturbances encountered in the "A" group of schizophrenic patients were casued by a disorganisation of the psychic segment of the personality in the first instance by virtue of the two factors:(a) No special or specific forms of treatment were given for the

somatic disturbances before the H.D.I.C. therapy was applied;and (b) the somatic disturbances disappeared after the H.D.I. therapy was applied.

(2) The effects of the schizophrenic (or psychotic) process are not limited to the psychic segment of the personality,but are transmitted to one or more components of the soma partly by stimulation of the autonomic nervous system by an altered blood chemistry; and

(3) The improvement noted in the soma in each case was not limited to any one affected component, but rather to all the affected components, indicating that the functional efficiency of one particular clinical system was interdependent with all the others.

The data relative to the psychiatric status of the group of patients before and after treatment are presented in Table XXXIII.

Table XXXIII

Psychiatric status of the "A" group of patients before and after treatment.

Case No.	Before treatment	After treatment
1.	Cognition	Cognition
	Pattern of thinking:autistic	More extroversive
	Attention: Distractible	More easily engaged
	Orientation:	
	Time: Nil	Present
	Place: "	"
	Personal identity:Nil	"
	Comprehension:Could not answer item 35 in I.S. of N.B.E.R.	Could answer item No.35
	Reasoning:Could not answer item 47 in I.S. of N.B.E.R.	Could answer item No.47.
	Memory:	
	Remote events: Hazy	Clear
	Recent events: Absent	Clearer
	Current events:Poor	Clearer
	Hypermnesia	
	Paramnesia(confabulation)	
	Hallucinations:	
	Visual:Nil	
	Auditory:Nil	
	Delusions:	
	Persecution:Doubtful	No evidenc of delus-
	Grandeur:Nil	ions,
	Reference: "	
	Influence: "	
	Insight into mental and physical condition:Nil	Improved
	M.A.: 9.2 yrs.	13 yrs.

Table XXXIII(cont).

Case No.	Before treatment	After treatment
1. cont.	**Affect**	**Affect**
	Nervousness: Present	Absent
	Anxiety: "	"
	Depression: "	Less evident
	Dissociation between affect & cognition: Present	Harmonious integration of affect and cognition.
	Conation	**Conation**
	Suicidal tendency: Present.	Absent
	Self-depreciation: Decreased volition (abulia)	More self-esteem and self-complacency.
2.	**Cognition**	**Cognition**
	Pattern of thinking: Autistic.	Extroversive
	Attention: Aprosexia	
	Orientation:	
	Time: Absent	Present
	Place: Present	"
	Personal identity: Present	"
	Comprehension: Could not answer item 11 on I.S. of N.B.E.R.	Could answer itme 60 (a) on I.S. of N.B.E.R.
	Reasoning: Could not answer any test on I.S.	Could answer item 47 on I.S. of N.B.E.R.
	Memory:	
	Remote events: Absent	Still impaired
	Recent " : Impaired	Present
	Current " : "	"
	Delusions of:	
	Persecution: Present	Absent
	Reference: "	Present
	Insight into condition: Nil	Still hazy, but clearer than before.
	Mental age: 3.8 yrs.	11.9 yrs.
	Affect	**Affect**
	Elation alternating with depression, fear and anxiety. Dissociation between mood and thought content.	Greater emotional stability. More association between mood and thought content.
	Conation	**Conation**
	Stereotype: tugging at shirt	Absent
	Abulia: Present	"
3.	**Cognition**	**Cognition**
	Pattern of thinking: Autistic	More extroversive
	Attention: High degree of aprosexia	More easily engaged.
	Orientation for:	
	Time: Completely impaired	
	Place: completely impaired	
	Personal identity: Impaired	
	Reasoning: Could not answer item 11 on I.S. of N.B.E.R.	
	Memory:	
	Remote events: Impaired	Much improved
	Recent " : "	" "
	Current " : Fairly good	Good.
	Comprehension: Could not answer item 10 on I.S. of N.B.E.R.	Improved (could answer item 49 on I.S. of N.B.E.R.)

Table XXXIII(cont.)

Case No.	Before treatment	After treatment
3. cont.	**Cognition**	**Cognition**
	Delusions of referenne:Present	Absent
	Hallucinations(auditory):Present	"
	Insight into mental and physical condition: Absent	Improved
	Mental age: 3.6 years	9.8. yrs.
	Affect	**Affect**
	Depression:Present.	Less evident
	Elation(in form of childish laughter):Present	Absent
	Emotional lability:Present	"
	Dissociation between mood and thought content:Present.	Not evident.
	Conation	**Conation**
	Abulia:Present to a degree	Diminished
	Stereotypy: Present	Absent
	Negativism: Present	Absent
4.	**Cognition**	**Cognition**
	Pattern of thinking:Autistic	More extroversive
	Attention:Impaired	
	Orientation for:	
	Time:Absent	
	Place:Present	
	Personal identity:Present	
	Reasoning:Could not answer item 44 on I.S. of N.B.E.R.	
	Memory for:	
	Remote events:Absent	
	Recent: " :Present	
	Current " : "	
	Comprehension:Could answer up to item 42 on I.S. of N.B.E.R.	
	Delusions of persecution:	
	Hallucinations:Auditory:Present	Absent
	Visceral:Present	Persistent
	Insight into mental and physical condition:Impaired	
	Mental age 10 years	15.3 years
	Affect	**Affect**
	Agitation alternating with euphoria and apathy on different days:Present	Absent
	Dissociation between thought content and mood: Present	Less evident
	Conation	**Conation**
	High suggestibility in form of verbigeration	Less evident.
5.	**Cognition**	**Cognition**
	Pattern of thinking:Mildly autistic	Normal
	Attention:Could be mobilised with a little difficulty	Easily
	Orientation for:	
	Time:Absent	Absent
	Place:Present	Present
	Personal identity	Present
	Reasoning :Failed item 75 on I.S. of N.B.E.R.	
	Memory for:	
	Remote events:Vague	Good
	Recent events:Good	"
	Current events:Better	"

Table XXXIII(cont.)

Case No.	Before treatment	After treatment
5. cont.	**Cognition**	**Cognition**
	Retention and recall:Failed on item 79 of I.S. of N.B.E.R.	
	Comprehension:Failed on item 61 of I.S. of N.B.E.R.	
	Delusions:	
	Grandeur:Absent	Absent
	Reference: "	"
	Influence: "	"
	Hallucinations:	
	Visual:Absent	Absent
	Auditory: "	"
	Insight into mental and physical condition:Fair	Normal
	Mental Age 11.9 yrs.	16.8. yrs.
	Affect	**Affect**
	Emotional shallowness:Present	Diminished
	Apathy: Present	"
	Dissociation between thought content and affect present in slight degree	Absent
	Conation	**Conation**
	Suggestibility :Present	Absent
	Verbigeration: "	"
6.	**Cognition**	**Cognition**
	Pattern of thinking:Strongly autistic	More extroversive
	Attention:Could not be easily engaged	More easily engaged.
	Orientation for:	
	Time:Absent	Absent
	Place:Absent	"
	Personal identity:Absent	Present
	Memory for:	
	Remote events: Nil	Present
	Recent " : "	"
	Current " :Impaired	Impaired
	Retention and recall: Could not repeat 4937 forward;nor recall 375 Eloff Str. after 5 minutes	Could repeat 52947 forward (item 40 on I.S. of N.B.E.R.) Could recall 375 Eloff Str. aftter 5 mins.
	Reasoning : Nil	Unable to answer item 47 on I.S.
	Comprehension:Could not answer item 11 on I.S. of N.B.E.R.	Could answer item 39 on I.S. of N.B.E.R.
	Delusions of persecution:Present	Present
	Hallucinations-auditory:Present	Absent
	Insight into mental & physical condition: Lacking	Still lacking
	Mental age: 3.8 years	8.7⅕ yrs.
	Affect	**Affect**
	Emotional blunting & apathy marked	Diminished
	Dissociation between thought content and affect present	Greater integration between thought content and affect.

Table XXXIII (cont.)

Case No.	Before treatment	After treatment
6. cont.	**Conation**	**Conation**
	Suggestibility and passive negativism: present	Diminished
	Catalepsy and echolalia: present	"
7.	**Cognition**	**Cognition**
	Pattern of thinking: Autistic	More extroversive
	Attention: Engaged with difficulty	Engaged more easily
	Orientation for:	
	time: Absent	Present
	place: Present	"
	Personal identity: Present	"
	Reasoning: Could not do item 47	Could answer item 47
	Memory for:	
	Remote events: Present	Present
	Recent events: Present	"
	Current events: Absent	"
	Retention & recall: Failed item 16 on I.S.	Answered item 55 on I.S.
	Comprehension: Failed on item 20 and 23 of I.S. of N.B.E.R.	Answers item 60 on I.S.
	Delusions of grandeur: Present	Present
	reference: "	Absent
	influence: "	"
	Hallucinations:	
	visual: Present	Absent
	auditory: Present	"
	visceral -	
	Insight into mental and physical condition: Absent	Present
	Mental age 4 years 10½ months	12.9¾ yrs.
	Affect	**Affect**
	Depression alternating with agitation: Present	
	Acousticophobia: Present	Present
	Complete dissociation between thought and affect	Greater integration or empathy
	Conation	**Conation**
	Suggestibility: Marked	Diminished
	Hyperprosexia: Present	"
8.	**Cognition**	**Cognition**
	Pattern of thinking: Autistic	Higher degree of empathy
	Attention: aprosexia	Could be engaged
	Orientation for:	
	time: Absent	Present
	place: "	"
	personal identity: Absent	"
	Reasoning: Could not be tested	
	Memory for:	
	Remote events: Absent	Absent
	Recent events	Present
	Current events	"
	Retention and recall: Absent	Passed on item 79 of I.S.
	Comprehension:	Answered item 77 on I.S.

Table XXXIII(cont.)

Case No.	Before treatment	After treatment
8 cont.	**Cognition**	**Cognition**
	Delusions of:	
	grandeur: Absent	Absent
	reference : "	"
	influence: "	"
	Hallucinations: Visual:Absent	Absent
	Auditory:Absent	"
	Viscetal:Present	Persistent
	Insight into mental and physical condition : Nil	Doubtful
	Mental age:Could not be determined	16 years.
	Affect	**Affect**
	A high degree of blocking:Present	Greater canalisation
	Emotional indifference: Present	Greater responsiveness
	Dissociation between thought and affect: Present	Greater integration
	Conation	**Conation**
	Negativism: Present	Absent
	Flexibilitas cerea: Present	"
9.	**Cognition**	**Cognition**
	Pattern of thinking:Mildly autistic	More extroversive
	Attention:Slight hyperprosexia	More stable
	Orientation for :	
	Time: Present	Present
	Place "	"
	Personal identity:Present	"
	Reasoning:Failed item 60 on I.S.	Passed item 73 on I.S.
	Memory for:	
	Remote events:Much impaired	Slightly impaired
	Recent " : " "	" "
	Current " : Impaired	Normal
	Retention & recall:Failed item 55 on I.S.	Passed itme 79 on I.S.
	Comprehension:Failed on item 60 on I.S.	Passed on item on I.S.
	Delusions of:	
	grandeur: Absent	Absent
	reference: Slight	"
	influence: Present	"
	persecution: Absent	"
	Hallucinations:	
	Visual: Nil	Absent
	Auditory: Nil	"
	Visceral: "	"
	Insight into mental and physical condition: Nil	Present
	Mental age: 10.1 years	16 years.
	Affect	**Affect**
	Excessive restlessness present	Greater emotional stability
	Emotional shallowness alternating periodically with excessive euphoria	
	Dissociation between thought and effect: Slight	Greater integration between thought and affect.
	Conation	**Conation**
	Negativism : Slight	Absent

Table XXXIII(cont.)

Case No.	Before treatment	After treatment
10.	**Cognition**	**Cognition**
	Pattern of thinking:Autistic	More extroversive
	Attention:Could not be held	Held more easily
	Orientation for:	
	Time: Impaired	Present
	Place: "	"
	Person:Absent	"
	Reasoning:Failed item 69(1a) on I.S.	Passed item 85 on I.S.
	Memory for:	
	Remote events:Impaired	Present
	Recent " :"	"
	Current " :Least impaired	"
	Retention & recall:Failed itme 55 on I.S.	Passed item 55, failed item 86 on I.S.
	Comprehension:Failed item 60(a) on I.S.	Passed item 81
	Delusions of:	
	Grandeur:Absent	Absent
	Reference: "	"
	Influence: "	"
	Hallucinations:	
	Visual: Absent	Absent
	Auditory: "	"
	Visceral: "	"
	Insight into mental and physical condition: Absent	Absent
	Mental age 10.2 years	17.9 years.
	Affect	**Affect**
	Withdrawn and repressed, and potentially violent.	Greater emotional stability and improved adjustment
	Conation	**Conation**
	Periodic outbursts of violence	Absent
	Suicidal tendency present	"
11.	**Cognition**	**Cognition**
	Pattern of thinking:Autistic	More extroversive
	Attention: Mild aprosexia	Readily engaged
	Orientation for:	
	Time: Absent	Present
	Place:Vague	"
	Person:Present	"
	Reasoning:Failed item 47(1)on I.S.	Passed item 69(1a)
	Memory for:	
	Remote events: Fair	Good
	Recent " : "	"
	Current " : Good	"
	Retention & recall:Failed item 55 on I.S.	Passed item 55 on I.S.
	Comprehension: Failed item 51 on I.S.	Passed item 67 on I.S.
	Delusions of:	
	Grandeur: Absent	Absent
	Reference: "	"
	Influence:Doubtful	"
	Hallucinations:	
	Visual: Absent	Absent
	Auditory: "	"
	Visceral; "	"

Table XXXIII(cont.)

Case No.	Before treatment	After treatment
11. cont.	Insight into mental and physical condition : Poor	Good
	Mental age 9.2 yrs.	16.4 yrs.
	Affect	**Affect**
	Euphoric;emotional instability with underlying nervous tension	Greater emotional stability&relaxation
	Dissociation between thought, affect and conation.	Greater integration
	Conation	**Conation**
	Exaggerated psychomotor activity and hyperbulia present.	Psychosomatic activity diminished.
12.	**Cognition**	**Cognition**
	Pattern of thinking:Mildly autistic	More extroversive
	Attention:Slight aprosexia	Easily engaged
	Orientation for	
	Time: Absent	Present
	Place: Vague	"
	Person: "	"
	Reasoning:Failed item 44 on I.S.	Passed item 81 (2) on I.S.
	Memory for:	
	Remote events: Vague	Good
	Recent " :Absent	"
	Current " :	"
	Retention and recall:Failed item 38 on I.S.	Passed item 79 on I.S.
	Comprehension:Failed item 35 on I.S.	Passed item 76 on I.S.
	Delusions of:	
	Grandeur:Absent	Absent
	Reference: "	"
	Influence: "	"
	Hallucinations	
	Visual: Absent	Absent
	Auditory: "	"
	Visceral: "	"
	Insight into mental and physical condition: Nil	Good
	Mental age 6.6 years	16.8 yrs.
	Affect	**Affect**
	Psychomotor tension and agitation present with a mask-like facies	Greater relaxation and greater integration of cognition & affect
	Degree of dissociation between thought content and affect	
	Conation	**Conation**
	Degree of hyperbulia and active negativism present	Diminished
13.	**Cognition**	**Cognition**
	Pattern of thinking:Autistic	More extroversive
	Attention:Engaged with difficulty	Engaged more easily
	Orientation for:	
	Time: Absent	Present
	Place:Present	"
	Person: "	"

Table XXXIII(cont.)

Case No.	Before treatment	After treatment
13 cont.	Reasoning:Failed item 44 on I.S.	Passed item 75 on I.S.
	Memory for:	
	Remote events:Absent	Present
	Recent " : "	"
	Current " :Vague	"
	Retention and recall:Failed item 16 on I.S.	Passed item55 (a) on I.S.
	Comprehension:Failed item 23 on I.S.	Passed item 62 on I.S.
	Delusions of:	
	Grandeur: Absent	Absent
	Reference: "	"
	Influence:Present	"
	Hallucinations:	
	Visual: Absent	Absent
	Auditory: "	"
	Visceral "	"
	Insight into mental and physical condition:Absent	Present
	Mental age 4.3. years	15 years.
	Affect	Affect
	Jovial,exalted and euphoric, but with underlying anxiety and psychomotor tension	Emotional stability and relaxation more evident.
	Some,dissociation between cognition and affect	Greater integration of cognition affect and conation
	Conation	Conation
	Degree of active negativism,impulsiveness present together with some persecution	Negativism and impulsiveness diminished.
14.	Cognition	Cognition
	Pattern of thinking:Markedly autistic	More extroversive
	Attention:Aprosexia marked	More easily engaged
	Orientation for:	
	Time: Absent	Vague
	Place: "	"
	Person: "	Present
	Reasoning:Could not be assessed	Answered item 47 (1) on I.S.
	Memory for:	
	Remote events: Absent	Improved
	Recent " : "	"
	Current " : "	"
	Retention and recall:Failed item 7 on I.S.	Passed item 54 (b) on I.S.
	Comprehension:Failed item 11 on I.S.	Passed item 52 on I.S.
	Delusions of:	
	Grandeur: Present	Absent
	Reference: "	"
	Influence: Absent	"
	Persecution:Present	Present
	Hallucinations:	
	Visual: Absent	Absent
	Auditory: Present	"
	Visceral: Absent	"

Table XXXIII(cont.)

Case No.	Before treatment	After treatment
14 cont.	Insight into mental and physical condition: Nil	Improved
	Mental age: under 4 years	10.4 years
	Affect	**Affect**
	Marked depression and apathy, fear and anxiety present	Depression &apathy diminished:fear & anxiety presistent;
	Obvious dissociation between cognition, affect, and conation	Greater integration of cognition,affect and conation
	Conation	**Conation**
	Psychomotor retardation marked. Abulia present	Psychomotor retardation diminished,and abulia less
15.	**Cognition**	**Cognition**
	Pattern of thinking:Markedly autistic	More extroversive
	Attention: Aprosexia marked	Aprosexia much diminished
	Orientation for:	
	Time : Absent	Vague
	Place: "	"
	Person: "	Present
	Reasoning:Could not be assessed	Passed item 44 on I.S.
	Memory for:	
	Remote events: Absent	
	Recent " : "	
	Current " : Vague	
	Retention and recall:Could not be assessed	Passed item 40 on I.S.
	Comprehension:Could not be assessed	Passed item 46 on I.S.
	Delusions of:	
	Grandeur: Present	Absent
	Reference: "	Present
	Influence: "	Absent
	Persecution:"	Present
	Hallucinations:	
	Visual: Absent	Absent
	Auditory:Present	"
	Visceral:Absent	"
	Insight into mental and physical condition: Nil	Better
	Mental age: under 4 years	9.2. years
	Affect	**Affect**
	Extreme apathy and depression	Apathy and depression much diminished
	Facies mask-like	
	Dissociation between cognition, affect, and conation	Greater integration.
	Conation	**Conation**
	Psychomotor retardation marked	Diminished
	Passive negativism marked	"
	Flexibilitas cerea present.	"

Analysis of the above data yields the following findings:-

(a) Before treatment

(1) The progress of the schizophrenic process never affects one category of the psyche alone,but all the categories simultaneously in greater or less degree, indicating that they are interdependent with,or functionally related to,one another.The diverse categories of the psyche,in the course of the schizophrenic process,become dissociated from one another in a way which precludes the harmonious adaptation of the individual to his environment.

(2) The extent of the psychic disorganisation,or the degree of dissociation between categories of the psyche caused by the schizophrenic process,reflects in each case (i) in the deterioration of the functions of cognition in respect of thinking,attention,orientation for time, place and personal identity,reasoning, memory for remote,recent, and current events, retention and recall,insight and intelligence; (ii) in the deterioration of the functions of affect,expressed as emotional depression,apathy, or lability; (iii) in the deterioration of the functions of conation, expressed as a decrease,increase, or perversion, of volition; and (iv)in the general dissociation of the categories of the psyche themselves.

(3) The mental age,determined at the time of the schizophrenic process in each case, is possibly a measure of the degree of psychic disorganisation.

(4) The schizophrenic process, once it is established,does not remain static in character,but may pass from one form to another, as from a hebephrenic to a paranoid form,or from a simplex to a catatonic form, or from a psychotic to a psychoneurotic form. Three cases in the group studied illustrate the dynamic character of the schizophrenic process.

(b) After treatment.

(1) The retrogression in the schizophrenic process

which occurred in each case never affected one category of the psyche alone, but all the categories simultaneously in greater or less degree, confirming once more that they are not independent of,but interdependent with,or functionally related to,one another.

(2) The extent of the retrogression effected was reflected in each case(i) in the amelioration of the functions of cognition in respect of thinking,attention,orientation for time,place and personal identity,reasoning,memory for remote,recent and current events,retention and recall,insight,and intelligence; (ii) in the amelioration of the functions of affect,expressed by greater emotional stability; (iii) in the amelioration of the functions of conation,expressed in greater psycho-motor adaptation;and (iv) in the greater integration of the categories of the psyche.

It may be postulated in the light of these facts that the low mental age found in each of the cases before treatment was a measure of the degree of psychic disorganisation obtaining,and that the improved mental age found in each case after treatment was likewise a measure of the greater integration established. The inference which emerges from this finding is that the phenomenon of intelligence is not an independent entity,but rather a function of the degree of integration obtaining among the categories of the psyche. In so far as this is so,the advance - under treatment - in the intelligence level of a particular patient may be used as a measure of the improvement in his psychiatric status.

Table XXXIV

Distribution of the mental ages in the "A" group of patients by type of schizophrenia before and after treatment.

Case No.	Form of schizophrenia	Before treatment Mental age	I.Q.	After treatment Mental age	I.Q.	% increase in intelligence
1.	Schiz.simp.	9.2 yrs	61.3	13 yrs.	86.6	25.3
2.	" cata.	3.8 "	25.3	11 "	79.3	54.0

Table XXXIV(cont.)

Case No.	Form of schizophrenia	Before treatment Mental age	I.Q.	Mental age	I.Q.	% increase in intelligence
3.	(i)Anxiety (ii)Schiz. simp.	3.6 yrs.	24	9.8 yrs.	65.3	41.3
4.	Schiz.para.	10.0 "	66.7	15.3 "	102	35.3
5.	Schiz.simp.	11.9 "	79.3	16.8 "	112	32.7
6.	(i)Schiz. heb. (ii)Schiz. para.	3.8 "	25.3	8.7⅕ "	58.0	32.7
7.	(i)Anx.neur. (ii)Schiz.heb. (iii) " para.	4yrs.10½ms.	32.5	12.9⅗ "	86.0	53.5
8.	(i)Schiz.simp. (ii) " cata.	?	?	16 "	106.6	?
9.	Schiz. cata.	10.1 yrs.	67.3	16 "	106.6	39.3
10.	" para.	10.2 "	68	17.9 "	119.3	39.3
11.	" simp.	9.2 "	61.3	16.4 "	109.3	48.0
12.	" "	6.6 "	44	16.8 "	112	68.0
13.	" heb.	4.3 "	28.6	15 "	100	71.4
14.	" para.	(4.0 "	(26.6	10.4 "	69.3 (approx.)	42.7
15.	" cata.	(4.0 "	(26.6	9.2 "	61.3 (approx.)	34.7

It emerges from the above data that a substantial improvement in the mental age was effected in each of the cases,and that the degree of improvement varies in each.

However,it was not possible to establish how far short the I.Q.'s of the patients were of their original I.Q.'s before the onset of their mental disorder, as no data on the latter were obtainable.Lastly, it may be postulated that if an I.Q. of 80 and above be regarded as a measure of average and above average integration,then only 10 or 66.6% of the 15 cases treated were fit for discharge from hospital or private medical care.

(B) ANALYSIS OF THE "B" GROUP OR ORGANIC GROUP OF CASES.

Analysis of data in respect of this group of psychotic cases is likewise directed to -

I. The identification of possible causal factors,e.g., in the physical segment of the personalities of the patients.

II. The evaluation of the symptomatology projected by the patients, and

III. The evaluation of the response of patients to treatment.

I. <u>The identification of possible causal factors in the physical segment of the personalities of the patients.</u>

The relevant data are collated in Table XXXV.

Table XXXV.

Case No.	Diagnosis	Causal agent.
1.	Dementia paralytica	Syphilis (treponema pallidum)
2.	Cerebral syphilis	Treponema pallidum
3.	Myxoedema	Hypothyroidism
4.	Exophthalmic goitre	Hyperthyroidism
5.	Pernicious anaemia	Dyshaemopoiesis due to absence of Castle's intrincic factor
6.	Peripheral neuritis	Alcoholism

The inference was drawn by the writer that the psychotic symptomatology presented by the group of patients had an organic basis because the somato-psychic condition in each case cleared up or improved considerably under spcific antibiotic or chemotherapeutic measures i.e., measures applied only to the soma or physical segment of the personalities of the patients.

II. <u>The evaluation of the symptomatology projected by the patients.</u>

Table XXXVI.

Case No.	Clinical condition	Soma Disorganisation of -	Psyche Disorganisation of -
1.	Dementia paralytica	C.N.S. +- C.S.F. - Blood - Locomotor S.-	Cognition - (M.A. 11.9 yrs.) Affect - Conatus - Delusions -
2.	Cerebral syphilis	C.N.S. - - Vision - Locomotor S. - (spastic paralysis)	Cognition - (M.A. 10.6 yrs. Affect - Conatus - Delusions -

Table XXXVI(cont.)

Case No.	Clinical condition	Soma Disorganisation of -	Psyche Disorganisation of -
3.	Myxoedema	Thyroid --	Cognition - (M.A. 7.5 yrs.)
		Heart -	Affect -
		Skin -	Conatus -
		Loco. S -	
		Haem. S. -	
4.	Exophth. Goitre	Thyroid --	Cognition - (M.A.10.10 yrs.)
		C.V.S. -	Affect -
		Skin -	Conatus -
		Vision -	Hallucinations -
			Delusions -
5.	Pernicious anaemia	Haem.S. --	Cognition - (M.A. 11.9 yrs.)
		C.V.S. -	Affect -
		Skin -	Conatus -
		Alim. S. -	Deluaions)
6.	Peripheral neuritis	C.N.S. --	Cognition -
		G.I.S. -	Affect -
		Vision -	Conatus -

Analysis of the above data yields the following findings:-

(1) The disorganisation of the personality, which occurred primarily in the somatic segment in each case, did not remain limited thereto, but was transmitted to the psychic segment in each case.

(2) The disorganisation which occurred primarily in the soma in each case did not remain limited to one particular component thereof, but was transmitted to other components as well.

(3) The disorganisation which occurred primarily in the soma was transmitted not just tot one category of the psyche but to all the categories thereof simultaneously.

III. Evaluation of the response of patients to treatment.

The relevant data are collated in Table XXXVII.

Table XXXVII.

Form of therapy employed in "B" Group of cases.

Case No.	Clinical condition	Form of therapy.
1.	Demetia paralytica	Penicillin: 2,000,000 units daily for 6 weeks.

Table XXXVII(cont.)

Case No.	Clinical condition	Form of therapy.
2.	Cerebral syphilis	Penicillin:2,000,000 units daily for 2 weeks and repeated at 5 day intervals.
3.	Myxoedema	Thyroid sicca, beginning with ¼ gr. b.d. and gradually increased to gr. v.
4.	Exophthalmic goitre	Lugol's iodine m.v, t.d.s. for 10 days; Propyl thiouracil : 0.2 gm. for 10 days; then reduced to 0.2 gm. daily for 4 weeks. Digitalis for associated cardiac condition.
5.	Pernicious anaemia	Vitamin B_{12} injections in daily doses of 100 micrograms for several weeks.
6.	Peripheral neuritis	Vitamin therapy, inclusive of vitamin B_{12} by injection, etc.

Examination of the clinical condition of the patients after treatment showed (1) that the improvement effected was not limited to the component of the soma whaich was primarily involved in the morbid process but extended also to the other components thereof which were secondarily affected ;(2) that the improvement effected in the soma was not limited thereto,but extended also to the psyche,and then not just to one,but to all, the components thereof.

The degree of improvement effected in the soma by specific therapy was clinically determined;and the degree of improvement effected in the psyche was determined by noting the change in the I.Q. which occurred after treatment.The improvement in the psychiatric condition of the patients after treatment is indicated in Table XXXVIII.

Table XXXVIII.

Case No.	Clinical condition	I.Q. before treatment	I.Q. after treatment.
1.	Dementia paralytica	79.3	96.5
2.	Cerebral syphilis	70.6	102.0
3.	Myxoedema	50.	98.1
4.	Exoph. goitre	67.6	112.0
5.	Pernicious anaemia	79.3	106.0
6.	Peripheral neuritis (alcoholic)	79.3	102.6

It will be noted from the above data that the rise in the I.Q. of the patients which occurred after treatment proceeded "pari passu" with the improvement which occurred simultaneously in the somatic and the psychic segments of their personalities. The inference accordingly emerges that Intelligence is not an independent static entity,but a dependent variable,that is, a function of interacting factors operating in the body-mind.

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C O N C L U S I O N S :

Analysis of the data assembled in this study permits of the presentation of a number of general conclusions. These conclusions,however,because of the smallness of the number of cases investigated,can only be stated tentatively.Nevertheless,subject to this qualification,they may be presented with respect to (I)the "A" Group,or the functional group,of cases,in which no organic basis could be discovered for the presenting schizophrenic symptomatology, and (II)the "B" Group,of the organic group,of cases, in which an organic basis could be found for the presenting schizoform symptomatology.

I. CONCLUSIONS IN REGARD TO THE "A" GROUPS OF CASES.

These may be presented in the following sequence:-

(A) CONCLUSIONS IN REGARD TO THE CAUSAL FACTORS INVOLVED IN THE EMERGENCE OF THE SCHIZOPHRENIC PSYCHOSIS.

These factors operate in every segment of the human continuum,and they include the following:-

(a) The age factor: Persons belonging to the age-group 16-39 years appear to be more liable to acquire schizophrenia than are persons belonging to,the other age groups.

(b) The sex factor: Males appear to be more susceptible to schizophrenia than females.

(c) The factor of race: Europeans,in the Union of S.Africa,appear to be more susceptible to schizophrenia than are the Asiatics,Coloured, and Bantu races.(x)

(x) (This conclusion is presented subject to the proviso referred to in the text.)

(d) The factor of heredity: The data of our study in this connection are inadequate,and so do not admit of positive conclusions being drawn.Nevertheless, the inference seems to emerge therefrom that a particular mental disorder,e.g.,shcizophrenia, does not necessarily reproduce itself in the same form in the offspring.

(e) The factor of birth-order:This factor appears to be of no importance by itself,and may be subject entirely to the particular pattern of child-parent relationship obtaining in a given case.

(f) The factor of nativity: The data of our study in this connection are too limited to permit of a wide generalisation being made. However, analysis of data embodied in the 1936 Annual Report of the Commissioner of Mental Hygiene of the Union of South Africa suggests that the factor of foreign nativity increases the suceptibility of an individual to schizophrenia;and further,analysis of data relating to the "A" group suggests that foreign nativity in the case of the parents,and South African nativity in the case of the children, may set up a culture conflict in the latter which may increase their susceptibility to the schizophrenic process.

(g)The factor of marital status: The single estate,with all that it implies in the way of increased personal isolation and insecurity of tenure,may increase the susceptibility of an individual to the schizophrenic process.

(h) The factor of occupational status:European persons who are engaged in indoor occupations may,in a proportion of cases,be more susceptible to schizophrenia than are those engaged in out door occupations.

(i) The factor of occupational mobility:Occupational mobility,with its increasing burden of adjustment to new psycho-social situations,may increase the susceptibility of an individual to schizophrenia,or else intensify the process once it is initiated by the operation of other factors.

(j) The factor of economic status: Absolute or relative poverty, by virtue of the anxiety associated therewith in maintaining one's place in a particular stratum of the community, may increase the suceptibility of an individual to schizophrenia.

(k) The factor of educational status: Inferiority of educational status does not necessarily increase the suceptibility of an individual to schizophrenia, but once his educational career is interrupted by the onset of a schizophrenic process, howsoever caused, then the sense of frustration arising therefrom may intensify that process further in the manner of a vicious cycle.

(l) The factor of overcrowding; Living in areas of high population density, and living under conditions of residential overcrowding, in so far as they accentuate inter-personal tensions, may increase the liability of a individual to schizophrenia.

(m) The factor of spatial mobility: Excessive social mobility, in so far as it calls for continual readjustment to changing social situations, may increase the vulnerability of some patients to the impact of the schizophrenic process.

(n) The factor of addiction: Addiction, whether to alcohol or drugs, may be an effect rather than a cause of a schizophrenic process, but generally, addiction may intensify the schizophrenic process, howsoever it was initiated.

(o) The factor of physical ill-health in childhood and adolescence: The common infectious diseases of childhood and adolescence apparently play no role in the causation of schizophrenia.

(p) The factor of parental family disorganisation: Inadequate father-mother relations, which may be brought about by a combination of factors, such as poverty and differentiality of age, race, religious affiliation, and educational status, induce in turn inadequate parent-child

relations; and these inadequate parent-child relations, which may take the form of either parental domination, parental neglect, or parental over-protection, may engender in suceptible siblings an acute sense of psycho-social insecurity, which is the soil in which the schizophrenic process develops.

(q) The factor of somatype: Individuals with an asthenic habitus are apparently more liable to schizophrenia than are those with an athletic, pyknic, or dysplastic constitution.

(r) The factor of nutritional status: Impairment of nutrition observed in schizophrenic patients appears to be , in the majority of instances , an effect and not the cause of the disorder.

(s) The factor of psychic disorganisation: The schizophrenic process is, by and large, initiated by a process of disorgnisation occurring in the psychic segment of the personality in the first instance. In such cases -

(i) The mode of onset may be gradual or sudden.

(ii) The psycho-traumatic factors operating may be remote or predisposing, and immediate or precipitating in character.

(iii) The causal factors, whether remote or immediate, are in every instance frustrational in character, and conduce to that ultimate state of psycho-social insecurity which constitutes the soil for the development of the schizophrenic process.

(B) CONCLUSIONS IN REGARD TO THE SYMPTOMATOLOGY PROJECTED BY THE SCHIZOPHRENIC PROCESS.

These include the following:-

(a) The interval between the emergence of the remote or predisposing factors and the immediate or precipitating factors may vary from one year to twenty-five years.

(b) The interval preceding the onset of the schizophrenic process may be characterised by the presence of symptoms which present a psycho-neurotic picture, and the final schizophrenic process may be but a continuation or

an intensifiaction of the mental disturbance presenting initially as a psychoneurosis.

(c) The impact of the schizophrenic process, once it is initiated, affects not just one,but all, of the categories of the psyche more or less simultaneously, indicating that these categories are interdependent with,or functionally related to, one another,

(d) The schizophrenic process, like the psychoneurotic process preceding it, is apprently not a,static phenomenon,but a dynamic variable, in that, in the same individual, one type of schizophrenia may pass into another, and the schizophrenic process itself may become modified to such a degree as to assume the,character of the psychoneurotic process which preceded it.

(e) The degree of psychic disorganisation, or the degree of dissociation between the components of the psyche obtaining in a particular case, is apparently reflected in the correspondingly low mental age of the patient.

(f) The process of disorganisation presenting in schizophrenic patients appears not to be limited to the psyche, but may be transmitted to one or more components of the soma, e.g., the central nervous system, the cardiovascular system, the gastro-intestinal system, etc., thus indicating that the components of the soma are functionally interdependent with one another.

(C) CONCLUSIONS IN REGARD TO THE RESULTS ACHIEVED BY THERAPY.

These include the following:-

(a) The retrogression in the schizophrenic process which occurred in each case as a result of therapy apparently never affected just one category of the psyche alone, but all the categories simultaneously in greater or less degree, thus confirming that the categories of the psyche,namely, cognition,affect, and conatus, are functionally related to one another.

(b) The greater integration of the categories of

the psyche effected by therapy was apparently expressed in each case by the greater degree of psychomotor adaptation to the phenomenal world.

(c) The greater integration of the categories of the psyche effected by therapy was apparently expressed in each case in the corresponding rise in the mental age of the patient.

(d) The phenomenon of intelligence, accordingly, appears to be not an independent entity, but rather a function of the degree of integration obtaining among the categories of the psyche.

(e) The advance in the intelligence of a particular patient under therapy appears to constitute a measure of the improvement effected in his psychiatric status.

(f) The improvement effected in the psychic segment of the individual personality appears to be not limited thereto, but may be transmitted also to the somatic segment thereof.

(g) The success achieved by therapy in the psychiatric rehabilitation of this group of patients may be ascribed, in the main, to the use of High Dosage Insulin Shock Therapy or Electro-convulsive Therapy; but the operation of other factors cannot be ignored, such as the protective atmosphere of the hospital and the compassionate understanding and clinical wisdom of the attending medical officers and nursing staff. These therapeutic forces are interactive, and produce a cumulative affect.

(D) CONCLUSIONS IN REGARD TO THE INCIDENCE OF SCHIZOPHRENIA IN A COMMUNITY.

These include the following:-

(a) The greater the proportion of persons in the age group 16-39 years in a community, the greater will be the incidence of schizophrenia, other things being equal.

(b) The greater the masculinity of a population, the greater will be the incidence of schizophrenia, other things being equal.

(c) The greater the number of Europeans in a country of mixed races,like the Union of South Africa,the greater will be the incidence of schizophrenia,other things being equal.

(d) The greater the volume of immigration into a country,the greater will be the incidence of schizophrenia, other things being equal.

(e) The greater the proportion of unmarried persons in a population,the greater will be the incidence of schizophrenia,other things being equal.

(f) The greater the incidence of family disorganisation in a population,the greater will be the incidence of schizophrenia,other things being equal.

(g)The greater the incidence of poverty in a population,the greater will be the incidence of schizophrenia.

(h) The diverse factors which determine the incidence of schizophrenia in a community are functionally related to another,and particularly to the economic factor,which emerges as the dominant variable.

(E) CONCLUSIONS IN REGARD TO THE CONTROL OF SCHIZOPHRENIA IN A COMMUNITY.

The control of the problem cannot,apparently,be successfully achieved by the application of therapeutic measures directed to the individual psycho-somatic personality alone,but such measures must be combined with those which may be directed by the State for -

(a) The optimisation of the age composition of the population.

(b) The normalisation of the sex composition of the population.

(c) The normalisation of the marital composition of the population.

(d) The elimination of family disorganisation in the population.

(e) The normalisation of the economic composition in the population.

II. CONCLUSIONS IN REGARD TO THE "B" GROUP OF CASES.

These may be presented in the following sequence:-

(A) CONCLUSIONS IN REGARD TO THE CAUSAL FACTORS INVOLVED IN THE EMERGENCE OF THE ORGANIC SCHIZOFORM PSYCHOSES.

These include the following:-

(a) Disorganisation of any clinical system, such as the central nervous system, the endocrine system, and the haemopoietic system, etc.,may induce a schizoform psychosis in an affected individual.

(b) Disorganisation of any clinical system may be produced by a variety of factors, e.g.,syphilitic infection,as in dementia paralytica, thyroid deficiency as in the case of myxoedema, absence of Castle's intrinsic factor, as in the case of pernicious anaemia,and alcoholism as in the case of Korsakow's psychosis,etc.

(B) CONCLUSIONS IN REGARD TO THE SYMPTOMATOLOGY PROJECTED BY THE ORGANIC SCHIZOFORM PSYCHOSES.

These include the following:-

(a) The disorganisation which occurs primarily in the soma in each case does not remain limited to one particular component thereof, but is transmitted to other components as well, thus showing that the components of the soma are functionally interdependent with one another,and that the presenting symptomatology is projected by a combination of the processes of disorganised components.

(b) The disorganisation which occurs primarily in the somatic segment of the personality does not, apparently, remain limited thereto,but may be transmitted in every case to the psychic segment,thus showing that the two segments of the personality - the soma and the psyche -are functionally interdependent with one another.

(c) The disorganisation which occurs primarily in the soma appears to be transmitted not just to one category of the psyche alone,but to all the components thereof simultaneously.

(d) The ultimate schizoform symptomatology in an organic psychosis is apparently produced by the combined disorganisation of the components of the soma and the psyche.

(e) The degree of somato-psychic disorgansation obtaining in a particular case of organic psychosis is apparently expressed in the accompanying low mental age of the patient.

(C) CONCLUSIONS IN REGARD TO THE RESULTS ACHIEVED BY THERAPY.

These include the following:-

(a) The improvement effected by spcific therapy is apparently not limited to that component of the soma, which is primarily involved in the morbid process,but extends also to the other components which were secondarily affected,thus confirming that the components of the soma are functionally interdependent with one another.

(b) The improvement effected in the soma appears not to be limited thereto,but extends also to the psyche,and then not just to one component,but to all the components thereof,thus confirming that the somatic and psychic segments of the personality are continuous and interactive with each other,and that the constituent categories thereof are functionally interdependent with one another.

(c) The degree of improvement effected in the somato-psychic condition of affected patients is apparently reflected in a corresponding rise in their intelligence quotient,thus confirming that the phenomenon of intelligence is not a static entity,but a dynamic variable - a function, in this series,of primary somatic disorganisation,howsoever caused.

(D) CONCLUSIONS IN REGARD TO THE INCIDENCE OF THE ORGANIC SCHIZOFORM PSYCHOSES IN A COMMUNITY.

The incidence of the organic schizoform psychoses depends upon the incidence of organic disease in a community

(E) CONCLUSIONS IN REGARD TO THE CONTROL OF THE ORGANIC SCHIZOFORM PSYCHOSES IN A COMMUNITY.

The control of the problem of organic psychosis in a community can, in a high proportion of cases, be adequately achieved by the application of therapeutic measures of a somato-psychological character to individual patients.

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