EVALUATION OF A COMMON METHOD OF CONVULSION THERAPY IN BANTU SCHIZOPHRENICS.

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EVALUATION OF A COMMON METHOD OF CONVULSION THERAPY

IN BANTU SCHIZOPHRENICS.

1. INTRODUCTION.

There seems little reason to believe that schizophrenia in the Bantu differs materially from the disease in other races; nevertheless a study of the results of convulsion therapy in this racial group, in its present state of development, should not be without interest.

Certain diseases common in Europeans are rare in Africans, others tend to run a different course, and the latter may apply to a variable condition like schizophrenia. Hill (1) pointed out long ago that quite different results were reported for shock treatments in different countries with different races.

Without further evidence it would seem to be unjustified to accept the findings of Rees (2) and others,(3) as regards the relative merits of convulsion therapy and of insulin coma in the treatment of schizophrenia of white races, as being applicable to Bantu schizophrenics.

In view of the importance of racial matters, particularly those relating to colour, any investigation that may throw light on differences between two such divergently developed races as Europeans and Africans, may be of importance. No systematic report has yet been published on the effects of shock treatments in a purely Bantu group of patients.

2/Convulsion therapy

Convulsion therapy has now been in use for nearly twenty years and few will deny that it has altered the course of many psychiatric illnesses; but it's value in schizophrenia has been seriously questioned, and in Britain, at least, it is no longer regarded as a substitute for insulin coma [3]. In spite of this, the method alone probably continues to be used for schizophrenia in some mental hospitals in different parts of the world, where insulin coma therapy for various reasons is difficult to carry out. It is probably also felt that proof that NO treatment produces at least similar results to convulsion therapy, is still inadequate, and so the method is continued with, and delays the acceptance of insulin coma treatment as a routine procedure in some mental hospitals.

Meduna [4], the originator of convulsion therapy in 1934, at first used it only for schizophrenia, but it was not long before the startling discovery was made that the method was even more effective in the depressive psychoses. The induction of convulsions by intravenous injection of cardiazol, soon came to be replaced by E.C.T. after introduction of the latter method by Cerletti and Bini of Rome, in 1940 [5]. Associated with the ease of administration of the electrical method, came a certain abuse of the treatment.

The evidence in favour of insulin being vastly superior to convulsion therapy, although very convincing, is not unchallenged, and Penrose [6], in an investigation of Canadian mental patients, concluded that convulsion therapy was superior to insulin, but his data were considered to be inadequate by Rees [20]. Mayer-Gross [3] refers to

Bleuler and Langfeldt as holding the belief that Sakel's (7) (8) method does nothing but hasten remissions in patients who would remit spontaneously; in the Bantu, at present under the stress and strain of European influences, of racial conflict, and of inner conflicts as the result of becoming 'Europeanised', the value of insulin coma treatment for schizophrenia has never yet been established.

The Bantu race in South Africa has for the past hundred years only, been in close contact with Europeans. It was only in 1816 that the first missionary, Rev. Joseph Williams (9), of the London Missionary Society, came to be stationed in the Fort Beaufort area, where the first fort was built in 1822. Since then the natives have been subject to European influences to an increasing extent. Today the ancient tribal customs of the race are being undermined and many of it's people are in various stages of becoming 'Europeanised' in outlook and customs. But large numbers are still living in a most primitive way, strongly subject to belief in witchcraft and the customs which form part of tribal life; in the reserves, where most of these live, roads hardly exist in certain areas, yet even here the influence of the European has made itself felt. Under such unsettled circumstances, it may be expected that feelings of insecurity and emotional conflicts are common amongst the Bantu. Psychoses occuring under these conditions, may be thought to be commonly precipitated by environmental (10) (11) factors, and consequently to have a different prognosis. Carrothers (12) (13) has produced evidence to suggest that detribalisation increases the incidence

of mental disease in Africans.

Some writers (12 13) have suggested, or quoted evidence to suggest, that there is a difference in temperament and intelligence between Europeans and Africans. There is evidence (12 15) that the comparative incidence of schizophrenia and manic depressive psychosis in the Bantu differs from that in Europeans and that depressive psychosis in the former is a comparative rarity; this would suggest a difference in temperament between Africans and Europeans which, if it exists, possibly may affect the prognosis of schizophrenia in the Bantu.. Mental disorder in the Bantu at present, may be environmentally determined to a larger extent than in Europeans forming part of stable homogeneous communities as in Britain; the prognosis and response to treatment, of such a variable disease as schizophrenia in two such different groups, may consequently vary significantly.

During 1952, as a result of a transfer to the staff of the Tower Hospital, Fort Beaufort, the oppertunity occured to investigate the effect of electrical convulsion therapy on schizophrenic Bantu women.

Fort Beaufort (9) is an historic town founded in 1845, and situated in the eastern part of the Cape Province. It was named after the Duke of Beaufort, father of Lord Charles Somerset who was governor of the Cape at that time. It was an important centre during the incessant wars that had to be carried on against the Bantu during the first half of the 19th century, and it has a population at present of

1468 Europeans, 5220 Natives, and 1570 Coloureds, in the town, and 502 Europeans, 9628 Natives and 454 Coloureds, in the district.

The Tower Hospital received it's name from a sturdy tower built of stone in 1846, and used as a fort during the "Kaffir Wars"; it stands today within the grounds of the institution, part of which is situated almost in the centre of the town. The older parts of the hospital are stone buildings, originally used as military barracks; the slits in the walls may still be seen. During the last decade of the 19th century it was decided (19) to turn it into a mental hospital for natives, and in 1894, the first patients were admitted. Many years later a large new section was built just outside the town, and today the hospital accommodates 2400 patients, and has an admission rate of 450 per year; it is the largest non-European hospital in South Africa and serves mainly the eastern parts of the Cape Province and the Transkei. Most of the patients are Xosas or belong to closely related tribes of the Bantu race. For some years there has been considerable overcrowding of patients at the Tower Hospital.

The shortage of accommodation in the mental hospitals of South Africa especially for non-Europeans, has been stressed in a leading article of the South African Medical Journal (14). During 1952, at a plenary session of the South African medical congress which was devoted to the subject of psychological illness, a paper read by the commissioner for mental hygiene published in the South African Medical Journal (14), described the extent of overcrowding in South African mental hospitals;

6/ he stated that

he stated that the position with regard to vacancies and overcrowding in 1952, was as follows, for mental hospitals in South Africa:-

	European		Bantu	
	Males	Females	Males	Females.
Vacancies	204	-	-	-
Overcrowding	-	115	1424	859

He pointed out that in spite of the difficulties, patients were rarely refused admission and that the admissions and discharges for 1950 and 1951 were as follows:-

	1950 European		1951 European		1950 Bantu.		1951. Bantu	
	M.	F.	M.	F.	M.	F.	M.	F.
Admisns.	945	592	972	623	1364	566	1432	642
Dischas.	892	549	913	597	1290	551	1338	575

From these figures it will also be evident that the number of Europeans admitted to hospital per 1000 of population, was much higher than the number of non-Europeans admitted. (The ratio of Europeans to Natives in South Africa is 1:4 at present.)

The physician superintendent of the Tower Hospital in two of his annual reports (16.17), gave the following figures:-

7/.....

	1952	1942
Accommodation	1301 Males 801 Females	1301 Males 801 Females
Number Resident 31/12/52.	1321 M. 983 F.	1228 M. 873 F.
Overcrowding	21 M. 183 F.	0 M. 72 F.
Admissions.	448 (51 re-ads.10 ads. on transfer.)	453 (32 re-ads.6 ads. on transfer.)
Discharges.	238 (Recovered) 193 (On leave)	220 (recovered). No. discharged on leave not given.
Deaths.	119	176

It will be apparent from a comparison of these figures that conditions had deteriorated rather than improved as regards overcrowding, during the last decade.

According to a report by the Commissioner (18) for mental hygiene, the number of persons under statutary care in mental hospitals in South Africa at the end of 1951 and the rates per 100,000 of population were as follows:-

Europeans		Non-Europeans.	
Males	Females	Males	Females
2676	2564	6463	3478
201.6 (M.F. 197.7)	193.8	109.6 (M.F. 83.1)	55.8

The total maintenance for mental hospitals and two institutions for mental defectives for 1951, was over £2,000,000 and the fees collected during the year were only £122,040. It is of some importance therefore, to establish the best and most economical methods of treatment and to discard procedures which do not yield results and which occupy staff uselessly.

The accommodation in mental hospitals on 31.12.51, was as follows:-

	Europeans	Non-Europeans
Males	2839	5625
Females	2383	2564
Totals	5222	8189

On 31.12.51 there were actually 10,546 non-Europeans patients resident in mental hospitals so that the overcrowding was over 2000.

The following table reflects the form of mental disorder of patients resident on 31/12/51, classified according to the official classification in use at the time. It will be of interest to refer to when making comparisons of the incidence of schizophrenia and affective psychosis in Europeans and in the Bantu and it is probably fairly representative for most years.

8/.....

Psychosis	Europeans		Africans.	
	M.	F.	M.	F.
Senile & Arterio Sclerotic	177	251	125	138
Syphilitic	136	50	135	35
Alcoholic	105	39	60	11
Infection and Exhaustion	2	9	38	13
Affective	146	370	135	218
Schizophrenic	1320	1221	3618	1701
Epileptic	212	211	174	175
Other Psychosis	96	72	27	112

On 31.12.51 therefore, the ratios of resident affective psychoses to resident shizophrenic psychoses were as follows:-

Europeans 516 : 2541 (16% : 84%)

Bantu 353 : 5319 (7% : 93%)

The same ratios for patients newly admitted during 1951 are somewhat different, as can be seen from the following table (18):-

Principal Psychoses of first admissions (Europeans and Natives only) during 1951.

Psychosis	Europeans.		Africans	
Senile & Arterio Sclerotic	97	82	36	26
Syphilitic	10	9	68	10
Alcoholic	46	11	101	15
Infection & Exhaustion	11	14	63	38
Affective	50	63	65	73
Schizophrenic	123	93	395	208
Epileptic	31	19	74	21
Other Psychosis.	52	18	5	1

The ratio of affective psychoses to schizophrenic psychoses were:-

European	113 : 216	(33% : 66%)
Bantu	138 : 603	(16% : 84%)

There seems therefore to be a marked difference in the percentage of European and African cases of affective psychosis admitted. It should be noted that the number of deaths from tuberculosis amongst native schizophrenics is much greater than amongst Europeans e.g., in 1951 it was 5 : 72 and the number of resident schizophrenics on 21.12.51 was, Europeans : 2541, Natives : 5319. The difference is obvious and the effect this might have had on the ratio of affective to schizophrenic psychoses as regards the African patients.

Working under conditions of overcrowding such as described, in buildings that were not designed as a mental hospital and with only four medical officers occupied in the wards, it will be seen that time consuming methods of treatment were difficult to apply. Moreover, the examination of Bantu patients occupied much time, as interpreters had generally to be used, and it should be freely admitted that the value of mental examination in the Bantu is probably not as high as in Europeans. In spite of the difficulties, it will be shown subsequently, that an attempt has been made to establish the value of electrical convulsion therapy in schizophrenic Bantu women. A rating scale and item sheet based on those used by Rees (2), were adopted, and the patients were divided into three groups:-

(1) Female schizophrenics admitted in 1943 before convulsion therapy was used at the Tower Hospital.

(2) Female schizophrenics admitted in 1953 and treated with thirty shocks.

(3) Same as above, treated with 15 shocks.

11/All the above

All the above patients were free from appreciable physical disease on admission, and had a negative blood Wasserman. The groups were also comparable for age, duration of psychosis, and the degree to which patients had been culturally affected by contact with Europeans. It should be mentioned, however, that the data as regards age and duration of psychosis were probably not very accurate, as reliable histories were very difficult to get, and in some cases were quite unobtainable. The terms Bantu, African, and Native, are used synonomously and do not include Asiatics or Cape Coloureds.

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II. THE HISTORY OF CONVULSION THERAPY.

CHEMICAL CONVULSANTS.

Camphor (1) is the drug which was first used to induce convulsions in psychoses; it is derived from a volatile oil obtained from a plant named the Cinnamorum Camphora, of Japan and China, where it has been used for medicinal purposes for centuries; it possessed the formula $C_{10} H_{16} O$.

Volatile oils (1) are obtained from various plants by distillation or more rarely by pressure, and are widely diffused through the vegetable kingdom; they are all strongly odorous and their composition is very variable, the commonest constituent being "Terpenes", which are hydrocarbons of the aromatic series and possess the general formula $(C_5 H_8)_n$.

The terpenes proper ($C_{10} H_{16}$) are combinations of a dihydrobenzene with propyl and methyl ($C_6 H_4 (H_2) C_3 H_7 C H_3$). Some twelve terpenes of this formula are known varying in their chemical structure and in their stereometrical form. Some volatile oils consist of these hydrocarbons only, but most of them contain in addition some oxidised aromatic substances; as instances of these may be cited camphor and thujon (from oil of absinthe).

In large quantities some of the volatile oils produce symptoms from a direct action on the central nervous system, which is first stimulated

14/and then depressed

and then depressed, e.g. oil of absinthe causes very marked excitement and convulsions. Camphor also may produce epileptiform or clonic convulsions, and when large quantities are taken, induce headaches, a feeling of warmth, confusion and excitement in man, with slowing of the pulse and flushing of the skin; this excitement may be shown in hilarity and delirium with hallucinations, in restlessness or sudden violent movements, which pass into epileptiform convulsions. The cerebral cortex is involved in the action in mammels, for the convulsions are less marked on it's removal; but in the lower animals the chief action seems to be executed on lower parts such as the medulla.

Solutions of camphor in oil used to be injected subcutaneously in cardiac cases as a stimulant but this causes pain and local swelling, and are of doubtful value.

Picrotoxin (1), which belongs to a group of convulsive poisons of whose chemistry little is known, is obtained from the Anamirta Paniculata; Camphor and thujon also resemble picrotoxin in their effects. In mammals the convulsions are less typical when the cerebral hemispheres are removed, but in frogs the spinal cord and medulla mainly seem to be effected. Tutin (1), the active principle of the Toot poison of New Sealand resembles picrotoxin in action and in poisoning it has often been observed that a confused mental state is present and that the memory is impaired after the attack and for some days later.

Kennedy (2) mentions that in 1781, William Oliver, of London,

15/reported a case

reported a case of Mania which improved, following convulsions occuring after the administration of large amounts of camphor given to induce rest. References to the beneficial effects of convulsions on mental disorders also appeared in the German and French literature of the 18th century.

As long ago as 1788, Weickhardt (3) recommended the giving of camphor to the point of producing vertigo and epileptic fits and other physicians followed his example since. The treatment was revived by v Meduna, who in 1933, recommended the intra muscular injection of 25% solution of camphor in oil to schizophrenics; he (7) was led by two factors to treat mental disorders by artificially induced convulsions; one was the experience that spontaneous convulsions occuring in catatonic schizophrenics were followed by a prompt remission of the psychosis; G. Muller (4) described two such cases in 1930. The other was the observation that an association between epilepsy and schizophrenia is extremely rare. Glans in 1931, investigated 6000 schizophrenic patients at the university clinic in Zurich and found a combination with epilepsy in only 8 cases; hence v Meduna conceived the idea of a biological antagonism existing between schizophrenia and epilepsy.

V Meduna (7) first used a 25% solution of camphor in oil intramuscularly but this was soon replaced by more efficient drugs which could be given intravenously or which would for other reasons produce a fit more rapidly than by the older methods; such drugs were cardiazol,

16/triazol (Azoman),

triazol (Azoman), picrotoxin and ammonium chloride. Only after preliminary experiments with animals had indicated that induced major convulsions did not cause major damage to the central nervous system, did v Meduna use the camphor in oil on schizophrenics with encouraging results, but it's use had drawbacks such as abscess formation and pain at the site of injection as well as the difficulty of predicting the exact onset of the fit, which occurred half to three hours later. Penta-methylene-tetrazol (cardiazol, metrazol), is a synthetic product with the same effect as camphor in addition to having low toxicity and has the advantage of being soluble in water and therefore fit for intravenous injection by which route it produces an almost immediate fit. After experimenting with a variety of camphor derivatives, v Meduna stabilized the use of cardiazol. His method consisted in inducing not more than twenty fits at varying intervals, by injecting four or five c.c. intravenously; sclerosis of veins sometimes occured. He claimed 91% remissions including "recoveries" and "improvements" in cases of less than one year's duration.

Triazol, analogous to cardiazol, was reported on by Mayer-Gross who claimed the advantage for it that the preliminary disagreeable sensations are absent and that the intensity of the fit varied with the dose; he thought it might be as effective as cardiazol.

v Meduna (7) who had, as stated, conceived of a biological antagonism between schizophrenia and epilepsy, had concluded that an epileptic fit would alter the biochemical and haematological substratum of the organism in such a way that a further development of

17/the schizophrenic

the schizophrenic process would be inhibited and a remission made possible. This working hypothesis did not find many followers, one of the reasons being that the biological substratum is not the same in induced as in idiopathic convulsions.

Steiner and Strauss [8], examining 6000 cases, stated that epileptic seizures are extremely rare in schizophrenia. Yet Henderson and Gillespie [6] observed that the view that epilepsy is rare in schizophrenia is now thought to be "dubious" and H. Palmer [9] in 1948, said about convulsion therapy introduced in 1934 by v Meduna, that "as with many other discoveries in medicine, not merely his hypothesis, but the field of action for the therapy as put forward by him, are no longer held to be valid".

Dax [10] also stated that the hypothesis on which v Meduna started convulsion therapy had been disproved and the treatment was found to be inferior to insulin coma [11] treatment, but in patients with a long history and in whom there were fixed delusions it might be felt that insulin was unlikely to produce a result to justify all the time spent on it, and a prolonged course of E.C.T. should be substituted.

Also, if there was much apathy and stupor, E.C.T. could be given prior to insulin. Multiple convulsions could be given during much psychomotor disturbance, he thought.

However, not long after the introduction of convulsion therapy, the discovery had been made that the method was even better in the affective psychoses and it merely remained for a better technique

of induction of fits to be discovered, for the treatment to become very firmly entrenched.

THE ELECTRICAL METHOD.

In the early part of this century, Leduc produced stupor and general anaesthesia with electrical current. Others, by using different kinds of current, changing the intensity, or placing the electrodes on different parts of the body, were able to produce either general anaesthesia, catatonic states, or convulsions. To Cerletti and Bini (13) (21) goes the credit for applying the electrical method of inducing convulsions to patients with mental disease, and the treatment has been in use in Italy since 1937 - only four years after v Meduna started to use Camphor. The electrical method was soon adopted in England and subsequently elsewhere.

According to Flemming (16) 'et al', the relative electrical accessibility of the brain waves was realised first when it became known that it's electrical activity could be detected from the surface of the intact scalp as the electroencephalogram; this fact caused much speculation as to whether the process might be reversed i.e. whether the human brain might be stimulated merely by placing electrodes on the head. It was computed that to obtain an adequate stimulus for the cortex the potential applied to the scalp had to be about 100 volts and since the resistance across the head averaged 500 ohms with electrodes 2 inches in diameter, the current which was expected to pass through the head was 200 milli amps. Consequently for a long time no one had the rashness to perform such an experiment.

Spiegel [22] had determined the convulsion threshold of animals by inserting electrodes in the conjunctival sacs where resistance was smaller and less variable than in other positions. Cerletti and Bini experimented with dogs following Spiegel's method and later applied their experiments to humans. In 1938 [13] [21] they reported that the passage of a strong alternating current through the head generally resulted not in a so called cortical movement or sensation, but in immediate unconsciousness followed by a fit. They patiently worked out a technique whereby this phenomenon could be used to replace cardiazol in convulsion therapy.

When compared with electroencephalograms taken during metrazol convulsions (both in animals and in man) the records of the electrical shock bore a close resemblance. The brain once induced to discharge it's energy explosively seems to act in the same way regardless of how the explosion is set off.

By 1940 the comparative efficacy of cardiazol [15] and E.C.T., had not yet been determined but the latter was recognized as being far pleasanter and there appeared to be retrograde amnesia for it, covering even the time of applying the electrodes. At that period it was customary to use either a high voltage for a brief period or a low one for a longer time - approximately 100 volts for .2 to .1 of a second was thought necessary [15].

During 1939, Flemming 'et al' [16], reported that Cerletti and Bini's method had been tested by them on 5 schizophrenics; 75 shocks were given with 50 major and 25 minor fits resulting, and without any untoward effects. They confirmed the claims of the Italian workers

20/and found

and found the method simple and safe; it roused no fear or hostility in the patients, they reported. They made no attempt to assess the therapeutic value of the treatment.

In the same year Kalinowsky (18) also reported on the use of E.C.T. in schizophrenia. He descbibed some of his experiences at Foerster's clinic in Breslau, where observations had suggested that the frontal area (6 a B of Vogt-Brodmann) was the focus from which the fit started in the greatest number of genuine cases of Epilepsy and it was concluded that this seemed to be the area with the lowest convulsion threshold. Shocks were generally given twice weekly and in the Rome Clinic he stated up to 30 fits were given, not counting 'petit mal'. Patients who did not improve after the first 5 to 10 fits seldom did so later, they found. He cited Sogliani (20) who produced several fits in one treatment within ten to twenty minutes without any harm to the patient. According to Kalinowsky the fits had a longer tonic and shorter clonic phase than in Idiopathic Epilepsy, and opinions about the therapeutic value of shock treatment in general were not yet definite. He stated that they had no reliable statistics of spontaneous remissions from the period before shock treatment with which to make comparisons.

Also in 1939, Shepley and Mc Gregor (17) reported that they had found that the average duration of the fit induced with E.C.T. was 50 seconds and that the voltage used by them varied from 90 to 145 volts with a time setting of .1 to .2 seconds. Cerletti and Bini (19) found that potentials of the order of 100 volts were required to produce the

necessary current and from their animal experiments they established that with these conditions a shock lasting about 1/10th of a second produced no visible changes in the brain substance.

Whereas the apparent resistance range in people was from about 400 to 1,600 ohms, the true range during passage of the stimulating current was found by Grey Walter [19] to be about 400 to 800 ohms and it was never found needful to raise the stimulating voltage above 150 volts, which fitted in with the observation that the true resistance range was only about 400 to 800 ohms. The finding that if a first stimulus failed to evoke a fit, a second one of the same voltage, encountered a lower resistance, would produce a larger current and would usually succeed where the first failed, was therefore not surprising.

As regards the stimulus itself, it was found [19] that there were three variables which had to be considered; frequency, wave form and duration. The current used by Cerletti and Bini for reasons of convenience was a 50 cycle alternating current from the mains; the wave form was sinusoidal. The alternating character of the stimulus and it's short duration distinguished it from the electrocutory shocks with which it had been erroneously compared.

The total duration of the fit was found by Grey Walter [19] to be remarkably constant at about 45 seconds; the tonic stage lasted about 10 seconds. E.E.G. tracings were precisely similar to those which had been obtained during convulsions due to other causes. From the typical character of the fit itself and from it's occasionally

22/prolonged latency

prolonged latency it was thought that the effect of the brief but intense and widespread stimulus was to set up in the cortex, or possibly at a lower level, some process similar to that observed in the resting E.E.G. of idiopathic epileptics.

Fleming (19) considered that phases of the E.C.T. fit which appeared to be identical with those of a true epileptic fit, were of far less intensity than similar discharges evoked by cardiazol, where the convulsion was of much greater intensity than in idiopathic epilepsy. He found that just as with cardiazol, they saw marvellous recoveries which the clinician could only attribute to the treatment itself, but he thought that the time had not yet come to assess the value statistically.

MUSCLE RELAXANTS. (25)

These were sought only after it had become recognized that fractures sometimes resulted from the treatment. Apart from such short lived measures as spinal anaesthesia and insulin coma, curare was the first agent used; it had been discovered in 1595 by Sir Walter Raleigh when he contacted the Indians of the Orinoco plain. In 1824 the alkaloid curarin was extracted by Boussingault and Roulin and in 1864 Preyer isolated it in crystaline form; Claude Bernard in 1854 first described it's physiological action. In 1867 it's clinical application was attempted in the treatment of convulsive states.

A great drawback to experimental and clinical investigation of

23/the drug was

the drug was inaccurate information from native curare makers, and the contamination of preparations by other substances.

In 1934 R.C.Gill, after exhaustive studies and prolonged contacts with South American Indians, was able to learn the actual botanical ingredients, and the secrets of manufacture; in 1938 he brought back large supplies of authentic and field tested curare for scientific research. After much experimentation the technique of standardization of the drug was simplified by A.R. McIntyre of Nebraska university and by Squibb's Laboratories.

The principle of curarization, or blocking the neuro-muscular junction to prevent excessive nerve impulses from reaching the muscles, seemed theoretically feasible to Bennett. Through the courtesy of R.C.Gill and of Messrs. E.R. Squibb & Sons, together with the assistance of Dr. A.R. McIntyre, professor of pharmacology at the University of Nebraska, Bennett was able to carry out extensive studies with the drug, first of all at the Lincoln state mental hospital. Bennett demonstrated that E.E.G. records were unaltered by curare and that in metrazol convulsive therapy using curare, the increased frequency and high amplitude of the waves during the metrazol convulsion was also unaffected.

A synthetic form of curare was the next step, as the problems of collecting and preparing curare, entailed great difficulty. Quinine had been known for some time to have a curariform action as shown by its relaxing effect upon myotonia congenita and dystonia musculorum deformans; it also aggravates myasthenia gravis symptoms; the commer-

24/cially available

cially available quinine salts however, had too weak a curarelike action to be useful in convulsive therapy. King had shown that in curare there are certain tertiary ammonium bases, and he prepared a synthetic compound called quinine-methochloride which Bennett tried out through the courtesy of Squibb Laboratories; it proved effective, but they were not certain about its margin of safety, and further experimentation was necessary.

Myanesin was the first synthetic substitute for curare but it acted at a spinal cord level only, its action was not reversed by neostigmine, and its side effects of haemoglobinuria and thrombophlebitis were too serious. 'Flaxedil' was introduced in 1949, its effect was very similar to curare and was reversed by neostigmine; it was also less expensive and did not cause bleeding, moreover it could be given intravenously with thiopentone. Decamethonium Iodide was also introduced in 1949 but its action was irregular. In 1953 it was reported (25) that the drug Scoline (Allen & Hanbury), also known as suxamethonium Chloride, was an effective, short action muscle relaxant; it produced a specific blocking action at the neuromuscular junction and in therapeutic amounts seemed to have little effect on the central nervous system, or on the autonomic nervous system; cholinesterases were thought to account for its rapid breakdown. Monro and his fellow workers found that giving scoline and thiopentone in the same syringe worked quite well and that often the only manifestation of a fit was periorbicular twitching; apparatus for administering oxygen was kept ready as the drug had no

25/antidote.

antidote. The technique of giving E.C.T. had therefore advanced since the time when it was first started, and had emerged from its crude form, into a procedure which was quiet and unspectacular.

OUT PATIENT THERAPY.

The introduction of E.C.T. into out patient departments and the construction of portable apparatus was reported in 1940 by Strauss & McPhail (26); they treated early cases thought to be unsuitable for mental hospitals, and never found it necessary to exceed 80 - 100 volts at 1/10 second; they reported 18 cases so treated, 1 of whom suffered from multiple tics which improved after the 9th E.C.T.

E.C.T. IN DEPRESSIONS.

In 1941 Hemphill & Grey Walter (27) reported results in the treatment of 75 women, 56 of whom were schizophrenics; the rest were cases of manic depressive psychosis and of involutional melancholia; they thought that the affective psychoses responded best. Tredgold (28) in 1941 also reported the use of convulsive therapy in depressive states in soldiers and of two cases treated, both recovered. Grinker and McLean (30) in 1940 reported the course of a depression treated by metrazol and psychotherapy and in 1943 psychogological observations in affective psychoses treated with combined convulsive shock and psychotherapy, were reported by Grinker and Levy (31). Doubt was expressed by Mayer-Gross and Frank (32) as to the value or even possibility of analytical psychotherapy, in depressions treated with convulsive shock; Bennett (33) thought that the recovery of affective psychoses treated

with E.C.T. was physiological and not psychological.

E.C.T. IN PSYCHONEUROSES:

In 1944 Kalinowsky (34) 'et al' described the results of treatment of 65 cases of psychoneuroses of all types, by convulsion therapy and psychotherapy, and came to the conclusion that E.C.T. was justifiable in psychoneurotic (reactive) depression, and in some obsessional states, but not in anxiety neurosis and hysteria, but opinions vary as to the place of E.C.T. in the psychoneuroses; D.M.Hamilton (36) reported its successful use in such cases, following psychotherapy, for about two months; he found that cases with anxiety tension and depression responded quite well but 'mixed' psychoneuroses did less well and only 50% of obsessive compulsive states responded; he did not however consider E.C.T. as a substitute for psychotherapy and analysis. Milligan (38) treated 100 selected psychoneurotics with intensive E.C.T. beginning with 4 treatments the first day, and reported striking results in cases which did not respond to other methods except leucotomy; he was severely criticized by many, but Prestwich (39) confirmed his claims. Kaufman (37) reported that a committee on therapy considered E.C.T. contraindicated in all except the most severe and resistant cases of psychoneurosis.

E.C.T. IN EPILEPSY ETC.

Caplan (29) in 1945 reported, the use of E.C.T. in 16 epileptics and his aim was to replace the spontaneous fits which might take place at awkward times, with induced fits at convenient times; E.C.T. has also been advocated in confusional states due to epilepsy or in psycho-

27/motor epilepsy.

motor epilepsy. More recently E.C.T. was reported as a valuable aid in the treatment of confusional states of unknown origin or occuring in G.P.I. and other organic disorders. E.C.T. has also been successfully used in 34 cases of drug addiction to relieve withdrawal symptons and it has relieved a premenstrual psychosis.

ELECTRONARCOSIS.

A further technical developement came in the form of electronarcosis, the real impetus to which was given by Tietz (40. 41. 42.) in 1945. The treatment consists of an electrically induced major fit, followed by an electrically maintained unconscious state; with the glissando technique, the gradual increase of current during the first second diminishes the violence of the initial contraction; after the first second the current is manually controlled to obtain the desired sequence of events - a steady tonic contraction, followed by subdued clonic contractions and return of respiration followed by the narcotic state; at about seven minutes the current is discontinued, ending the treatment; the procedure is repeated three times per week until the patient has had 12 to 15 treatments, except in depressions where fewer may be required. Contradictory reports have been written on the value of electronarcosis in schizophrenia, and Rees (43), after investigation, and with the use of statistical techniques, came to the conclusion that similar to E.C.T., it was far less effective in schizophrenia than deep insulin coma treatment. Recently a method (44) termed electric coma treatment was described.

HISTORY OF E.C.T. IN SOUTH AFRICA.

E.C.T. Was probably first used in South Africa during 1940, and

28/ in S.A.

in S.A. military hospitals within the Union it was only started in 1942; at the Tower Hospital, however, it was only introduced during 1945 (5) and since that time many Bantu patients have been treated with it but no systematic attempt has yet been made to assess the results carefully, nor is there any record of insulin having been given a systematic trial, in Bantu schizophrenics. A proper evaluation of these methods of treatment in the Bantu therefore seems needed.

In the fourth section a brief survey of the more reliable results reported in schizophrenia with convulsion therapy and insulin, in countries with European populations, will be undertaken. It may then be possible to attempt some comparisons with the results obtained with E.C.T. in two groups of Bantu schizophrenics treated at the Tower Hospital during 1953, and one group of similar patients admitted during 1943 and who had no specific treatment.

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EVALUATION OF A COMMON METHOD OF CONVULSION THERAPY

IN BANTU SCHIZOPHRENICS.

III. THE BACKGROUND OF AFRICAN PSYCHIATRY.

It must be explained here, in connection with the African cases of schizophrenia treated with E.C.T. and described in a subsequent section, that it will not be possible to supply authentic details of events in their lives which may have led up to their psychoses; this is due to the fact that practically all patients came from a great distance and contact with relatives was difficult, impossible or unsatisfactory; histories occasionally obtained from patients themselves were thought to be unreliable and unsuitable. In order to compensate somewhat for such a defect in the material, a picture will be presented of Bantu customs and ways of life, and of some illnesses common or uncommon amongst them. A review of what we know at present of Bantu intelligence, temperament, and brain structure, will further assist in the judgement of the case records and of the effects of E.C.T. on these patients.

The conflicts which may arise from contact of a people such as the Bantu, with European rule and influence, as well as the hazards that industrialization and city life may hold for many of the numerous natives who land up in the large towns and cities, should be kept in mind when considering the case material which is presented later in a very stereotyped manner.

33/.....

BANTU TRIBAL CUSTOMS AND BELIEFS.

Poverty, ignorance and disease from a vicious circle in most African communities and many of them consult and are treated by, witchdoctors. Any internal malady is usually ascribed to witchcraft and relief is generally sought in having the evil spirit exercised, by a witchdoctor.

Gelfand (6) considers that the African lives in considerable fear and dread of the unknown, and that this together with a boundless credulity, are responsible for many of their mental disorders. According to Carothers (18), phantastic thinking plays a large part in Africans, and they make use of images and feelings, rather than of words; they are very subject to the emotion of the moment and to external events; observation is often superficial and conclusions are drawn in a most uncritical way; he also stresses their great fear of the unknown and consciousness of ignorance, and he points out that Africans, in their natural state, have developed a large, complicated, and rigid social organization, which demands observance of meticulous rules and restraints in regard to behaviour in certain concrete situations including their sex life. Under European rule and influence, many of these customs are difficult or impossible to observe and mental conflicts arise.

In the Eastern part of the Cape Province, source of patients to the Tower Hospital, the natives have now been in constant contact with Europeans for one hundred years or more, yet they retain many of their original customs in one form or another (1). Many men still have two wives although these live in separate huts. A man may also have several

34/mistresses, but

mistresses, but this, wives are not supposed to know. Women who are sterile are greatly despised and are badly treated. When a baby is born it is a custom for the father to take the infant in his arms, and holding it above the fire smouldering in the hut, to chant, "deny what you know, deny what you see, deny what you hear" - hence their favourite reply when questioned by Europeans, is 'Andiyasi' (I don't know) - an indication of suspicion or lack of trust and which, if met in mental patients, is not necessarily symptomatic of the psychosis.

Boys are circumcised ceremonially, during puberty, and even half educated ones working as waiters in hotels, have at this time of their lives to return to life in the bush for a period, with red clay rubbed all over their faces. "Lobola" or exchanging of cattle for a wife, is a firm custom, except among town natives, who use money; where the husband is unable to settle the debt at once, the wife has periodically to return to her father.

Native witch doctors are common throughout the eastern Cape and they are generally shrewd and cunning; murders are sometimes carried out at their behest. There are also native herb doctors and women are permitted to practice as such. On the whole the Xosas are keen to have their children educated; if converted, they are often staunch Christians and will carry out the laws of their Church to their utmost ability. Of the Christian Churches, the Church of England and the Methodist Church have probably the most influence amongst the natives of the eastern Cape and were instrumental in the establishment of

several important educational centres such as the schools at Healdtown and Lovedale and the University College of Fort Hare - all within a fifteen mile radius of Fort Beaufort.

Carothers (17) concluded that the tribal system of the Africans, though completely obstructive to any type of change or progress, must have been well suited to their mental needs and rarely permitted of situations that might cause mental breakdown, as it relieved them of the necessity to think in the abstract; according to him an attitude of personal responsibility is quite foreign to the primitive African, hence the absence of delusions of guilt in their psychoses. But the pattern of tribal life in South Africa has been seriously disrupted and many Africans undoubtedly have a drab and sordid existence in the towns, without religion, morality or tribal custom forming a part of their lives. Many drift around, often without being adequately fed or clothed and under such conditions, middle aged, unattached women from the larger towns, seem to suffer more, as they formed the biggest percentage of native females who entered the Tower Hospital with signs of under nutrition during 1953 (21).

MENTAL AND OTHER DISEASES IN THE AFRICANS.

No one, thus far, has produced conclusive evidence of differences between the symptoms of African and European schizophrenics. Glynn (4) has expressed the view that in cultured people, primitive mental mechanisms appear and supersede rational thinking when schizophrenia develops, and she has attempted to draw a parallel between schizophrenic

modes of thought and delusions, and the "primitive" mind. In this connection an analogy between the schizophrenia of childhood and that of Africans is of interest, and Potter (5) has pointed out that in the schizophrenia of children, delusions are relatively simple and the terms used are very naive because thinking is concrete rather than abstract and most symptoms are in the field of behaviour and there is a consistent lack of emotional rapport; occasionally there were traces of projected narcissism or of homoerotism.

Shelly and Watson (7), working in Nyassaland, and Gordon (10) and Carothers (17) (18) of East Africa, have produced evidence which, although inconclusive, is thought by them to suggest that contact with Europeans and detribalization, have increased the incidence of mental disorder in the Africans. Gelfand (6) of Rhodesia, describes both anxiety states and hysteria as forms of psychoneurosis occuring in Africans, but his descriptions are brief and superficial and he does not differentiate between these conditions and psychotic states. He states that AMOK and LATAH are not definitely known to occur in Africans. Carothers (17) reported an admission rate of 3.9% for psychoneurosis at Mathari Hospital, Nairobi, and of 24 cases, 3 had hysteria and 21 "Frenzied anxiety", which according to him, starts with anxiety due to some cause real to the African but not necessarily real to the European, and which is soon replaced by frenzy - great excitement, noisiness, incoherence, faulty habits, aggressive and dangerously violent behaviour, which is ill directed; the whole condition is completely recovered from, within a few hours or days but is sometimes followed by deaf mutism or aphasia etc. Memory for it is always denied. At Pretoria Mental Hospital (15),

37/ during

during 1952, only one case of 258 male natives admitted, was diagnosed as "psychoneurosis". Psychiatric disabilities in the Native Military Corps of the U.D.F.M.E.F. were reported by Cox [8], but as her series refer to 473 South African "Non European" patients, it is probable that Cape Coloureds were included, so that her figures of the incidence of various disorders are of doubtful value as an indication of the proneness of the Bantu to these; however, she reported,

32% schizophrenic and paranoid states.

4.8% manic depressive psychosis.

17% hysteria.

14% anxiety states.

She did not report any distinct differences in symptomatology between Africans and Europeans.

At Pretoria Mental Hospital [15] during 1952, only 8 (3%) of 258 male natives admitted, were diagnosed as "affective psychosis" (5 mania, 3 depression, 0 involutional), as compared with 105 (over 50%) schizophrenics. Differences in symptomatology between European and African schizophrenics are not mentioned, but the cases of depression were atypical and there was said to be a striking absence of delusions of unworthiness and of feelings of guilt.

Carothers [17], working at Mathari Hospital, Nairobi, reported on 736 cases admitted; of these, 28.6% were schizophrenics, 3.8% manic depressives and 1.3% involutional melancholia. He does not mention differences between European and African schizophrenics but found all the cases of involutional melancholia to be atypical and free from

38/ delusions of

delusions of unworthiness. No cases of depression (M.D. psychosis) were encountered - the 8% of cases seen were all manics.

For all Mental Hospitals in South Africa [20], during 1951, the incidence of manic depressive psychosis and of schizophrenia, has already been mentioned, but may be repeated here:-

Resident cases at 31.12.51.

Europeans	516	:	2541	(16%	:	84%)
Bantu	353	:	5319	(7%	:	93%)

First admissions during 1951.

Europeans	113	:	216	(33%	:	66%)
Bantu	138	:	603	(16%	:	84%)

Carothers [17] reported the cases admitted over a five year period to Mathari; the total number was 558, and of these 174 were schizophrenics and 11 paranoiacs - total 185. Manic Depressive psychosis totalled 23 (all manics) and 8 cases of involutional melancholia (all somewhat atypical and free from ideas of guilt). He regarded the low percentage of manic depressive psychosis as probably due to the absence of depressions and this in turn as due to environmental factors - a life attitude characterised by the absence of a sense of personal responsibility in most Africans at that time; in this connection he points out that the incidence of manic depressive psychosis in American Negroes was found not to be lower than that in white Americans. He thinks a possible explanation of the absence of depression in the African is due to poor development of the repressing and inhibiting functions of his mind and hence also,

39/mania in the

mania is the common feature of manic depressive psychosis in Africans when this does occur. His ratio of schizophrenic to affective psychoses work out as 185 : 31 or 85.7% : 14.3% and this coincides quite closely with the South African figures for first admissions. American "negroes" apart, therefore, it would seem as if the affective psychoses are rarer in Africans than in Europeans and Gordon (10) has also reported figures to suggest this.

Affective psychoses appear therefore, to be rarer in the Bantu than in Europeans (17) (23), and features of mania or of depression in the schizophrenia of Africans may hence be expected to be less frequent than in Europeans; as manic or depressive features in schizophrenia have been thought to indicate a better prognosis (25), this may be of some importance. The incidence of manic depressive psychosis has been described as being relatively higher in those occupying the better professions or trades (23) and it is recognized now that the prognosis of schizophrenia is better in those with a history of having been successful. Considering therefore, the aspect of affective features in schizophrenia, the prognosis of schizophrenia in Africans may be, it seems, be expected to be poorer than in Europeans.

A psychosis precipitated by environmental stresses and strains is generally held to have a better prognosis; yet even if it may be assumed that the Bantu at present are under the special stress of becoming detribalized and of being integrated into the life and industry of the Europeans, their psychoses are unlikely, it seems, to have a better prognosis on this account; this may be so because an organization for

the rehabilitation of recovered psychotics into a way oflife which must often be in a state of turmoil, has hitherto been very inadequate. Moreover, organized attempts at psychotherapy were not made except in the sense of ordinary hospital care and kindness and weekly or monthly interviews by the doctor; this is mentioned because psychotherapy has been thought to enhance the results of physical methods of treatment in Europeans. Fear (24), thought by some to be a therapeutic factor during E.C.T., was hardly ever observed in the African schizophrenics treated by this method. On the whole, therefore, there seems little reason to expect that present day Bantu schizophrenics will have a better prognosis than Europeans.

Certain disorders, now termed psychosomatic, are said to be rare in uncivilized Africans, yet common in Europeans (3), Good examples of these are peptic ulcers, thyrotoxicosis and rheumatoid arthritis; this suggests that environmental rather than racial (constitutional) factors are mainly concerned in their etiology, e.g. dietetic and emotional factors. It has also been alleged that hysteria and not anxiety state, was the neurosis of African soldiers during the last war; this, if correct, suggests a difference in temperament, but the effect of education and intelligence may not be discounted.

The serum protein of Africans was investigated (22) and found to differ from that of Europeans - more so in the case of Africans residing in the tropics than those living in Cape Town, yet significantly in all; whereas this may be of genetic origin, the possibility of environmental

41/factors have not

factors have not been excluded by the investigators. The incidence of a raised E.S.R. was also found to be higher in African psychotics than in European mental patients (12).

Undernutrition has for many years been recognized as common amongst South African natives, but Biesheuvel (16) in 1945, pointed out that research work up to that time had been too unsystematic to provide a complete picture of the situation; he thought that it was certain that most go short and many actually starve during certain months in the reserves, when great listlessness has been reported, for example, amongst the Swazis. He states that as regards farm labourers in the Ciskei (border area of the eastern Cape), Hunter had concluded that the farm native had lost economically by contact with the Europeans; they worked much harder than under tribal conditions and had no more nourishing or varied a diet than the rawest Pondo of the reserves. Biesheuvel wrote in 1943 that a detailed study had revealed that the nutritional condition of urban natives was not much better than that of rural Africans.

It is well known that the incidence of diseases such as syphilis and parasitic infestations are common amongst the Africans. Biesheuvel (16), a psychologist, is prepared to assume that under-nutrition and disease have had an appreciable effect on the intelligence and temperament of the native but he points out nevertheless, that Malherbe in 1932, was unable to demonstrate a difference in I.Q. between Malarious and non malarious children.

The incidence of under-nutrition amongst native females admitted to the Tower Hospital (21) during the period 1.8.52 - 1.8.53 have already been referred to; it was found that 52 of 142 admissions had signs of under-nutrition, yet few of these were severely under-nourished and very often the psychosis seemed secondary to the under-nutrition. It was also calculated that approximately 1/10,000 of the natives in the eastern Cape were admitted per year to mental hospital with signs of under-nutrition.

AFRICAN BRAIN STRUCTURE.

The weight and cell content of the African brain was investigated by F.W. Vint (13) more than 20 years ago and he drew some comparisons between his results and those of workers like Bolton and von Economo who had studied European brains. He concluded that the stage of cerebral development reached by the avergae native was that of the average boy of 7 or 8 years of age, but pointed out that it was impossible to say how many of the immature nerve cells present in the adult African cerebral cortex would mature under conditions of life and education different from those which normally obtained at that time. His work can be criticised because he measured only the prefrontal cortex, but this he seems not to have considered a defect because Lashly had claimed to have demonstrated on animals that it was the quantity and not the location of cortex removed, which affected general intelligence.

AFRICAN INTELLIGENCE.

A low intelligence may be thought to be correlated with a poor

personality structure and hence a poor prognosis in the event of the development of psychosis.

A comparison of the abilities of races with special reference to East Africa, has been carried out by Oliver (14), who also reviewed the work of K.S. Lashley and F.W. Vint (13). His own work on the results of intelligence testing of African and European boys in East Africa, indicated that the average African score in the intelligence test was about 85 per cent of the Average European score, and that about 14 per cent of the Africans reached or exceeded the median European score. He compared his findings with those of American workers who found that the average American negro score in intelligence tests is about 80 per cent of the average white American score and that 20 per cent of the American negroes reach or exceed the median white American score. He thought that Vint's data seemed to show that the Africans had on the avergae about 84 per cent of the educable capacity of the average European and that about 6 per cent of them exceed the avergge European in educable capacity.

Oliver concluded that the data were still inadequate to establish definitely how the abilities of Africans compared with Europeans but that it did seem to suggest that "the average cerebral and mental development of natives of East Africa was in the neighbourhood of 85 per cent of that of Europeans and that a certain percentage of East African natives equal or excel the average European in cerebral and mental development".

Biesheuvel (16) believed that the study of the difference in

intelligence between Africans and Europeans in the Union of South Africa, remained scientifically inpracticable, because there was no satisfactory test and the environment could not be controlled. He had little doubt that the African home environment depressed the average African I.Q. by at least twenty points and moreover believed that defective nutrition, anti and post natal, must have a considerable effect in lowering their intelligence. His criticism of the tests used by Fick, in assessing African intelligence, does not appear to be free from bias as for example his objections to the Knox cube test.

More recently Marais (19) reviewed the problem of African intelligence and concluded that science had not yet succeeded in demonstrating appreciable differences in the mental powers of Africans and Europeans; such differences as could be pointed to at present, were thought by him to be due to social and cultural factors. He criticised all the work done so far, in attempting to establish what the intelligence of Africans is, on the grounds that environmental factors had not been properly controlled or taken into account; Oliver's work was included in his review, and he supported his conclusions by referring to the report issued under the guidance of Unesco's Educational, Scientific and Cultural Organization.

AFRICAN TEMPERAMENT.

According to Marais (19), Unesco's experts concluded that there is no definite evidence that there exists inborn differences of temperament between human groups.

Biesheuvel [16], in 1943, pointed out that no systematic studies had yet been made of the temperament of Africans, but that there were many aspects of their behaviour which suggested that Africans were primary rather than secondary functioning according to Heyman's theory of temperament; hence their scores at intelligence tests should not be adversely affected by mental events in the unconscious, as with Europeans. As regards the "activity factor", he referred to data which suggested that Africans were indolent and less active than Europeans but believed that it was impossible to say if this tendency was "real or merely apparent", and that further investigation was necessary.

CONCLUSION.

On the whole it seems as if it may be surmised that the results of E.C.T. are likely to be poorer in average Bantu than in average European schizophrenics, at least at present; whether this will be confirmed by the results of the investigation to be described, remains to be seen.

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EVALUATION OF A COMMON METHOD OF CONVULSION THERAPY IN BANTU SCHIZOPHRENICS.

IV. PROGNOSIS OF SCHIZOPHRENIA IN EUROPEANS & AFRICANS.

1) Methods of treatment.

Treatment may be expected to affect the prognosis of some diseases. In schizophrenia the best method of treatment remains a subject of controversy after nearly twenty years of insulin and convulsion therapies and even the prognosis without treatment is not yet fully agreed upon. Moreover, the disease has not yet been exhaustively studied in Non-European people and it is difficult to find publications on the use of E.C.T. or of insulin, in Africans.

As regards E.C.T., there has been some discussion as to whether intensive treatment is better than one treatment given two or three times per week. There has also been some difference of opinion as to whether set courses are required or not, and as to the number of fits needed. Finally there has recently been much criticism (26) of the now widely accepted view that insulin is a much better method of treatment than any form of E.C.T.

Von Meduna (22) apparently did not use set courses but spoke of two or three, or up to 30 fits. having been necessary in schizophrenia. Sargent and Slater also expressed themselves against set courses; H. Palmer (11) (1948), considered 20 to 30 fits necessary in schizophrenia.

Russel and Page [12] (1948) recommended intensive E.C.T. - 100 to 150 volts for 1 second, given daily until improvement set in. In 1953 the same authors [25] reported that they had increased the number of stimuli given. They also did not advise a set course of treatment and in some cases used modified insulin treatment as well. They claimed better results with this method than with insulin coma treatment which they had used for 18 years.

Bourne [26] (1953), has strongly criticised the claims of those who recommended insulin coma as the treatment of choice for schizophrenia. He argued that many of the patients regarded as insulin treated cases, actually had a few convulsions induced as well, and that many convulsion-treated cases, used to compare with insulin-treated cases, did not have an adequate number of convulsions. He also thought that some of the groups used were not comparable. His views as well as his work have in turn been criticised and his objections partly answered by authorities such as Sargant, Rees and Mayer-Gross [27].

2) <u>The assessment of prognosis</u>.

No studies of prognosis in African schizophrenics have thus far been published. Shepkey and McGregor [20] in 1937, describing their experiences with cardiazol and E.C.T., expressed the view that the term Schizophrenia was unsatisfactory and that it appeared very important to differentiate between the "true endogenous malignant schizophrenia and the relatively benign exogenous type". According to them, the first

50/type is marked

type is marked by signs of cardio-vascular hypoplasia and hypofunction, general asthenia, poorness of sex differentation - the asthenico-athletic or dysplastic types of Kretschmer, They quoted Lewis as having described the circulatory and endocrine features of this group; he found persistently cold blue extremities even in warm weather, and small viscera e.g. heart and aorta; mentally there was emotional poverty and apathy. Paranoid cases with fixed delusions they also regarded as having a poor prognosis. Cases with stupor, schizoid depression or catatonic excitement they thought had a good prognosis.

Gold and Chiarello (18) in 1944 reported a study of 121 cases to determine the prognostic value of clinical findings in cases treated with E.C.T. According to them the following features at the onset of illness are indications of good prognosis:- a symptom complex of muteness, perplexity and confusion, the presence of the symptom of a fear of an immediate personal threat or danger, as well as depression and suicidal intent, age groups 51 - 60 years or 11 - 20 years, a background of familial stability, a duration of illness of less than one year, still better if the duration is less than three months; a sudden onset, an exogenous precipitating factor, a good school and work record, a satisfactory marital and sexual relationship, a friendly individual. Portending a poor prognosis, they found, were:- gradual onset, duration of illness more than one year, previous shock therapy, gradual loss of interest, negativism, restlessness, ideas of reference, grandiose delusions and certain personality traits.

Gillies [7], in 1950, reviewed the subject of prognosis in schizophrenia and concluded that roughly 25% of cases ended in severe deterioration, 25% ended in marked personality defect, and 25% ended in mild personality defect and 25% recovered. He quoted Bleuler's study of 500 patients who were followed up for 15 years and according to whom the cases which recovered, all came from those with a periodic form of psychosis; unfortunately Bleuler did not differentiate clearly between manic depressive psychosis and schizophrenia, so that the significance of his figures is uncertain for those who are attempting to assess the value of the modern physical treatments, according to Gillies.

Tangermann, (1942), quoted by Gillies [7], reported a follow-up study of 418 cases of schizophrenia to determine the spontaneous remission rate and found that the total percentage of social remission after five years was 18.2; others according to Gillies, reported 32.9 and 32.3 per cent social remissions in 1939 and 1941 respectively. Hutter and Tangermann both agreed that catatonics have the best prognosis and were surpassed only by cases with an admixture of manic-depressive features and the latter also found that the prospects of a lasting remission were greatest during the first two years of the illness and that after five years, prospects of recovery were negligible; Tangermann, quoted by Gillies [7], found a remission rate of 52.5% in those whose illness had lasted less than one year, and 47.1% in those with a duration of less and 2 years.

Kant, according to Gillies [7], regarded as benign clinical pictures

those in which clouding of consciousness prevailed, cases with manic or depressive features and cases with alternating stupor and excitement. Thought disorder was a feature common to all chronic cases of schizophrenia and therefore of poor prognosis.

Rees [29] (1949), found that recovery with either insulin, E.C.T., or electronareosis, was associated with sudden onset, illness duration under one year, stable previous personality, and broad interests. Failure to improve was associated, in all three groups, with gradual onset and unstable personality; simple and hebephrenic types showed a poor response to E.C.T. and those with high introversion rating did not respond to insulin.

The Assessment of results.

James, Freudenberg and Cannon [14] in 1938, urged the adoption of some standard method of classifying results, and they themselves used the following method for patients who had been treated with insulin shock.

1) Complete remission - complete disappearance of schizophrenic symptoms, with normal affective relationship, full insight and ability to return to the normal sphere of work.
2) Incomplete remission - able to work but with persistence of any one of the psychic symptoms mentioned under 1.
3) Partial remission - able to work but symptoms remain without interfering with their daily life.
4) Unimproved and requiring hospital care.

They classified their results according to Muller's [30] catagories to enable them to compare their figures with published Swiss results.

Fox [21], in 1940, classified results from the social standpoint:-

1) Complete return to normality and ordinary social intercourse outside a mental hospital.

2) A marked improvement in conduct, sufficient to permit entry into the higher spheres of mental hospital life.

3) No change - constant attention necessary.

The evaluation of results in schizophrenia is beset with difficulties and Cook [5] pointed out in 1944, that the main difficulties are diagnosis and criteria for standard of remission; according to him it is generally agreed that "recovery" or "full remission" should mean freedom from all symptoms, good insight and an ability to take up former employment or mode of occupation as well as place in society. Grades of remission had too many shades of meaning to be of much statistical value.

Alexander [10] in 1945, stressed the time factor in judging results and investigated the effect of this in 100 cases. He arbitrarily selected a period of 30 days after the last treatment as the upper limit of time following treatment, during which remissions should be attributed to its specific influence. For the 36 schizophrenics in his group, he found that "Social recovery" was 56% one month after treatment as compared with 83% at "some time" after treatment.

J. Zubin [24], (1953) reviewed the "evaluation of therapeutic outcome in mental disorders" and according to him, the minimum essentials for comparability of two groups are: age of onset, duration of disease, sex and diagnosis. He thought that rating scales before and after treatment to determine the degree of improvement, might be the ideal but that they

54/ only concerned

only concerned certain aspects of behaviour in an incomplete manner and needed further perfection.

No work has yet been published on the assessment of results in African schizophrenics. A rating scale and item sheet devised by Rees (29) (33) were used in the investigation of African schizophrenics to be described in a later section of this work; Rees (29) outlined the difficulties of scientific assessment of any method of treatment in psychiatry.

4. Results in Europeans.

Nearly twenty years ago von Meduna (22), the originator of convulsion therapy, reported 54 "remissions", and 56 "non remissions" in a group of 110 schizophrenics of varied duration, and concluded that as the "remissions" in those of less than 6 months duration amounted to 33 out of 36, the chances of remission in patients with a psychosis of less than 6 months, were 80 to 90 per cent. Of the 37 of his patients with psychosis of more than 3 years, only 3 remitted. Apparently he used no fixed "course of fits" but advised three fits after complete remission had set in, and stated that some needed only 2 or 3, others 25 to 30; fits were given 2 or 3 times per week and cardiazol was used. It is not known how long after treatment his patients were examined for recovery.

Cook (23) (1938), advised that 20 fits should be given in completely unresponsive cases before discontinuation, and added that nearly all cases improved within the first 15 fits. Reviewing the evidence of spontaneous remissions and results of treatment, he concluded that stastical results of treatment in schizophrenics rested on too fluid a basis to be of any scientific value; he found that even spontaneous

55/ remissions showed

remissions showed the widest variations and quoted figures collected by Pullar-Strecker which showed remission percentages that varied from 3% to 48%. However, he stated that the average spontaneous remission rate for unselected cases of all types and duration of schizophrenia, was given by Muller (quoted by Ellery, 1937) as probably being between 15 and 20%; this estimate may be assumed to concern European patients only.

Cook (23) considered that if only the most favourable cases were selected, either insulin of cardiazol should produce a recovery rate of over 90%. He quoted the following results of different workers, for insulin and cardiazol:-

Insulin (cases under 1 year) : 57%, 70%, 59%; and for cases 1 to 2 years : 27%.

Cardiazol (cases under1 year) : 91%, 44%, 59%; and for cases 1 to 2 years : 50%.

Cook himself reported the following results for cardiazol:-

Under 1 year : 6 (67%) recoveries or "good remissions"

(8) 2 non remissions.

1-2 years : 6 (60%) recoveries or good remissions.

(10) 4 non remissions.

He admitted a tendency to relapse, especially in partially recovered cases and did not mention the point in time at which his cases were examined for recovery after treatment.

James, Freudenberg and Cannon (14) reported the results of insulin

56/therapy in

therapy in schizophrenia. They treated 24 cases during 1937, using Sakel's technique and had four complete remissions only, all of whom were of under 6 month's duration; there were 7 incomplete remissions. Actually, of their 10 cases of under 18 month's duration, 9 had complete or incomplete remissions and were able to return home and resume their former occupations; their treatment duration ranged from 26 to 118 days with an average of 67.8 for the group. Five of the 10 cases mentioned, had some cardiazol treatment as well. The result in 118 cases treated by others and including their 24, are also given; most cases had cardiazol and insulin combined; 61 had complete or social remissions and 57 were unimproved; of the 40 with psychoses of less than 18 months, 34 remitted socially and 6 were unimproved.

In 1940 Wyllie [19] reported the use of convulsion therapy at the Chrichton Royal Hospital; cardiazol or triazol was used two or three times per week; the average number of fits per patient was 14. Of 14 schizophrenics with psychosis of less than one year's duration, 7 (50%) recovered to the extent of being able to return to their former occupations, with some insight and with all symptoms gone. Only 4.4% of 68 with duration of more than one year, recovered to this extent. It was concluded that the results were better than with ordinary hospital treatment. The time after treatment when the patients were assessed, is not mentioned.

Wyllie [8] (1941) reported 18 cases of schizophrenia treated with E.C.T. but did not mention the number of fits induced or the duration of

57/psychosis;

psychosis; 14 were improved immediately after treatment but only 2 after two months and only 1 was discharged.

Hemphill and Grey Walter [16] (1941) used E.C.T. in a carefully observed series of female patients of whom 19 were recent, (less than 2 years), and 37 chronic schizophrenics; of the former group, only 4 recovered and left hospital, and of the latter group, only 2; 6 and 13 respectively, were improved but did not leave hospital. They used a 50 cycle alternating current from the mains with a 50 to 150 volts range and the duration of exposure was .1 to .5 second. Fits were induced not more than once daily and the number of fits given is not stated. No cases of confusional insanity, nor any suspected of having an underlying organic basis, were treated.

Katzenelbogen [17] 'et al' (1944), reported the following results in 167 schizophrenics, treated with E.C.T. : 43 "recoveries", 55 "improved", 69 "not improved." Alexander [10] (1945) treated amongst others, some cases of schizophrenia with E.C.T. and assessed them one month later when he found 56% social recoveries and 83% at "some time" later. Cook [5] (1944) reviewing the results of convulsion therapy, quoted Meduna's original figures as 91% remissions for schizophrenic psychoses of under one year's duration, and 50% for those of 1 to 2 years. But Meduna and Friedman who collected the results of 2, 937 cardiazol treated schizophrenic psychoses from America and Europe, found that 50% of the cases below 18 months duration were said to have attained full remissions as against 15% of those over 18 months. Reitman also found an average of 52% full

58/remission in

remission in cardiazol treated schizophrenics in the U.S.A. and Western Europe, out of the total of 840 cases of less than 18 months duration. Other workers, according to Cook, found no recoveries amongst schizophrenics treated with convulsions, or only very low percentages, e.g. 40.7% "recovered or much improved" in cases under 6 months duration; he concluded however, that it was probably justifiable to assume that between 55 and 60 per cent of cases of schizophrenia treated by convulsions during the first year of their illness may be expected to remit sufficiently to return to their previous place in society, and he thought that it was clear that the majority of published findings revealed a much higher remission rate in schizophrenics, treated by convulsions in the first 18 months of their illness, than the 15 to 20 per cent spontaneous remission rate estimated by Muller (35) or the 10 to 30 per cent figure of Kbough and Shanahan (36). He added however that any complacency as to the results of convulsion therapy in schizophrenia must be shaken by the analyses of results at the New York state hospitals by Malzberg (1938) Pollock (1939) and Ross and Malxberg (1939), and which showed only very poor results: recovered and greatly improved 36.6% with insulin, 14.7% with conservative methods, and 11.5% with Metrazal convulsive therapy. However, as Malzberg (34) has since reported 49 per cent improved cases one year after insulin treatment as compared with 22 per cent in an untreated group, his findings in 1938 and 1939 may perhaps be doubted, and this has indeed been pointed out by Bourne (26).

In 1948, Finiefs (28), who had compared the results of insulin and

59/ cardiazol therapy

Cardiazol therapy in a group of 563, with non specific treatment in a group of 446, concluded that in the specifically treated group the average stay in hospital was 5 months as compared with 8.3 months in the other group.

Rees [29], in 1949, reported the result of E.C.T., electronarcosis, and of insulin shock in 160 schizophrenics. The groups were comparable as regards age, sex, family history, personality and mental status, only the electronarcosis group had a significantly higher proportion of cases with duration of psychosis less than one year. His immediate results were: Recovered or improved and discharged, electronarcosis 51%, deep Insulin 59%, E.C.T. 32%, and for those with psychosis of less than one year it was 32, 76 and 38 per cent respectively. In a group of conservatively treated patients at the Maudsley hospital and with psychosis of less than one year, he found the percentage of recovered, improved and discharged patients was 52.5 after 3 years. Rees also found that the relapse rates for his recovered and improved cases treated with E.C.T. and electronarcosis, were higher than for the insulin treated ones, but he did not mention the ultimate outcome in those patients who failed to recover immediately after any of his treatments. His results indicated that insulin was the only treatment which gave <u>immediate</u> results significantly better than the <u>ultimate</u> results of conservative methods in schizophrenia.

According to Mayer-Gross [2] (1951) most workers agreed with Max Muller that in patients whose illness had lasted not longer than one year, the number of remissions could be doubled with insulin shock. He quoted results obtained at Chrichton Royal with 454 schizophrenic cases; in

60/cases of less

cases of less than one year, there were 57% recoveries with treatment and 34.5% without it; for those with duration of 1-2 years it was 43.4% recoveries as contrasted with 22.5%. Bleuler and Langfeldt however, believed that Sakel's method did nothing but hasten remissions in patients who would remit spontaneously; nevertheless, in his experience, Mayer-Gross stated, convulsion therapy could not equal the results of insulin as to completeness and permanence of recovery.

Zubin [24](1953) tried to evaluate the outcome of treatment in mental disorders. He found that Fuller (1935) had reported that 30% of schizophrenics in New York had been discharged from hospital and not re-admitted after five years, but Finiefs had reported that of 563 schizophrenics treated with insulin or E.C.T., and 446 on no specific treatment, 57½% of the treated group were improved or out of hospital after 5 years as compared with 14.1% in the untreated group. Malzberg also reported in 1940 that 49% of cases were improved one year after insulin treatment as compared with 22% in an untreated group, according to Zubin; he also referred to the work of Mayer Gross (J.Ment.Sc.93:26-27,1947) at the Maudsley where 50 cases of schizophrenia were studied for 3 years and a control group was used with age, sex, diagnosis and duration of illness as criteria; the results showed that the insulin group was consistently ahead of the other group and remained so at the end of 3 years.

Taking all the evidence into consideration it seems clear, that although the <u>immediate</u> results of E.C.T. may be poorer in Europeans than the <u>ultimate</u> results of conservative methods, patients are benefited by it even if in many cases the benefit is only temporary and that therefore

61/the treatment is

the treatment is probably better than conservative therapy alone.

Results in Africans.

Thus far, no very systematic or conclusive report has been published of the results of schizophrenia in the African Bantu, with and without E.C.T. Moffson (31) (1954), described schizophrenia as it occured in male Bantus admitted to Pretoria Mental Hospital during 1953 and found that "all varieties of mental disorder described in the European may also be seen in the Bantu". His series consisted of 227 cases, only 170 of whom had E.C.T. The average number of fits induced was 11 (5 to 23), two or three times per week. There were 66 hebephrenics, 16 paranoids, 130 catatonics, 11 unclassified types and 4 paraphrenics. (Total 227). He reported the outcome "three or more months after the admission of the last patient in the series", and defined as "remission" a "case improved sufficiently to be discharged from hospital". A "favourable response to E.C.T. was taken to indicate one in which remission of the illness occured either during treatment or in the 30 day post treatment period". He stated that he found it impossible to obtain information as regards duration of illness or mode of onset, in his material, and ages were only approximately known, and varied from 16 to 55 (average abt. 30). Seventeen of Moffson's cases were readmissions and ten of these had E.C.T. Remissions were three times as high in excited hebephrenics and catatonics as in withdrawn cases. He quoted Coleman (32) to the effect that before E.C.T. and insulin were used "the rate of discharge of schizophrenics averaged about 30 per cent of admissions", and Cook as having stated that "55 - 60 per cent of patients treated with E.C.T. in the first year of their

62/illness might be

illness might be expected to show remission". The remission rate for his whole group, by May 1954, was 35 per cent and hence he concluded that the results were far poorer than in Europeans. However, as he does not mention the duration of psychosis for members of the group or for the group as a whole, except to say that 3 cases of more than 10 years standing were excluded from E.C.T. and as he apparently gave some cases far more time in which to recover than others, it does not seem possible to attach great significance to his conclusion.

Dhunjibhoy (15) published the results of 12 cases, presumably Indians, treated at Ranchi Mental Hospital in 1938, apparently with an average of 18 to 19 fits using cardiazol. The average duration of stay in hospital prior to treatment was about 3 years. Three of the patients (25%) were discharged as recovered but he did not state how long after termination of treatment.

There follows here a report of the results of ordinary mental hospital care in a group of female Bantu schizophrenics admitted to the Tower Hospital during 1943; at that time they had no special treatment apart from ordinary care and control and occupation where and when possible. Schizophrenics with a positive Wasserman and those with appreciable physical disease on admission, were excluded from the group, in addition to all those who died within the first twelve months after admission, as it was assumed that probably the latter were in poor health on admission. (This procedure was thought necessary as in a series of cases, groups 2 and 3, treated with E.C.T. ten years later, exclusion on physical grounds was based on consideration of the E.S.R. in addition to findings on simple physical examination.

63/ A total of

A total of 57 female schizophrenics, free from appreciable physical disease on admission, according to their records, and with negative blood Wassermans, were admitted during 1943, but of these 7 died during the first fifteen months, apparently mostly as a result of pulmonary tuberculosis, and this left a total of 50, from which group, cases were sorted with the aid of a Hollerith machine and cards, to match with cases from the two groups of patients similarly selected and treated with E.C.T. ten years later.

In table 1 below, is set out the 50 cases, together with their ages as stated on their admission documents (not absolutely reliable), the alleged duration of their psychoses and an estimate of the intensity of European influences to which they had been subjected, based upon knowledge of the area where they lived; a clinical diagnosis is given, and their condition (in terms of a rating scale score) fifteen months and ten years after admission.

The following are the simple rating scales which were used:-

European Influence Rating Scale:

a. Area from whence:-

Reserve : 0. Rural or Village : 1. Urban : 2.

b. Knowledge of English and Afrikaans:-

Bilingual : 2. Unilingual : 1. Native only : 0.

Maximum points obtainable : 4.

Behaviour Rating Scale:

1. Discharged 'recovered' : 9 points.
2. Discharged 'improved' and working, and behaving well at the time : 8.
3. Discharged 'on leave' and behaving and working well at the time : 7.
4. Still in hospital:
   a. Well behaved : 3 points. Working well : 3 points.
   b. Indifferently behaved : 2. Indifferent worker : 2.
   c. Poorly behaved : 1 Poor worker : 1.
   d. Very poorly behaved : 0. Not working : 0.

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TABLE 1.

BANTU SCHIZOPHRENICS NOT TREATED SPECIFICALLY.

(ADMITTED IN 1943).

CASE	NUMBER	AGE	PSYCHOSIS DURATION	E.I.R.	DIAGNOSIS	R.S.S. 15 m.a.a.
1.	2317	35	?	3	U.S.	1
2.	2312	30	?	0	C.S.	1
3.	2377	30	?	2	U.S.	0
4.	2301	49	6.m.	0	C.S.	0
5.	2356	30	2.w.	2	C.S.	1
6.	2387	34	1.y.	1	U.S.	0
7.	2370	35	?	3	C.S.	2
8.	2328	50	4.d.	0	H.S.	0
9.	2332	40	?	3	C.S.	0
10.	2243	33	3.m.	0	P.S.	1
11.	2275	20	7.m.	1	C.S.	1
12.	2381	31	3.m.	0	C.S.	2
13.	2376	24	?	3	C.S.	3
14.	2351	40	3.m.	1	U.S.	3
15.	2296	24	?	1	U.S.	0
16.	2280	25	1.w.	2	H.S.	1
17.	2225	30	?	3	C.S.	3
18.	2306	36	?	3	C.S.	1
19.	2234	38	?	3	U.S.	1
20.	2246	28	2.y.	2	U.S.	0

65/21.....

TABLE 1. (CONTINUED)

CASE	NUMBER	AGE	PSYCHOSIS DURATION	E.I.R.	DIAGNOSIS	R.S.S. 15 M.a.a.
21.	2302	25	?	0	U?S.	3
22.	2220	30	?	0	H.S.	4
23.	2223	33	?	0	C.S.	0
24.	2230	40	?	0	P.S.	1
25.	2251	16	?	0	C.S.	0
26.	692	25	6.w.	3	C.S.	3
27.	693	35	?	1	H.S.	3
28.	596	22	?	0	C.S.	3
29.	731	31	?	0	U.S.	3
30.	695	30	2.w.	3	C.S.	2
31.	2276	50	?	2	C.S.	2
32.	2265	57	?	3	C.S.	2
33	2826	55	?	2	U.S.	1
34.	2257	30	?	2	C.S.	0
35.	2285	20	3.y.	0	C.S.	0
36.	2288	45	2.y.	1	C.S.	0
37.	2289	25	4.y.	2	U.S.	1
38.	2278	35	2.m.	2	C.S.	1
39.	2331	20	?	3	C.S.	(Rec. 9.m.a.a.)9
40.	2345	22	3.d.	2	U.S.	(Rec. 8.m.a.a.)9
41.	2343	20	1.w.	3	H.S.	(Rec. 15.m.a.a)9

66/.....

TABLE 1. (CONTINUED)

CASE	NUMBER	AGE	PSYCHOSIS DURATION	E.I.R.	DIAGNOSIS	R.S.S. 15 m.a.a.
42.	2378	30	2.w.	0	U?S.	(Rec. 3.m.a.a.)9
43.	2374	35	2.m.	3	P.S.	5
44.	2295	24	1.m.	2	U.S.	5
45.	2307	18	1.m.	1	U.S.	5
46.	2359	25	4.d.	2	C.S.	(Rec. 3 m.a.a.)9
47.	2315	40	2.d.	3	C.S.	(Rec. 7 m.a.a.)9
48.	2316	32	?	2	C.S.	0
49.	3664	29	1.m.	0	C.S.	(Rec. 2.m.a.a.)9
50.	?	22	?	1	H.S.	1
51.	2321	35	1.w.	0	H.S.	Died 9.m.a.a.
52.	2294	35	6.y.	1	C.S.	Died 11.m.a.a.
53.	2339	45	7.m.	3	P.S.	Died 7 m.a.a.
54.	2373	37	3.d.	1	U.S.	Died. 6.ma.a.
55.	2365	42	?	1	U.S.	Died 8 m.a.a.
56.	2363	36	4.y.	0	C.S.	Died 7.m.a.a.
57.	2279	25	?	1	C.S.	Died 14 m.a.a.
TOTALS (1 - 50)		1533	760.w.	76		129
MEANS		30.6	30.w.	1.52		2.58

67/.....

Behaviour was assessed from the routine monthly and three monthly notes kept on record and with the rating scale of Rees in mind e.g. "Indifferent behaviour" signified that the patient was not troublesome and her habits were correct but signs of abnormality were present.

"Poor behaviour" meant troublesome over or under activity.

"Very poor behaviour" meant very troublesome over or under activity.

Abbreviations used in Table 1:

Rec. - recovered.
Imp. - improved.
a.a. - after admission.
E.I.R. - European Influence rating.
R.S.S. - Rating Scale Score.
S.S. - simple schizophrenia.
C.S. - catatonic schizophrenia.
P.S. - paranoid "
H.S. - hebephrenic "
U.S. - unclassified "
d - days; m - months; w - weeks; y - years.

From Table 1 it is evident that 7 of the group of 50, recovered spontaneously within fifteen months and that the average duration of stay in hospital for these recovered patients was 8.1 months. Only one of these patients (Case 49. No. 3664), subsequently relapsed and recovered twice during the ten years following her first admission. There is no evidence that any of the remaining six were re-admitted to any of the mental hospitals in the Union of South Africa during the ten year period following their first admission; five of the seven were traced and found to be still maintaining their recovery ten years after admission; their case histories are given here in summarized form:

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Case 39: F.N. 2331. Catatonic schizophrenia.

The duration of her psychosis prior to admission was unknown but she was alleged to have been aimlessly restless and to have talked about death and ghosts. On admission she was resistive, mute, asocial, dull and aimless; habits were faulty. She improved only nine months later and was discharged 'recovered' ten months after admission.

Ten years later, she was traced by the Mental Health Society in Johannesburg, who reported that "in 1944 she joined her foster mother but only stayed for a week and moved to other relatives. She still wanders about in native townships on the Reef and does no work. In 1952 she again had twins who also died. She leads a 'bad' life according to her foster mother". (The report added that she had been adopted at the age of nine months by a relative because her mother was sent to mental hospital; she had always been 'difficult' and refused to go out and work. In 1943 she had illegitimate twin daughters and soon after she was sent to mental hospital, at which time she had left her foster mother with whom she only stayed at intervals.)

Case 40: F.N. 2345. Unclassified schizophrenia with features of Manic Depressive Psychosis

A Healdtown student who, before admission, was reported to have been restless, talkative, disconnected and aurally hallucinated. On admission she was silly, foolish, restless, noisy and seemingly elated; she laughed and cried in turns and admitted that she was 'mad'.

69/Delusions of

Delusions of persecution and aural hallucinations were expressed. She had occasional periods of apathy and depression and long periods of elation when she said she felt well and happy.

Only seven months after admission she was once more rational and well behaved and one month after this she was discharged as recovered. Ten years later she was still enjoying very good health and was said to be a very good school teacher.

Case 41: F.N. 2343. Hebephrenic schizophrenia.

This domestic servant from the Reef was alleged to have been disordered for one week prior to admission and was said to have been restless, impulsive, noisy and faulty in habits. On admission she was silly, foolish, very manneristic, grinned and grimaced and expressed delusions of persecution but described no hallucinations. She was restless and interfering. Ten months later she was 'rational and well behaved' but for some reason or other she was only discharged nine months later. Ten years after admission she was still out of hospital and apparently usefully occupied.

Case 42: F.N. 2378. Unclassified schizophrenia.

This peasant native woman from the reserve, had mild signs of pellagra on admission and was said to have been disordered for two weeks during which she was noisy, aggressive and incoherent. She seemed fairly well nourished. On admission, she was restless, aggressive, resistive and disconnected in talk; persecutory delusions were

70/expressed and she

expressed and she alleged she smoked dagga and drank to excess. No hallucinations were elicited. Three months later she was "rational and well behaved" and one month after this, she was discharged as recovered. It was found impossible to trace her after ten years but she had not been readmitted to a mental hospital under the same name.

Case 46: F.N. 2359. Catatonic schizophrenia.

She had been a school teacher in a school for Coloureds in a large town, well within the Cape Province, but actually she lived in the Transkei reserve. For four days prior to admission she had been restless, noisy and aggressive. On admission she was very resistive, restless and refused food. She adopted fixed attitudes and was disconnected in her conversation; definite delusions and hallucinations were not elicited. After two months she was rational, had insight and was well behaved. One month later, she was discharged 'improved'. Ten years later she was traced and found to be living with her people in the Transkei. She assisted with home cooking and said she had a "relapse" for 3 days in 1947 and again for one day in 1953; these "relapses" were heralded by severe headache and palpitations and rapid pulse. At present she complained of occasional pains in the legs, and numbness of the right arm, but according to the interviewer, seemed rational and was not evasive or embarrassed by the questioning. She seemed happy.

Case 47: F.N. 2315. Catatonic schizophrenia.

Alleged to have been a domestic servant and to have been disordered for 2 days prior to admission; she had been restless and noisy, threw

71/furniture about

furniture about and the police had to be called to restrain her. On admission she was resistive, negativistic, mute and had to be fed. She was restless and screamed at times. After three months she was improved but dull, and four months after admission she was described as rational and well behaved; three months after this she was discharged as recovered. Ten years later she could not be traced but had not been readmitted to a mental hospital under the same name.

Case 49: F.N. 3664. Catatonic schizophrenia.

Prior to admission she was reported to have been a domestic servant and a presbyterian. For one month she was alleged to have been disordered - restless, violent and aggressive. On admission she was destructive and interfering, adopted peculiar attitudes and described aural hallucinations. After ten months she was "rational and well behaved" and two months later she was discharged 'recovered'.

Three years later she was readmitted in a similar state to the first, and later she became dull and retarded but one year after admission had again recovered and was discharged three months later. Three years after this, she was again readmitted in a semi-stuporous state which changed into one of restlessness after three months. One year after her third admission she was again rational and behaved well so that she was discharged after some months (22/1/53). Ten years after her first admission (7/9/53), she was still out of hospital and apparently doing well at home.

72/It is apparent

It is apparent from the above case records that 6 of the 7 patients who recovered were thought to be either atypical cases of schizophrenia (one with features of manic depressive psychosis) or cases of the catatonic variety. In six of the cases, the average duration of psychosis, prior to admission, was 10 days. The one case (39) where the duration was unknown, has made a questionable recovery and is apparently leading the life of a prostitute on the reef; moreover, it would seem from her history that she had been abnormal for a long time before admission. Finally, case 39 excluded, all were difficult and restless on admission. The features apparently indicating a good prognosis in African schizophrenics therefore, seem to be similar to those which do so in Europeans.

From this small series, the percentage spontaneous recoveries in uncomplicated schizophrenia of African females, would seem to be 14 per cent, fiteen months after the date of admission, and 5 years after admission this had risen to 20 per cent, and to 22 per cent after ten years. Subsequently, these results will be compared with results obtained in newly admitted Bantu female schizophrenics who had E.C.T. ten years later. It should be noted, that whereas of the 57 initially selected from those admitted in 1943 seven had died after fifteen months, none had died 15 months after admission of the group of 29, selected from admissions ten years later; this suggests that the latter selection was more exclusive, hence another reason for having excluded cases 51 to 57 from group 1 in the final selection.

73/ Neither the value

Neither the value of E.C.T. nor of insulin has been carefully determined in Bantu schizophrenics. In the following section, seventy cases of Bantu schizophrenics will be described together with the results of treating them with E.C.T. on two days per week; 29 of the patients had a total of 30 major seizures and 41 had only 15. They were assessed according to the rating scale and item sheet devised and used by Rees (29) (33) and a Hollerith machine and cards were used to sort out from these two groups (groups 2 and 3) and from the group of untreated patients (group 1), those which were comparable as regards age, duration of psychosis, European influence rating, etc. All patients were Bantu females who had no physical disease at the time treatment was started nor was anyone known to have been in a mental hospital before. No patient was excluded from groups 1 and 2 if she happened to make a spontaneous recovery before treatment was started.

It is hoped that this study will throw some light on the value of E.C.T. in the Bantu, even though it must be admitted that the data as regards age and duration of psychosis prior to admission are not absolutely reliable.

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EVALUATION OF A COMMON METHOD OF CONVULSION THERAPY IN BANTU SCHIZOPHRENICS.

V. CASE MATERIAL AND METHOD OF INVESTIGATION.

There follow here the records of 20, of the 70 cases of schizophrenia in Bantu women, treated during 1953. Owing to the similarity of the material, description of all the cases would make monotonous reading and greatly increase the bulk of this section. Each patient had a form on which was reflected, mainly in numerical terms, her age, duration of psychosis, history and clinical status. Cases 10, 11, 17, 19, 21, 27, 31, 37, 48 and 53 are those who recovered or improved greatly within one month of termination of E.C.T., and cases 4, 5, 22, 46, 47, 49, 50, 57, 62, and 70, were some of those who had improved least or not at all, one month after termination.

There exists great differences in figures of recovery rates given for schizophrenia by different workers. The method of using rating scales in selected and comparable groups, although not perfect, should therefore be more suitable to demonstrate differences in results between two methods of treatment in this disease, than a mere estimation of whether the patients were "recovered" or not, especially when small groups are used.

The rating scale for behaviour, was the same as that used by Rees (1.2.), and a copy of it is here included, together with his item sheet; on the use of both these forms, was based the assessment of the

77/ psychiatric state

psychiatric state of the patients forming groups 2 and 3. The numerical expression of such things as age, family history of mental illness, etc., on the forms mentioned, was resorted to in order to allow the use of Hollerith cards in the sorting of the cases.

The following items on the form, were similarly rated (0 - absent; 1 - mild; 2 - moderate; 3 - severe):- Family history of mental illness, personal history of conditioning towards maladjustment, prepsychotic personality with abnormal traits, previous mental ill health, signs of physical ill health on admission, and history of possible psychological causative factors; the European influence rating was derived as explained in Section IV. The speed of onset of psychosis was rated as follows:- 1. Slow. 2. Moderate. 3. Sudden.

Cases 1 to 29 inclusive, constitute group 2, and each of them had a total of 30 E.C.T's. Cases 30 to 70 had a total of 15 E.C.T's each and constitute group 3. (refer table 2). Case 59 was the only patient admitted during the period, who made a spontaneous recovery before E.C.T. was started.

The apparatus used was an "Electric Shock Machine, Model PS - 1" (Electro - Physical Laboratories, inc. New York). One major fit was induced on two days per week until the total number had been reached. The average voltage used was 100 to 130 and the average timing was .3 to .5 of a second.

The records of the twenty cases mentioned, will follow on the copies of the Rees (1.2) item sheet and rating scale given below.

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ITEM SHEET.

NAME.....

DATE OF ADMISSION..... DURATION OF STAY IN HOSPITAL. WEEKS.

DATES AND DURATION OF STAY OF PREVIOUS ADMISSIONS.....

SEX:- Male. Female.

AGE:-

OCCUPATION:- Unskilled, Semi-skilled, Skilled, Administrative or Professional.

UNEMPLOYMENT:- None, Little, much.

UNDULY FREQUENT CHANGES OF EMPLOYMENT:- No. Yes.

FAMILY HISTORY.

Abnormality in parents and/or siblings:- None-Psychosis, epilepsy, mental deficiency, neurosis, pronounced, slight, psychopathic personality, pronounced, slight.

PERSONAL HISTORY.

Upbringing by both parents until age of 10 Yes. No.

Home atmosphere during childhood and adolescence:- Satisfactory. Unsatisfactory.

Education:- Elementary poor (Standard 5 or under) Elementary good, Secondary or Higher.

Civil state:- Married, engaged, single, widow or separated, complicated.

Sexual activity apparently:- Normal, inhibited, subject of worry, perverse, unknown.

Hobbies and interests:- Broad, narrow.

Past Physical Health:- Good, Medium, poor.

Mental Health before present illness:- Normal, symptoms in childhood, clear predisposition, definite illness.

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PERSONALITY.

Unstable, ill adjusted:-	Not, somewhat, very.
Meak, dependent, timorous:-	Not, somewhat, very.
Deliquent:-	No, yes.
Drive and energy:-	Average go; inert, conspicious energy.
Touchy and suspicious:-	Not, somewhat, very.
Schizoid, seclusive:-	Not, somewhat, very.
Cyclothymic, depressive, or hypomanic:-	Not, somewhat, very.
Hysterical, seeking limelight, exaggerating:-	Not, somewhat, very.
Anxious, highly strung:-	Not, somewhat, very.
Hypochondriacal:-	Not, somewhat, very.
Obsessional, meticulous:-	Not, somewhat, very.

HISTORY OF PRESENT ILLNESS.

Duration of illness:-	Less than one month, 1-3 months, 3-6 months, 6-12 months, 12-18 months, 18-24 months, 2-3 years, 3 years.
Onset of illness:-	Sudden, prodramata then acute, gradual.
Physical cause:-	Unimportant, precipitating, important, dominant.
Psychological cause:-	Unimportant, precipitating, important, dominant.
Endogenous:-	Not,partly, mainly.
Exogenous:-	Not, partly, mainly.

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SYMPTOMATOLOGY.

Introversion:-

Lack of interest in environment:- None, mild, moderate, severe.

Lack of emotional rapport:- None. mild, moderate, severe.

Lack of energy and initiative:- None, mild, moderate, severe.

Lack of spontaneity in movement and speech:- None, mild, moderate, severe.

Replies, vague, brief or careless:- None, mild, moderate, severe.

Akinetic state:- No. Yes.

Detachment from reality:- None, mild, moderate, severe.

Faulty in habits:- No. Yes.

Stupor:- None, mild, moderate, severe.

0 1. 2. 3. 4. 5. 6. 7.
Rating:- Nil. Very slight. Mild. Moderate. Marked. Severe. Very Severe. Extreme.

Intellectual Disconnection.

Thought Blockage:- None, mild, moderate, severe.

Thought interpolation:- None, mild, moderate, severe.

Inconsequence of utterances:- None, mild, moderate, severe.

Replies irrelevant:- None, mild, moderate, severe.

Lack of coherence:- None, mild, moderate, severe.

0. 1. 2. 3. 4. 5. 6. 7.
Rating:- Nil. very slight. Mild. Moderate. Marked. Severe. Very severe. Extreme.

Emotional disconnection.

Incongruity between feeling and thought:- None, mild, moderate, severe.

Incongruity between feelings and actions:- None, mild, moderate, severe.

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Incongruity between feeling and symptoms:- None, mild, moderate, severe.

Inappropriate emotional responses:- None, mild, moderate, severe.

Emotional outbursts without provocation:- None, mild, moderate, severe.

	0	1.	2.	3.	4.	5.	6.	7.
Rating:-	Nil.	Very slight.	Mild.	Moderate.	Marked.	Severe.	Very severe.	Extreme.

Conduct Disconnection.

Spontaneous utterances or grimaces:- None, mild, moderate, severe.

Impulsive actions and utterances:- None, mild, moderate, severe.

Stereotypy of speech:- None, mild, moderate, severe.

Stereotypy of movement and behaviour:- None, mild, moderate, severe.

Automatic obedience:- No. Yes.

Echopraxia:- No. Yes.

Echolalia:- No. Yes.

Flexibilitas Cerea:- No. Yes.

	0.	1.	2.	3.	4.	5.	6.	7.
Rating:-	Nil.	Very slight.	Mild.	Moderate.	Marked.	Severe.	Very severe.	Extreme.

Paranoid Disposition:-

Sullen, suspicious:- No. Yes.

Guarded and evasive in replies:- No. Yes.

Resistive:- No. Yes.

Negativistic:- No. Yes.

Ideas of reference:- None, mild, moderate, severe.

Delusions:- None, fleeting, changeable, fixed, fixed and systematized.

	0.	1.	2.	3.	4.	5.	6.	7.
Rating:-	Nil.	Very slight.	Mild.	Moderate.	Marked.	Severe.	Very severe.	Extreme.

Type of delusions:- Autochtonous, persecutory, depressive, nihilistic, hypochondriacal, expansive, guilt, other.

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Hallucinations:- None, auditory, visual, tactile, gustatory, olfactory.

To what extent do hallucinations

Modify behaviour:- Nil, mild moderate, severe.

Ideas of influence:- No. Yes.

Ideas of passivity:- No. Yes.

Ambivalence:- No. Yes.

Loss of capacity for conceptual thinking:- Nil, mild, moderate, severe.

Depressions. 0 1 2 3 4 5. 6 7
Rating:- None. Mild. Moderate. Severe. Depressive Stupor.

Excitement 0 1 2 3 4 5 - 6 7.
Rating:- None. Hypomania. Mania. Severe Mania. Delirious Mania.

Emotional Tension(Including anxiety or agitation) None, mild, moderate, severe.

Somatic Anxiety:- No. Yes.

Headaches:- None, mild, severe.

Fatigue, Lassitude:- No. Yes.

Effort, intolerance:- No. Yes.

Depersonalization:- No. Yes.

Phobias:- No. Yes.

Obsessive, compulsive symptoms:- No. Yes.

Suicidal:- Not, thoughts, preparation, attempts.

Dyspepsia or vomiting:- No. Yes.

Fainting Attacks:- No. Yes.

Hysterical attitude to symptoms:- No. Yes.

Hysterical conversion symptoms:- None, motor, sensory, special senses, visceral, other.

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Hypochondriasis:- Nil, preoccupation with health; hypochondriacal delusions; nihilistic; somatic delusions.

Dissociative-dysmnesic symptoms:- No. Yes.

Clouding of consciousness:- None, confusion, marked clouding, delirious or comatose.

Intellectual Deterioration:- Nil, mild, moderate, severe.

Intelligence rating: Defective. Below avergae. Average. Above average. Superior.

Definite Organic disease of C.N.S.:- No. Yes.

Definite organic disease not trivial:- No. Yes.

DIAGNOSIS.

(If necessary, underline 2 or more)

Anxiety State:- Acute-mild, Chronic mild.
Acute-Severe. Chronic severe.

Depressive state:- Mainly reactive, mild, moderate, severe.
Mainly endogenous, mild. moderate, severe.

Manic Depressive Psychosis:- Recurrent depression, alternating, recurrent mania.
Hypomania, acute mania, delirious mania.

Involutional Melancholia:-

Schizophrenia:- 1. Simple and Hebephrenic.
2. Catatonic.
3. Paranoid (non systematized)
4. Paraphrenia.
5. Paranoia.

PSYCHIATRIC. RATING SCALE

	Base line		1 2	3 4	5 6	SCORE
	Neat	Careless	Slovenly	Incontinent	Smearing	
	Active	Inactive	Inert Underactive	Little spontaneous activity	Stuporose	
	Voluble	Terse	Undertalkative	Retarded and uncommunicative	Mute	
	Flexible	Rigid	Stubborn	Resistive	Negativistic	
	Indulgent	Finnicky	Anorexia	refusal	Tube fed	
	LIGHT	Heavy	Somnolent	Stuporose sleep	Comatose	
	Active	Underactive	Diminished interest.	Complete loss of interest	Sexual anaesthesia	
	Extroverted	Introverted	Withdrawn	Isolated	Inaccessible	
	Eager	Indifferent	Disinterested	Employed with difficulty	Unemployable	
	Alert	Restricted	Diminished awareness	cloudy	Unconscious	
	Happy	sad	Despondent	Moderately despondent	Deeply depressed	
	Hypersensitive	Hyposensitive	Phlegmatic	Very dull	Apathetic	
	Demonstrative	Reserved	Inadequate	Inappropriate	Incongruous	
	Circumstantial	Concise	Brief	Impoverished	Blocked	
	Detailed.	Vague	mildly defective	Severely defective	Amnesia	

TOTAL

TEN RECOVERED AND GREATLY IMPROVED CASES.

CASE 10. F.N. 3855.

AGE: 30. CIVIL STATE: M. (4children)

FAMILY HISTORY OF MENTAL ILLNESS: ?

PERSONAL HISTORY OF CONDITIONING TOWARD MALADJUSTMENT: ?

PRE PSYCHOTIC PERSONALITY WITH ABNORMAL TRAITS: ?

EUROPEAN INFLUENCE RATING: 0.5

PREVIOUS MENTAL ILL HEALTH: ?

DURATION OF PSYCHOSIS: ?

SPEED OF ONSET OF PSYCHOSIS: ?

SIGNS OF PHYSICAL ILL HEALTH ON ADMISSION: 0

HISTORY OF POSSIBLE PSYCHOLOGICAL CAUSATIVE FACTORS: ?

MENTAL STATE BEFORE AND AFTER TREATMENT.

	Before E.C.T.	After 15	1 week After 30.	1 month After 30.
BEHAVIOUR	14	13	51	7
INTROVERSION.	2	Not rated	Not rated	1
INTELLECTUAL DISCONNECTION.	3	"	"	0
EMOTIONAL DISCONNECTION.	4	"	"	1
CONDUCT DISCONNECTION.	3	"	"	1
PARANOID DISPOSITION.	3	"	"	0
TYPE OF DELUSION.	Pers.	"	"	0
TYPE OF HALLUCINATIONS:	0	"	"	0
IDEAS OF PASSIVITY/INFLUENCE:	0	"	"	0
HYPOCHONDRIASIS:	0	"	"	0
DEPRESSION.	0	"	"	0
ELATION:	0	"	"	0
EMOTIONAL TENSION:	2	"	"	1

CLINICAL DIAGNOSIS: Paranoid Schizophrenia.

CASE 10. F.N. 3855.

Her husband stated that prior to admission she talked nonsense and broke everything she could lay hands on.

On admission she said at first that she had no idea why she had been sent here, but soon afterwards declared that she had become ill because her husband was tired of her, and was looking for a young wife; he alleged she was mad, in order to be rid of her, but all she had were palpitations and backache. She was correctly orientated as to place and surroundings but not in time, and explained that she had been too upset and worried to remember the days. She expressed the delusion that her husband had cut all her children up into small pieces; her conversation was rambling and some of her remarks were quite irrelevant. Finally she alleged that she also had a lover and that her husband had discovered this. Hallucinations were not described. Given a non verbal mental test (Knox cube), she refused to cooperate and remarked irrelevantly that the table was a coffin. No signs of depression or of elation were noted. In behaviour she was very restless and interfering but not noisy. She slept poorly but ate well and was correct in habits.

Two weeks after admission E.C.T. was started, but no definite signs of improvement were noticed throughout the course. One week after the 30th E.C.T. she was still extremely restless, impulsive, noisy and resistive, and she was then transferred to a different ward.

One month after the E.C.T. she seemed almost normal, had some insight and was a good worker.

Seven months after admission she was discharged as recovered and eight months later she had not re-entered hospital.

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CASE 11. F.N. 3862.

AGE: 21. CIVIL STATE: S.

FAMILY HISTORY OF MENTAL ILLNESS: 1.

PERSONAL HISTORY OF CONDITIONING TOWARD MALADJUSTMENT: 0.

PRE PSYCHOTIC PERSONALITY WITH ABNORMAL TRAITS: 1.

EUROPEAN INFLUENCE RATING: 0.

PREVIOUS MENTAL ILL HEALTH: 2.

DURATION OF PSYCHOSIS: 2 (Seven months).

SPEED OF ONSET OF PSYCHOSIS: 1. (Gradual)

SIGNS OF PHYSICAL ILL HEALTH ON ADMISSION: 0.

HISTORY OF POSSIBLE PSHYCHOLOGICAL CAUSATIVE FACTORS: ?

MENTAL STATE BEFORE AND AFTER TREATMENT.

	Before E.C.T.	After 15	1 week after 30	1 month after 30.
BEHAVIOUR.	36	10	9	5
INTROVERSION.	4	not rated	npt rated	0
INTELLECTUAL DISCONNECTION.	4	"	"	2
EMOTIONAL DISCONNECTION:	5	"	"	0
CONDUCT DISCONNECTION.	3	"	"	2
PARANOID DISPOSITION.	2	"	"	0
TYPE OF DELUSION.	Pers.	"	"	0
TYPE OF HALLUCINATIONS.	Aur.	"	"	0
IDEAS OF PASSIVITY/INFLUENCE.	0	"	"	0
HYPOCHONDRIASIS.	0	"	"	0
DEPRESSION.	60	"	"	0
ELATION	0	"	"	0
EMOTIONAL TENSION.	2	"	"	0

CLINICAL DIAGNOSIS: SCHIZOPHRENIA.

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CASE LL. F.N. 3862.

Her mother said that at home she had set fire to huts and suddenly attacked people.

On admission her expression was fatuous and her replies to questions were spasmodic and terse. She was correctly orientated as to person and surroundings but apparently not in time and place. She admitted she was disordered but gave no explanation why she thought so, and merely added "It is nice to be mad, perhaps they will tie me up." She said there were numerous people who hated her and she was disturbed by the voices of unseen people. She was excitable but without appearing either elated or agitated. In behaviour she was restless and noisy, and disconnected and irrelevant in conversation. She often discarded her clothes and she ate voraciously. Her habits were faulty.

E.C.T. was started two weeks after admission; improvement was first reported after the 8th treatment, and after the 15th she behaved and worked fairly well and was rational. One week after the 30th E.C.T. she was found to be fully orientated and had insight but she alleged she still heard the voice of her deceased father and in general her conduct was rather foolish. One month after the 30th E.C.T. she still maintained her improvement. Delusions and hallucinations were no longer expressed. She was quietly behaved and a good worker, if slightly fatuous.

Six months after admission she was discharged recovered, all signs of fatuity having disappeared, and nine months later she had not re-entered hospital.

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CASE 17. F.N. 3829.

AGE: 26. CIVIL STATE: M.

FAMILY HISTORY OF MENTAL ILLNESS: ?

PERSONAL HISTORY OF CONDITIONING TOWARD MALADJUSTMENT: ?

PRE PSYCHOTIC PERSONALITY WITH ABNORMAL TRAITS: ?

EUROPEAN INFLUENCE RATING: 0.5

PREVIOUS MENTAL ILL HEALTH: ?

DURATION OF PSYCHOSIS: 0 (One month)

SPEED OF ONSET OF PSYCHOSIS: ?

SIGNS OF PHYSICAL ILL HEALTH ON ADMISSION: 0

HISTORY OF POSSIBLE PSYCHOLOGICAL CAUSATIVE FACTORS: ?

MENTAL STATE BEFORE & AFTER TREATMENT.

	Before E.C.T.	AFTER 15.	1 week after 30	1 month after 30.
BEHAVIOUR.	51	14	0	0
INTROVERSION.	4	Notrrated	0	0
INTELLECTUAL DISCONNECTION.	4	"	0	0
EMOTIONAL DISCONNECTION.	3	"	0	0
CONDUCT DISCONNECTION.	1	"	0	0
PARANOID DISPOSITION.	0	"	0	0
TYPE OF DELUSION.	0	"	0	0
TYPE OF HALLUCINATIONS:	0	"	0	0
IDEAS OF PASSIVITY/INFLUENCE:	0	"	0	0
HYPOCHONDRIASIS.	0	"	0	0
DEPRESSION.	0	"	0	0
ELATION.	2	"	0	0
EMOTIONAL TENSION.	2	"	0	0

CLINICAL DIAGNOSIS: Catatonic Schizophrenia.

90/.....

CASE 17. F.N. 3829.

Alleged to have been disordered for two weeks, her cousin said that prior to admission she tore her clothes, assaulted and bit people and cried a great deal.

On admission she repeated most questions put to her or replied disconnectedly or made nonsensical remarks such as "I am here to do laundry at night". She displayed no signs of elation or of depression. In behaviour she was extremely resistive, restless, quarrelsome and interfering; she talked and muttered to herself, sometimes danced and sang or struck peculiar attitudes. She was destructive to clothing and bedding and faulty in habits.

Two months later she developed a stupor and became mute and profoundly dull.

E.C.T. was only commenced four months after admission. At the end of the 15th E.C.T. she was found to be improved - was rational, had insight and asked to go home. One week after the 30th E.C.T. she was still found to be rational and well behaved. She had insight and gave a good description of the symptoms of her illness and was a good worker. One month after the E.C.T. she still maintained her improvement and nine months after her admission, she left hospital in the care of her husband. Fifteen months after admission she had not been re-admitted.

CASE 19. F.N. 3872.

AGE: 23. CIVIL STATE: S.

FAMILY HISTORY OF MENTAL ILLNESS: ?

PERSONAL HISTORY OF CONDITIONING TOWARD MALADJUSTMENT: ?

PRE PSYCHOTIC PERSONALITY WITH ABNORMAL TRAITS: ?

EUROPEAN INFLUENCE RATING: 1

PREVIOUS MENTAL ILL HEALTH: ?

DURATION OF PSYCHOSIS: 2 (nine months)

SPEED OF ONSET OF PSYCHOSIS: 1.(Gradual)

SIGNS OF PHYSICAL ILL HEALTH ON ADMISSION: 0(B.S.R. 38 m.m. in 1 hr.)

HISTORY OF POSSIBLE PSYCHOLOGICAL CAUSATIVE FACTORS:- ?

MENTAL STATE BEFORE & AFTER TREATMENT.

	Before E.C.T.	After 15.	1 week after 30	1 month after 30.
BEHAVIOUR.	37	14	33	26
INTROVERSION.	3	not rated	not rated	4
INTELLECTUAL DISCONNECTION	2	"	"	1
EMOTIONAL DISCONNECTION.	3	"	"	3
CONDUCT DISCONNECTION	3	"	"	3
PARANOID DISPOSITION.	1	"	"	0
TYPE OF DELUSION.	0	"	"	0
TYPE OF HALLUCINATIONS:	Aur.	"	"	0
IDEAS OF PASSIVITY/INFLUENCE.	0	"	"	0
HYPOCHONDRIASIS.	0	"	"	0
DEPRESSION.	0	"	"	0
ELATION.	2	"	"	0
EMOTIONAL TENSION.	1	a "	"	0

CLINICAL DIAGNOSIS: Catatonic Schizophrenia.

92/.....

CASE 19. F.N. 3872.

Her mother stated that prior to admission she tore her clothes, talked nonsense even during the night and ran wild.

On admission she appeared excited and confused. When interviewed, she grimaced in a bizarre fashion and apart from giving her name correctly, no relevant information could be obtained from her; most of her conversation was disconnected but she admitted hearing voices talking to her and saying "the dog, the small one talks all the time". To further questions she replied "I know nothing" and remained mute.

Emotionally she displayed no signs of elation or depression. In behaviour she was restless, garrulous and noisy. She grimaced, smiled, shook her head or gesticulated; now and then she laughed foolishly.

E.C.T. was given one month after admission; after the 15th treatment she was rational, fully orientated and had insight; hallucinations had ceased; she seemed abnormally shy and emotionally rather blunted. She behaved and worked well.

One week after the 30th E.C.T. she seemed dull and indifferent, had no requests, hardly answered some questions and repeated others put to her. She was careless and slovenly. One month after the 30th E.C.T. she had again improved, admitted she had been disordered, asked to go home and was fully orientated. However, conversation was inadequate, she often replied "I don't know" and showed little spontaneous activity. She was retarded and very isolated.

93/ One month

One month later, she had further improved, was brighter and more interested as well as rational and well behaved. She was then discharged 'on leave'. Fifteen months subsequent to admission she was still out of hospital.

94/.....

CASE 21. F.N. 3879.

AGE: 38. CIVIL STATE: M.

FAMILY HISTORY OF MENTAL ILLNESS: ?

PERSONAL HISTORY OF CONDITIONING TOWARD MALADJUSTMENT: ?

PRE PSYCHOTIC PERSONALITY WITH ABNORMAL TRAITS: ?

EUROPEAN INFLUENCE RATING: 0.5

PREVIOUS MENTAL ILL HEALTH: ?

DURATION OF PSYCHOSIS:- 0 (4 days)

SPEED OF ONSET OF PSYCHOSIS: 2 (sudden)

SIGNS OF PHYSICAL ILL HEALTH ON ADMISSION: 1(Breasts secreting milk. Transient) (Glycosuria+. B.S.R.21m.m.in 1hr)

HISTORY OF POSSIBLE PSYCHOLOGICAL CAUSATIVE FACTORS: ?

MENTAL STATE BEFORE & AFTER TREATMENT.

	Before E.C.T.	After 15	1 week after.	1 month after.
BEHAVIOUR.	33	8	0	0
INTROVERSION.	3	not rated	0	0
INTELLECTUAL DISCONNECTION.	2	"	0	0
EMOTIONAL DISCONNECTION.	3	"	0	0
CONDUCT DISCONNECTION.	3	"	0	0
PARANOID DISPOSITION.	3	"	0	0
TYPE OF DELUSION.	Expan.	"	0	0
TYPE OF HALLUCINATIONS.	Aur.	"	0	0
IDEAS OF PASSIVITY/INFLUENCE.	0	"	0	0
HYPOCHONDRIASIS.	0	"	0	0
DEPRESSION.	0	"	0	0
ELATION	0	"	0	0
EMOTIONAL TENSION.	0	"	0	0

CLINICAL DIAGNOSIS: Paranoid Schizophrenia.

95/.....

CASE 21. F.N. ~~3879~~.

Her father said that prior to admission she prayed and preached, walked about in the nude and became violent and uncontrollable.

On admission she said she had been brought to hospital on account of bodily aches and pains as well as for alleged mental disorder. Her people had thought she was mad because she went about saying that God communicated with her, and had appeared to her in white raiment. She expressed the grandiose delusion that she was ommiscient and a witchdoctor of great ability. God spoke to her frequently - she heard the voice in her ears. Emotionally she seemed indifferent in spite of her statement that she was happy. In behaviour she was quiet, aloof and information was never voluntered freely. She walked at first with a marked limp and with assistance only, but this peculiar gait which was thought to be hysterical, soon disappeared on being given appropriate suggestions. She fed herself and was correct in habits.

One week after admission she was rational and well behaved, but one month later she suddenly became foolish, noisy and withdrawn; she said a light from heaven shone into her eyes and then moved from window to window; the Lord had appeared to her in white and his hair was long. She was fully orientated.

E.C.T. was started two months after admission and after the 7th treatment she seemed recovered. After the 15th E.C.T. she still seemed normal if slightly apathetic. One week after the 30th E.C.T. she was

96/ still rational

still rational and wellbehaved. She was fully orientated, had insight and worked well. She was discharged recovered 6½ months after admission and left hospital without and escort. Nine months later she had not been readmitted.

CASE 27. F.N. 3892.

AGE: 32 CIVIL STATE: M.

FAMILY HISTORY OF MENTAL ILLNESS:	0
PERSONAL HISTORY OF CONDITIONING TOWARD MALADJUSTMENT:	1
PRE PSYCHOTIC PERSONALITY WITH ABNORMAL TRAITS:	1
EUROPEAN INFLUENCE RATING:	3.5
PREVIOUS MENTAL ILL HEALTH:	0
DURATION OF PSYCHOSIS:	2 (six months)
SPEED OF ONSET OF PSYCHOSIS:	2(Prodromata, then acute).
SIGNS OF PHYSICAL ILL HEALTH ON ADMISSION:	0
HISTORY OF POSSIBLE PSYCHOLOGICAL CAUSATIVE FACTORS:	0

MENTAL STATE BEFORE & AFTER TREATMENT.

	Before E.C.T.	After 15.	1 week after 30.	1 month after 30
BEHAVIOUR.	15	16	5	0
INTROVERSION.	3	not rated	0	0
INTELLECTUAL DISCONNECTION.	0	"	0	0
EMOTIONAL DISCONNECTION.	1	"	0	0
CONDUCT DISCONNECTION.	0	"	0	0
PARANOID DISPOSITION.	1	"	1	0
TYPE OF DELUSION.	Hypo.	"	0	0
TYPE OF HALLUCINATIONS.	Aur.	"	0	0
IDEAS OF PASSIVITY/INFLUENCE.	0	"	0	0
HYPOCHONDRIASIS.	1	"	0	0
DEPRESSION.	0	"	0	0
ELATION.	0	"	0	0
EMOTIONAL TENSION.	0	"	0	0

CLINICAL DIAGNOSIS: Paranoid Schizophrenia.

98/.....

CASE 27. F.N. 3892.

Her husband said that prior to admission she talked nonsense, threw furniture out of the house and had a foul temper.

On admission she had an expression of unconcern. She did not account for her presence in hospital, and merely remarked that those who sent her, probably knew for what reason she had been brought. Orientation in time, place and surroundings seemed impaired, but she did not appear confused, and given a non verbal mental test (Knox), she cooperated and passed the easier tests. She stated she heard the voices of unseen people who were far away, and who told her "about good things". Delusions were not expressed, but she was uncommunicative and inaccessible. Feelings of interference, or of being influenced were not described. After a few days she asked to go home, but her attitude had become stranger, and she said that a voice was speaking from inside her body: however, she soon became uncommunicative.

Two days after the 15th E.C.T., she expressed the delusion that she was pregnant, and her manner was decidedly strange. She could not yet name the town. In behaviour she was quietly lazy, and rather fatuous. Hallucinations were no longer admitted. One week after the 30th E.C.T. she had some insight but gave little account of her illness. She was very slow in her answers and information had to be dragged from her; however, she was correctly orientated now for place and time, and no delusions or hallucinations were expressed. In general behaviour the ward sister thought she would pass for normal,

99/ but she was

but she was somewhat underactive; nevertheless, she worked well.

One month after the 30th E.C.T. she was maintaining her improvement; she wished to be discharged and was allowed to return by train, unescorted, to her home 150 miles away, where her family were expecting her. Duration of stay in hospital had been six months, and four months after discharge no further news had been received of her. Fifteen months after admission she was still out of hospital.

100/.....

CASE 31. F.N. 3895.

AGE: 30. CIVIL STATE: D.

FAMILY HISTORY OF MENTAL ILLNESS:	0
PERSONAL HISTORY OF CONDITIONING TOWARD MALADJUSTMENT:	2
PRE PSYCHOTIC PERSONALITY WITH ABNORMAL TRAITS:	1
EUROPEAN INFLUENCE RATING:	4
PREVIOUS MENTAL ILL HEALTH:	?
DURATION OF PSYCHOSIS:	2 (Seven months)
SPEED OF ONSET OF PSYCHOSIS:	2 (Gradual, then acute)
SIGNS OF PHYSICAL ILL HEALTH ON ADMISSION:	0
HISTORY OF POSSIBLE PSYCHOLOGICAL CAUSATIVE FACTORS:	1 (Brought up under strong Catholic influences; Parents died during her childhood; had illegitimate child during adolescence.)

MENTAL STATE BEFORE & AFTER TREATMENT.

	Before E.C.T.	After 15	1 week after 15 E.C.T's	1 month after 15
BEHAVIOUR:	9	not rated	3	0
INTROVERSION.	2	"	0	0
INTELLECTUAL DISCONNECTION:	0	"	0	0
EMOTIONAL DISCONNECTION:	1	"	0	0
CONDUCT DISCONNECTION.	2	"	0	0
PARANOID DISPOSITION.	2	"	0	0
TYPE OF DELUSION.	0	"	0	0
TYPE OF HALLUCINATIONS.	Aur.	"	0	0
IDEAS OF PASSIVITY/INFLUENCE.	0	"	0	0
HYPOCHONDRIASIS.	1	"	0	0
DEPRESSION.	0	"	0	0
ELATION.	0	"	0	0
EMOTIONAL TENSION.	0	"	0	0

CLINICAL DIAGNOSIS: Paranoid Schizophrenia.

CASE 31. F.M. 3895.

Her uncle stated that prior to admission she ran about naked, used abusive language, and assaulted people; a doctor who saw her, reported that she was emotionally unstable, talked incessantly and said she was visited at night by nuns.

On admission her manner seemed affected. She was fully orientated and knew she had been brought on account of alleged mental disorder; definite delusions and hallucinations could however not be elicited. She alleged her relatives often illtreated her and made signs to one another which indicated that she was mad. She was not really concerned about having been sent to hospital, she said, and she asked for her Bible. She gave a history of having had an illegitimate child at the age of 15, seemed proud of this experience and smiled mysteriously to herself when she related it.

Emotionally she seemed to be in a state of mild ecstasy and admitted she felt happy but "also unhappy because of all the sick people".

She had an air of old-fashioned courtesy and spoke in a very low, affected voice, but she occupied herself usefully in the ward and assisted mending clothes.

E.C.T. was started two weeks after admission; after the first treatment she seemed improved. One week after the 15th she said she had been worried and felt insecure but she denied having been disordered and moreover stated that only the previous night she heard a voice telling her to expect a letter from a certain school teacher - it may have been

102/the voice of

the voice of Jesus or a man's voice. She seemed strange again, was over polite and rose from her chair every time she answered a question. Affect appeared to be rather shallow. In the ward she worked well and asociated with the others.

One month after the 15th E.C.T. she behaved quite normally, even during interview, had no delusions and hallucinations and seemed to have a good deal of insight. She was anxious to return home and was discharged on leave four months after admission (R.S.S.7); she left the hospital in the care of a relative and five months later no more had been heard of her. Fifteen months after admission she was still out of hospital.

CASE 37. F.N. ~~3014~~

AGE: 29. CIVIL STATE: S. (1 child).

FAMILY HISTORY OF MENTAL ILLNESS: ?

PERSONAL HISTORY OF CONDITIONING TOWARD MALADJUSTMENT: 0

PRE PSYCHOTIC PERSONALITY WITH ABNORMAL TRAITS: 1

EUROPEAN INFLUENCE RATING: 2.5

PREVIOUS MENTAL ILL HEALTH: 0

DURATION OF PSYCHOSIS: 0 (3 days)

SPEED OF ONSET OF PSYCHOSIS: ?

SIGNS OF PHYSICAL ILL HEALTH ON ADMISSION: 0

HISTORY OF POSSIBLE PSYCHOLOGICAL CAUSATIVE FACTORS: ?

MENTAL STATE BEFORE & AFTER TREATMENT.

	Before E.C.T.	After 15	1 week after 15 E.C.T's.	1 month after 15 E.C.T's.
BEHAVIOUR:	30	not rated	10	4
INTROVERSION.	4	"	0	0
INTELLECTUAL DISCONNECTION.	0	"	0	0
EMOTIONAL DISCONNECTION.	4	"	2	1
CONDUCT DISCONNECTION.	1	"	1	0
PARANOID DISPOSITION.	3	"	1	0
TYPE OF DELUSION.	Pers.	"	Pers.	0
TYPE OF HALLUCINATIONS.	Aur Vis.	"	0	0
IDEAS OF PASSIVITY/INFLUENCE.	0	"	0	0
HYPOCHONDRIASIS.	0	"	0	0
DEPRESSION.	0	"	0	0
ELATION.	0	"	0	0
EMOTIONAL TENSION.	0	"	2	0

CLINICAL DIAGNOSIS: Paranoid Schizophrenia.

104/.....

CASE 37. F.N. 3919.

Her father stated that prior to admission she hit people, threw crockery at others, and wanted to run away.

On admission she was found to be dull, solitary and asocial, and never spoke spontaneously. She answered questions however, and said she was in a mental hospital, that many people were against her, and that one had attempted to poison and bewitch her. She described auditory and visual hallucinations - she could hear her relatives talking to her from their homes and at times they appeared to her. Emotionally she seemed very indifferent.

E.C.T. was started one month after admission and improvement was only evident after the 10th treatment. One week after the 15th E.C.T. she was found to be fully orientated, and to have insight but she was quick tempered, childish and petulant. She still thought she was bewitched and had enemies. She was less solitary and did some work. Moreover, she was interested in her discharge. Further improvement continued, and one month after the 15th E.C.T. she appeared to have recovered, but was still rather tremulous and excitable.

She was discharged recovered six months after admission, and travelled alone to her home 130 miles distant. Two months later no more had been heard of her. Fifteen months after admission she was still out of hospital.

105/.....

CASE 48. F.N. 3946.

AGE: 30. CIVIL STATE: M.

FAMILY HISTORY OF MENTAL ILLNESS: ?

PERSONAL HISTORY OF CONDITIONING TOWARD MALADJUSTMENT: ?

PRE PSYCHOTIC PERSONALITY WITH ABNORMAL TRAITS: ?

EUROPEAN INFLUENCE RATING: 1.5

PREVIOUS MENTAL ILL HEALTH: ?

DURATION OF PSYCHOSIS: 0 (two months)

SPEED OF ONSET OF PSYCHOSIS: ?

SIGNS OF PHYSICAL ILL HEALTH ON ADMISSION: 1(Nourishment poor;B.P. 105/65 B.S.R.12mm in 1hr.)

HISTORY OF POSSIBLE PSYCHOLOGICAL CAUSATIVE FACTORS: ?

MENTAL STATE BEFORE & AFTER TREATMENT.

	Before E.C.T.	After 15	1 week after 15 E.C.T's.	1 month after 15 E.C.T's.
BEHAVIOUR.	23	not rated	3	1
INTROVERSION.	3	"	0	0
INTELLECTUAL DISCONNECTION.	2	"	0	0
EMOTIONAL DISCONNECTION.	2	"	1	0
CONDUCT DISCONNECTION.	1	"	0	1
PARANOID DISPOSITION.	1	"	0	0
TYPE OF DELUSION.	0	"	0	0
TYPE OF HALLUCINATIONS.	0	"	0	0
IDEAS OF PASSIVITY/INFLUENCE.	0	"	0	0
HYPOCHONDRIASIS.	0	"	0	0
DEPRESSION.	0	"	0	0
ELATION.	0	"	0	0
EMOTIONAL TENSION.	1	"	1	1

CLINICAL DIAGNOSIS: Schizophrenia (unclassified).

106/.....

CASE 48. F.N. 3946.

She was destructive and walked about in the nude before coming to hospital.

On admission her expression was strange and in manner she was very brusque. She was correctly orientated in person but had no idea of time, place or surroundings and denied at first that she had been brought for mental disorder, only to contradict herself soon after, by admitting that this was the case, and others had alleged she was mad. Many of her replies were contradictory and irrelevant. Ideas of persecution were vaguely admitted but hallucinations were not described and she did not think she was, or ever had been, bewitched. Vague bodily aches were complained of rather carelessly. She seemed irritable and far from cheerful, yet she alleged she was very happy. In behaviour since admission she had been very dull and asocial. She never spoke spontaneously to anyone and given Knox test she reacted inappropriately. Her habits were correct and she fed herself.

E.C.T. was started three weeks after admission and no definite improvement appeared during the course of 15. One week after the 15th E.C.T. she was found to be rational, fully orientated and had insight but seemed overtalkative and circumstantial. Given the Knox test she reacted normally and passed A, B & C. General behaviour was also apparently normal and she now worked. One month after the 30th E.C.T. she was maintaining her improvement but she often grimaced and her expression

107/ seemed rather

seemed rather odd; this may have been due to her anxiety to be discharged and she was obviously nervous (tremulous) when interviewed.

Five months after her admission she was discharged recovered and went home unescorted, - a distance of 50 miles, by train. 15 Months after admission she was still out of hospital.

CASE 53. F.N. ~~3953~~.

AGE: 40 CIVIL STATE: W (5 children)

FAMILY HISTORY OF MENTAL ILLNESS: 0

PERSONAL HISTORY OF CONDITIONING TOWARD MALADJUSTMENT: 0

PRE PSYCHOTIC PERSONALITY WITH ABNORMAL TRAITS: 2

EUROPEAN INFLUENCE RATING: 1.5

PREVIOUS MENTAL ILL HEALTH: 0

DURATION OF PSYCHOSIS: 0 (3 Months)

SPEED OF ONSET OF PSYCHOSIS: ?

SIGNS OF PHYSICAL ILL HEALTH ON ADMISSION: 1(Nourishment poor, skin dry, tongue slightly fissured, teeth poor. B.S.R. 6 mm in1hr)

HISTORY OF POSSIBLE PSYCHOLOGICAL CAUSATIVE FACTORS: ?

MENTAL STATE BEFORE AND AFTER TREATMENT

	Before E.C.T.	After 15	1 week after 15 E.C.T'S.	1 month after 15 E.C.T's.
BEHAVIOUR.	22	not rated	not rated	0
INTROVERSION.	4	"	"	0
INTELLECTUAL DISCONNECTION.	2	"	"	0
EMOTIONAL DISCONNECTION.	2	"	"	0
CONDUCT DISCONNECTION.	1	"	"	0
PARANOID DISPOSITION.	2	"	"	1
TYPE OF DELUSION:	Pers.	"	"	0
TYPE OF HALLUCINATIONS.	Aur.	"	"	0
IDEAS OF PASSIVITY/INFLUENCE.	0	"	"	0
HYPOCHONDRIASIS.	1	"	"	0
DEPRESSION.	1	"	"	0
ELATION.	0	"	"	0
EMOTIONAL TENSION.	1	"	"	0

CLINICAL DIAGNOSIS: Paranoid Schizophrenia with features of depression.

109/.....

CASE 53. F.N. 3957.

Prior to admission her employer said that she imagined her people had been murdered, that she threatened her family with a knife, and that she stood outside her hut and shouted continuously.

On admission she was very wasted and had various bodily complaints of aches here and there. She was fully orientated and replied relevantly to all questions. She had vague ideas of persecution and described auditory hallucinations of voices which frightened her and which informed her that her children had died. She also believed she would be killed in the night and that she had been bewitched. Emotionally she admitted she felt distressed but she appeared only mildly depressed. In behaviour she was underactive and asocial, but she fed herself and was correct in habits. Subsequently she became reluctant to eat.

E.C.T. was started two weeks after admission and after the 5th treatment she was more rational and did some work.

One week after the 15th E.C.T. she seemed normal and again a month later.

Four months after admission she was considered for discharge even though she seemed very nervous, but she relapsed soon after and became tearful and suspicious of other patients. She sobbed uncontrollably for a whole day for no apparent reason. Subsequently she improved again but eight months after admission was still in hospital.

Fifteen months after admission she was still depressed with complaints of a hypochondriacal nature. She worked indifferently but was causing no particular trouble through her conduct at this time.

110/.....

CASE 4. F.N. 3840.

AGE: 50. CIVIL STATE: W (4 children).

FAMILY HISTORY OF MENTAL ILLNESS:-	0
PERSONAL HISTORY OF CONDITIONING TOWARD MALADJUSTMENT:	?
PRE PSYCHOTIC PERSONALITY WITH ABNORMAL TRAITS:	?
EUROPEAN INFLUENCE RATING:	0
PREVIOUS MENTAL ILL HEALTH:	?
DURATION OF PSYCHOSIS:	3 (Two years)
SPEED OF ONSET OF PSYCHOSIS:	1 (Gradual)
SIGNS OF PHYSICAL ILL HEALTH ON ADMISSION:	0
HISTORY OF POSSIBLE PSYCHOLOGICAL CAUSTIVE FACTORS:	?

MENTAL STATE BEFORE AND AFTER TREATMENT.

	Before E.C.T.	after 15	1 week after 30	1 month after 30
BEHAVIOUR.	22	30	51	40
INTROVERSION.	5	not rated	not rated	3
INTELLECTUAL DISCONNECTION.	4	"	"	3
EMOTIONAL DISCONNECTION.	4	"	"	3
CONDUCT DISCONNECTION.	3	"	"	2
PARANOID DISPOSITION.	4	"	"	2
TYPE OF DELUSION.	Pers.	"	"	0
TYPE OF HALLUCINATIONS.	Aur.	"	"	0
IDEAS OF PASSIVITY/INFLUENCE.	0	"	"	0
HYPOCHONDRIASIS	0	"	"	0
DEPRESSION.	0	"	"	0
ELATION	2	"	"	1
EMOTIONAL TENSION.	1	"	"	0

CLINICAL DIAGNOSIS: Paranoid Schizophrenia.

TEN UNIMPROVED CASES.

CASE 4. F.N. 3840.

Her son reported that she had tried to commit suicide by hanging and that she ran about, was destructive, and hit small children, before admission.

On admission she seemed dull and careless. She complained vaguely of headache and of abdominal pain but had no idea of her surroundings and of why she had been brought here. She had however, some idea of the length of her stay in hospital and was clearly not confused. She expressed ideas of persecution - the natives belonging to her clan had robbed her and taken all her cattle since her husband had died, she said. She heard the voices of unseen people, when no one was near, yet could not understand them. Rather irrelevantly she asked for medicine so that she might have more children. Emotionally she seemed indifferent. In behaviour since admission she was restless and resistive but correct in habits. She fed poorly.

No definite improvement resulted during E.C.T. which was started three weeks after admission; one week after the 30th E.C.T., she was noisy and resistive and seemed puzzled and suspicious. She spat on the floor and did not reply to questions; habits were faulty. One month after the 30th E.C.T., she had improved and was less restless and talkative; conversation was however somewhat irrelevant and she had no insight. She continued to improve and was discharged on leave nine months after admission. Six months later she had not re-entered hospital.

112/.....

CASE 5. F.N. 3852.

AGE: 20. CIVIL STATE: S.

FAMILY HISTORY OF MENTAL ILLNESS:	1.
PERSONAL HISTORY OF CONDITIONING TOWARD MALADJUSTMENT:	1.
PRE PSYCHOTIC PERSONALITY WITH ABNORMAL TRAITS:	1.
EUROPEAN INFLUENCE RATING:	0.5
PREVIOUS MENTAL ILL HEALTH:	0
DURATION OF PSYCHOSIS:	3 (18 months)
SPEED OF ONSET OF PSYCHOSIS:	2(Prodromata then acute)
SIGNS OF PHYSICAL ILL HEALTH ON ADMISSION:	0
HISTORY OF POSSIBLE PSYCHOLOGICAL CAUSATIVE FACTORS:	?

MENTAL STATE BEFORE & AFTER TREATMENT.

	Before E.C.T.	After 15	1 week after 30	1 month after 30
BEHAVIOUR.	41	40	44	38
INTROVERSION.	3	Not rated	4	4
INTELLECTUAL DISCONNECTION.	3	"	2	2
EMOTIONAL DISCONNECTION.	4	"	3	4
CONDUCT DISCONNECTION.	2	"	4	3
PARANOID DISPOSITION.	0	"	0	0
TYPE OF DELUSION	0	"	0	0
TYPE OF HALLUCINATIONS	0	"	0	0
IDEAS OF PASSIVITY/INFLUENCE.	0	"	0	0
HYPOCHONDRIASIS.	0	"	0	0
DEPRESSION	0	"	0	0
ELATION	0	"	0	0
EMOTIONAL TENSION.	0	"	0	0

CLINICAL DIAGNOSIS: Catatonic Schizophrenia.

CASE 5. F.N. 3852.

Before admission her mother stated, she ran about crying and shouting and assaulted people with stones.

On admission her expression was dull and vacant. She was reluctant to converse, displayed no concern about her detention and had no requests. It did not seem as if she had any idea of time, place or surroundings. Delusions and hallucinations were not expressed. Emotionally she was markedly indifferent and she was clearly very apathetic. Her behaviour was quiet and asocial without negativism or resistiveness; her habits were correct but she had to be spoonfed.

E.C.T. was started two weeks after admission; after the 15th treatment she was noisy and aggressive; One week after the 30th E.C.T., she was dull and semi-mute but occasionally became impulsive without warning; One month later there was still no real improvement. 1¼ years after admission her condition was still the same and she was not employed.

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CASE 22. F.N. 3885.

AGE: 23. CIVIL STATE: S.

FAMILY HISTORY OF MENTAL ILLNESS:	1.
PERSONAL HISTORY OF CONDITIONING TOWARD MALADJUSTMENT:	0
PRE PSYCHOTIC PERSONALITY WITH ABNORMAL TRAITS:	2
EUROPEAN INFLUENCE RATING:	1.5
PREVIOUS MENTAL ILL HEALTH:	2
DURATION OF PSYCHOSIS:	4 (3 y.)
SPEED OF ONSET OF PSYCHOSIS:	1 (Gradual)
SIGNS OF PHYSICAL ILL HEALTH ON ADMISSION:	0
HISTORY OF POSSIBLE PSYCHOLOGICAL CAUSATIVE FACTORS:	?

MENTAL STATE BEFORE AND AFTER TREATMENT.

	Before E.C.T.	After 15.	1 week after 15	1 month after 30
BEHAVIOUR.	40	32	31	37
INTROVERSION.	4	not rated	4	4
INTELLECTUAL DISCONNECTION.	1	"	1	1
EMOTIONAL DISCONNECTION.	2	"	2	2
CONDUCT DISCONNECTION.	2	"	2	2
PARANOID DISPOSITION.	0	"	0	0
TYPE OF DELUSION.	0	"	0	0
TYPE OF HALLUCINATIONS	0	"	0	0
IDEAS OF PASSIVITY/INFLUENCE.	0	"	0	0
HYPOCHONDRIASIS.	0	"	0	0
DEPRESSION.	0	"	0	0
ELATION.	0	"	0	0
EMOTIONAL TENSION?	0	"	0	0

CLINICAL DIAGNOSIS: Schizophrenia (Simple)

CASE 22. F.N. 3885.

Before admission she wandered about aimlessly.

On admission she had a vacant and inane expression. She replied 'I don't know' to all questions and seemed to have no idea of time or place. Delusions and hallucinations were not described and given a non-verbal mental test she declined to attempt it. Emotionally she was indifferent. Apathy was well marked and in behaviour she was asocial and dull but correct in habits and fed herself. Retardation in movement was only slight.

E.C.T. was started ten days after admission and throughout the course of 30 she failed to improve. One week, as well as one month, after the last E.C.T., she was still not appreciably altered. 1½ years after admission, she was dull and asocial and did no work, but was correct in habits and fed herself. She replied 'I don't know' to all questions and giggled inanely.

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CASE 46. F.M. 3941.

AGE: 26. CIVIL STATE: ?

FAMILY HISTORY OF MENTAL ILLNESS: ?

PERSONAL HISTORY OF CONDITIONING TOWARD MALADJUSTMENT: ?

PRE PSYCHOTIC PERSONALITY WITH ABNORMAL TRAITS: ?

EUROPEAN INFLUENCE RATING: 0.5

PREVIOUS MENTAL ILL HEALTH: ?

DURATION OF PSYCHOSIS: ?

SPEED OF ONSET OF PSYCHOSIS: ?

SIGNS OF PHYSICAL ILL HEALTH ON ADMISSION: 0

HISTORY OF POSSIBLE PSYCHOLOGICAL CAUSATIVE FACTORS: ?

MENTAL STATE BEFORE & AFTER TREATMENT.	Before E.C.T.	After 15	1 week. after 15 E.C.T's	1 month after 15 E.C.T's
BEHAVIOUR.	31	not rated	35	38
INTROVERSION.	4	"	4	5
INTELLECTUAL DISCONNECTION.	3	"	3	3
EMOTIONAL DISCONNECTION.	1	"	2	3
CONDUCT DISCONNECTION.	1	"	2	3
PARANOID DISPOSITION.	0	"	0	0
TYPE OF DELUSION.	0	"	0	0
TYPE OF HALLUCINATIONS.	0	"	0	0
IDEAS OF PASSIVITY/INFLUENCE.	0	"	0	0
HYPOCHONDRIASIS.	0	"	0	0
DEPRESSION.	0	"	0	0
ELATION.	0	"	0	0
EMOTIONAL TENSIONS	0	"	0	0

CLINICAL DIAGNOSIS: Schizophrenia (Unclassified).

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CASE 46. F.N. 3941.

Before admission she was found wandering about aimlessly, by the Police.

On admission she seemed at first not unusual in demeanour and of expression, but she gave an inadequate and incorrect explanation of her presence in hospital, said she had come of her own volition and was not mad but had a "shouting malady". Her idea of time, place and surroundings were only very vague, but delusions and hallucinations and ideas of influence were not admitted. She had no requests and seemed quite apathetic. In behaviour she was quiet and asocial, spoke spontaneously to no one, but was correct in habits, and fed herself. Given the Knox cube test she cooperated but only passed 'A'.

E.C.T. was started three weeks after admission but at no stage during the course did she show definite improvement. One month after the 15th E.C.T. she hardly spoke, sat in one attitude mainly, and was unemployable. She fed herself but was faulty in habits. Sometimes she laughed fatuously and generally her reply to questions was "I don't know". Six months after admission she was still in hospital, and unchanged.

Fifteen months after admission she was dull and indifferent to her detention. She seldom spoke and did no work. Habits were correct.

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CASE 47. F.N. 3942.

AGE: 28. CIVIL STATE: M.

FAMILY HISTORY OF MENTAL ILLNESS: 0.

PERSONAL HISTORY OF CONDITIONING TOWARD MALADJUSTMENT: 0

PRE PSYCHOTIC PERSONALITY WITH ABNORMAL TRAITS: 1

EUROPEAN INFLUENCE RATING: L

PREVIOUS MENTAL ILL HEALTH: 0

DURATION OF PSYCHOSIS: 0(Three weeks)

SPEED OF ONSET OF PSYCHOSIS: ?

SIGNS OF PHYSICAL ILL HEALTH ON ADMISSION: 0(Breasts secreting milk.B.S.R.15 mm in 1 hr.)

HISTORY OF POSSIBLE PSYCHOLOGICAL CAUSATIVE FACTORS: 0

MENTAL STATE BEFORE & AFTER TREATMENT.

	Before E.C.T.	After 15	1 week after 15 E.C.T's.	1 month after 15 E.C.T's
BEHAVIOUR.	32	not rated	34	36
INTROVERSION.	4	"	4	5
INTELLECTUAL DISCONNECTION.	3	"	2	1
EMOTIONAL DISCONNECTION.	1	"	2	3
CONDUCT DISCONNECTION.	2	"	2	3
PARANOID DISPOSITION.	0	"	0	0
TYPE OF DELUSION.	0	"	0	0
TYPE OF HALLUCINATIONS:	0	"	0	0
IDEAS OF PASSIVITY/INFLUENCE:	0	"	0	0
HYPOCHONDRIASIS.	0	"	0	0
DEPRESSION.	1	"	0	0
ELATION.	0	"	0	0
EMOTIONAL TENSION.	0	"	0	0

CLINICAL DIAGNOSIS: Schizophrenia (unclassified).

CASE 47. F.N. 3942.

Before admission she refused to eat and threw stones at their house.

On admission she would not reply to questions and her expression was vacant and apathetic, yet on one occasion soon after, she wept profusely and seemed depressed. She obeyed simple commands and given a non verbal mental test she cooperated but in a rather slow manner, and only passed the simplest one. Towards the end of the interview rapport improved, and she replied to questions with the aid of gestures, but still would not speak. She fed herself, behaved quietly and was correct in habits.

She remained asocial and subsequently required spoonfeeding. E.C.T. was started three weeks after admission and after the 6th she seemed slightly improved, but one week after the 15th E.C.T. she was essentially the same as on admission, One month after termination of E.C.T. she was still unimproved.

Eleven months after admission she was dull, asocial and seldom spoke, nor was she employable, but as her relatives wanted her she was discharged 'on leave' and 15 months after admission she was still out of hospital.

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CASE 49. F.N. 3880.

AGE: 30. CIVIL STATE: ?

FAMILY HISTORY OF MENTAL ILLNESS: ?

PERSONAL HISTORY OF CONDITIONING TOWARD MALADJUSTMENT: ?

PRE PSYCHOTIC PERSONALITY WITH ABNORMAL TRAITS: ?

EUROPEAN INFLUENCE RATING: 1

PREVIOUS MENTAL ILL HEALTH: ?

DURATION OF PSYCHOSIS: ?

SPEED OF ONSET OF PSYCHOSIS: ?

SIGNS OF PHYSICAL ILL HEALTH ON ADMISSION: 0

HISTORY OF POSSIBLE PSYCHOLOGICAL CAUSATIVE FACTORS: ?

MENTAL STATE BEFORE AND AFTER TREATMENT.	Before E.C.T.	After 15	1 week. after 15 E.C.T's.	1 month after 15E.C.T's.
BEHAVIOUR.	37	not rated	36	39
INTROVERSION.	4	"	4	4
INTELLECTUAL DISCONNECTION.	3	"	3	3
EMOTIONAL DISCONNECTION.	3	"	3	3
CONDUCT DISCONNECTION.	4	"	3	4
PARANOID DISPOSITION.	0	"	0	0
TYPE OF DELUSION.	0	"	0	0
TYPE OF HALLUCINATIONS.	0	"	0	0
IDEAS OF PASSIVITY/INFLUENCE.	0	"	0	0
HYPOCHONDRIASIS.	0	"	0	0
DEPRESSION.	0	"	0	0
ELATION.	0	"	0	0
EMOTIONAL TENSION.	0	"	0	0

CLINICAL DIAGNOSIS: CATATONIC SCHIZOPHRENIA.

CASE 49. F.N. 3880.

Before admission she was restless and said she heard the voices of unseen people.

On admission she was indifferent to her surroundings even though she realised she was in a mental hospital. She alleged however, that she did not know why she was admitted, and she had no idea of time or place. Delusions and hallucinations were not described, and she said she was satisfied to stay. Emotionally she was very blunted. In behaviour she displayed apathy, was aloof and manneristic and often whispered to herself. She was obviously detached and withdrawn. Her habits were correct and she fed herself. E.C.T. was started two weeks after admission but she failed to respond, and one week, as well as one month, after the last E.C.T. she was still the same. Fifteen months after admission she remained dull, apathetic and asocial; occasionally she became noisy. To questions she generally replied 'I don't know', but she gave little real trouble, was correct in habits, and worked indifferently at a mechanical task.

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CASE 50. F.N. 3954.

AGE: 34. CIVIL STATE: M.

FAMILY HISTORY OF MENTAL ILLNESS: 1.

PERSONAL HISTORY OF CONDITIONING TOWARD MALADJUSTMENT: 0

PRE PSYCHOTIC PERSONALITY WITH ABNORMAL TRAITS: 2

EUROPEAN INFLUENCE RATING: 0

PREVIOUS MENTAL ILL HEALTH: 0

DURATION OF PSYCHOSIS: 2 (six months)

SPEED OF ONSET OF PSYCHOSIS: ?

SIGNS OF PHYSICAL ILL HEALTH ON ADMISSION: 1 (Very poorly nourished, skin very dry, B.S.R. 30 mm in 1 hour.)

HISTORY OF POSSIBLE PSYCHOLOGICAL CAUSATIVE FACTORS: 0

MENTAL STATE BEFORE & AFTER TREATMENT.

	Before E.C.T.	After 15	1 week after 15 E.C.T's	1 month after 15 E.C.T's
BEHAVIOUR:	40	not rated	37	36
INTROVERSION.	4	"	4	4
INTELLECTUAL DISCONNECTION.	5	"	3	3
EMOTIONAL DISCONNECTION.	3	"	2	3
CONDUCT DISCONNECTION.	2	"	2	4
PARANOID DISPOSITION.	0	"	1	1
TYPE OF DELUSION.	0	"	0	0
TYPE OF HALLUCINATIONS.	0	"	0	0
IDEAS OF PASSIVITY/INFLUENCE.	.0	"	0	0
HYPOCHONDRIASIS.	0	"	0	0
DEPRESSION.	0	"	0	0
ELATION.	0	"	0	0
EMOTIONAL TENSION.	1	"	0	0

CLINICAL DIAGNOSIS: Catatonic Schizophrenia.

CASE 50. F.N. 3954.

Before admission she would not speak or eat.

On admission she was resistive and did not reply relevantly to questions, but only mumbled unintelligibly. She stared about vacantly and had to be spoonfed, but her habits were correct.

E.C.T. was started two weeks after admission, but she failed to improve during or afterwards, and eight months after admission was fatuous and impulsive.

Fifteen months after admission she was dull and asocial and seldom worked.

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CASE 57. F.N. 3961.

AGE. 25. CIVIL STATE: ?

FAMILY HISTORY OF MENTAL ILLNESS:	0
PERSONAL HISTORY OF CONDITIONING TOWARD MALADJUSTMENT:	0
PRE PSYCHOTIC PERSONALITY WITH ABNORMAL TRAITS:-	1
EUROPEAN INFLUENCE RATING:	0
PREVIOUS MENTAL ILL HEALTH:	0
DURATION OF PSYCHOSIS:	?
SPEED OF ONSET OF PSYCHOSIS:	?
SIGNS OF PHYSICAL ILL HEALTH ON ADMISSION:	0
HISTORY OF POSSIBLE PSYCHOLOGICAL CAUSATIVE FACTORS:	?

MENTAL STAE BEFORE& AFTER ADMISSION.

	Before E.C.T.	After 15	1 week after 15 E.C.T's.	1 month after 15E.C.T's
BEHAVIOUR.	25	not rated	27	38
INTROVERSION.	5	"	5	5
INTELLECTUAL DISCONNECTION.	4	"	5	4
EMOTIONAL DISCONNECTION.	3	"	2	4
CONDUCT DISCONNECTION.	2	"	2	4
PARANOID DISPOSITION.	0	"	0	0
TYPE OF DELUSION.	0	"	0	0
TYPE OF HALLUCINATION.	0	"	Aur.	0
IDEAS OF PASSIVITY/INFLUENCE.	0	"	0	0
HYPOCHONDRIASIS.	0	"	0	0
DEPRESSION.	0	"	0	0
ELATION.	0	"	0	0
EMOTIONAL TENSION.	0	"	0	0

CLINICAL DIAGNOSIS: Hebephrenic Schizophrenia.

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CASE 57. F.N. 3961.

Prior to admission she was found wandering about by the Police. She spoke nonsense and did not know where she came from.

On admission she did not know why she had been brought to hospital and had no idea of time, place or surroundings, nor had she any requests. She replied 'I don't know' to many questions and no delusions or hallucinations could be elicited. Emotionally she seemed indifferent. In behaviour she was foolish and laughed fatuously. She fed herself but was faulty in habits. She spoke in a peculiar, high pitched voice.

E.C.T. was started two weeks after admission but during the course there was no definite improvement. One week after termination there was still no change and one month after the 15th E.C.T. she presented more florid symptoms than on admission. Eight months after admission she was still unaltered.

Fifteen months after admission she was unemployable, very foolish and at times refused to eat. Habits faulty.

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CASE 62. F.N. 3977.

AGE: 28. CIVIL STATE: M.

FAMILY HISTORY OF MENTAL ILLNESS: ?

PERSONAL HISTORY OF CONDITIONING TOWARD MALADJUSTMENT: 0

PRE PSYCHOTIC PERSONALITY WITH ABNORMAL TRAITS: ?

EUROPEAN INFLUENCE RATING: 0.5

PREVIOUS MENTAL ILL HEALTH: ?

DURATION OF PSYCHOSIS: 0 (One month)

SPEED OF ONSET OF PSYCHOSIS: ?

SIGNS OF PHYSICAL ILL HEALTH ON ADMISSION: 0

HISTORY OF POSSIBLE PSYCHOLOGICAL CAUSATIVE FACTORS: ?

MENTAL STATE BEFORE & AFTER TREATMENT.

	Before E.C.T.	After 15	1 week. after 15 E.C.T's.	1 month after 15 E.C.T's
BEHAVIOUR.	40	not rated	36	37
INTROVERSION.	3	"	3	4
INTELLECTUAL DISCONNECTION.	4	"	4	3
EMOTIONAL DISCONNECTION.	4	"	4	4
CONDUCT DISCONNECTION.	5	"	4	4
PARANOID DISPOSITION.	0	"	0	1
TYPE OF DELUSION.	0	"	0	0
TYPE OF HALLUCINATIONS.	0	"	0	0
IDEAS OF PASSIVITY/INFLUENCE.	0	"	0	0
HYPOCHONDRIASIS.	0	"	0	0
DEPRESSION	0	"	0	0
ELATION.	1	"	0	0
EMOTIONAL TENSION.	2	"	1	1

CLINICAL DIAGNOSIS: Catatonic Schizophrenia.

CASE 62. F.N. 3977.

Before admission she was restless and aggressive, according to her husband.

On admission she behaved very strangely indeed - did not reply to any questions and adopted the most peculiar attitudes. She performed strange movements sometimes which suggested the act of copulation; she grunted and snorted, shouted explosively and clutched rubbish in her fist; all the time she kept her eyes shut tightly. She was faulty in habits and constantly restless.

E.C.T. was started 3 weeks after admission and throughout the course of 15 she failed to alter. One week after the 15th E.C.T. she was very noisy, restless and abusive. Her replies to questions were irrelevant and disconnected. One month after termination she was still essentially the same. Fifteen months after admission she was extremely foolish interfering and indifferent to her detention. She worked fairly well however, was correct in habits and fed and dressed herself. Her conversation was often disconnected.

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CASE NO. F.N. 4006.

AGE: 30. CIVIL STATE: M.

FAMILY HISTORY OF MENTAL ILLNESS: ?

PERSONAL HISTORY OF CONDITIONING TOWARD MALADJUSTMENT: ?

PRE PSYCHOTIC PERSONALITY WITH ABNORMAL TRAITS: ?

EUROPEAN INFLUENCE RATING: 2

PREVIOUS MENTAL ILL HEALTH: 0

DURATION OF PSYCHOSIS: 4 (4 years)

SPEED OF ONSET OF PSYCHOSIS: 1 (Gradual)

SIGNS OF PHYSICAL ILL HEALTH ON ADMISSION: 0(Phrynodermia; B.S.R. 19 mm in 1 hr.)

HISTORY OF POSSIBLE PSYCHOLOGICAL CAUSATIVE FACTORS: ?

MENTAL STATE BEFORE & AFTER TREATMENT.

	Before E.C.T.	After 15	1 week. after 15 E.C.T's.	1 month after 15 E.C.T's
BEHAVIOUR.	41	not rated	38	42
INTROVERSION.	4	"	4	5
INTELLECTUAL DISCONNECTION.	3	"	3	2
EMOTIOANL DISCONNECTION.	3	"	3	2
CONDUCT DISCONNECTION.	4	"	3	2
PARANOID DISPOSITION.	1	"	0	0
TYPE OF DELUSION.	0	"	0	0
TYPE OF HALLUCINATIONS.	0	"	0	0
IDEAS OF PASSIVITY/INFLUENCE.	0	"	0	0
HYPOCHONDRIASIS.	0	"	0	0
DEPRESSION.	0	"	0	0
ELATION.	0	"	0	0
EMOTIONAL TENSION.	0	"	0	0

CLINICAL DIAGNOSIS: Catatonic Schizophrenia.

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CASE 7 O. F.N. 4006.

Before coming to hospital, she was destructive and aggressive and talked nonsense.

On admission she did not answer questions and had a fixed and vacant stare. She was aimlessly restless and slightly resistive by day and night. Her habits were faulty and she had to be spoonfed. Emotionally she seemed indifferent.

E.C.T. was started two weeks after admission but hroughout the course she remained unaltered.

One week after termination of the treatment (15th E.C.T.) she was still the same, and one month later she had not changed. Fifteen months after admission she was dull, betarded and mute. Her habits were faulty, she did not work and had to be dressed, but she fed herself.

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EVALUATION OF A COMMON METHOD OF CONVULSION THERAPY

IN BANTU SCHIZOPHRENICS.

VI. ANALYSIS OF RESULTS, CONCLUSIONS AND SUMMARY.

There follow here, a number of tables reflecting the results of E.C.T. in Bantu schizophrenic women.

As stated previously, E.C.T. consisted of one major fit induced on two days per week, until a total of 30 had been reached in the case of Group 2, and 15 in the case of Group 3. (Group 2 consists of cases 1 to 29, and Group 3 of cases 30 to 70.)

With reference to tables 2 and 3, it should be explained that modification of the simple scale used for group 1 (table 1), had to be introduced in rating cases one month after termination of E.C.T; this was on account of the fact that no patient was discharged until 2 months after E.C.T. in order to ensure that sudden relapses did not take place at home; hence no patient was given a score of 9, and a score of 8 signified a complete recovery, and a score of 7 a nearly complete recovery. In other respects the rating was as for group 1, table 1. By 'recovery' was meant, complete absence of symptoms in a patient who was working and behaving well, and by 'nearly recovered' was meant, an almost complete absence of symptoms in a similar patient.

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TABLE 2.

Female Bantu schizophrenics treated with E.C.T. Groups two and three are combined; compare with group 1, Table 1, where the same simple rating scale was used.

CASE	NUMBER	AGE	PSYCHOSIS DURATION	E.I.R.	DIAGNOSIS	SIMPLE R.S.S. 1.M.AFTER E.C.T.	SIMPLE R.S.S. 15 M. a.a.
1.	3777	34	6.M.	2	C.S.	1	2
2.	3826	17	5.M.	2.5	P.S.	2	2
3.	3823	30	?	0	P.S.	1	4
4.	3840	50	2.Y.	0	P.S.	2	8(Imp.)
5.	3852	20	18.M.	0.5	C.S.	1	1
6.	3813	40	6.M.	1	P.S.	0	4
7.	3856	25	?	2	C.S.	4	9 (Rec.)
8.	3853	38	1.w.	3	C.S.	2	5
9.	3782	50	3.Y.	0	P.S.	3	2
10.	3855	30	?	0.5	P.S.	8 (Rec)	9(Rec.)
11.	3862	21	7.M.	0	U.S.	7 (G.I.)	9(Rec.)
12	3863	40	6.M.	3	P.S.	4	9(Rec.)
13.	3870	25	1.M.	4	U.S.	5	9(Rec.)
14.	3868	40	1.M.	1.5	U.S.	1	1
15.	3867	29	2.M.	1.5	C.S.	0	9(Rec.)
16.	3865	27	3.M.	3.5	U.S.	3	7
17.	3829	26	1.M.	0.5	C.S.	8(Rec.)	9(Rec.)

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TABLE 2 (CONT.)

CASE	NUMBER	AGE	PSYCHOSIS DURATION	E.I.R.	DIAGNOSIS	SIMPLE R.S.S. 1.M.AFTER E.C.T.	SIMPLE R.S.S. 15. M.a.a.
18.	3871	47	3.W.	2.5	U.S.	4	4
19.	3872	23	9.M.	1.	C.S.	4	9 (Rec.)
20.	3854	23	2.W.	2	C.S.	4	5
21.	3879	30	4.D.	0.5	P.S.	8 (Rec.)	9(Rec.)
22.	3885	23	3.Y.	1.5.	S.S.	2	1
23.	3709	31	1.Y.	2.5	P.S.	1	0
24.	3828	36	2.M.	0	C.S.	4	6
25.	3877	40	4.D.	0	C.S.	2	2
26.	3873	50	2.W.	0	U.S.	1	2
27.	3892	32	6.M.	3.5	P.S.	8(Rec.)	9(Rec.)
28.	3893	22	6.M.	3	C.S.	1	1
29.	3898	25	5.D.	1	U.S.	1	2
30.	3897	40	6.M.	1	U.S.	0	2
31.	3895	30	7.M.	4	P.S.	7 (G.I.)	9(Rec.)
32.	3902	20	1.Y.	1.5	S.S.	1	4
33.	3911	25	2.M.	1	C.S.	3	6
34.	3915	17	3.Y.	0.5	C.S.	1	1
35.	3933	30	?	0	U.S.	5	9(Rec.)
36.	3916	39	2.W.	1.5	C.S.	3	4

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TABLE 2 (CONT.)

CASE	NUMBER	AGE	PSYCHOSIS DURATION	E.I.R.	DIAGNOSIS	SIMPLE R.S.S. 1.M.AFTER E.C.T.	SIMPLE R.S.S. 15. M.aa.
37.	3919	29	3.D.	2.5	U.S.	8 (Rec.)	9(Rec.)
38.	3923	36	?	2	U.S.	2	1
39.	3926	40	2.Y.	0	C.S.	1	0
40.	3931	18	5.D.	2.5	U.S.	3	8 (Disch. Imp.)
41.	3936	32	5.Y.	0	U.S.	2	8(Disch.I)
42.	3963	35	3.D.	2	C.S.	0	2
43.	3957	35	2.M	1.5	U.S.	5	2
44.	3940	40	?	1.5	U.S.	3	6
45.	3939	26	15.M.	1	S.S.	4	5
46.	3941	26	?	0.5	U.S.	0	2
47.	3942	28	3.W.	1.	U.S.	0	2
48.	3946	30	2.M.	1.5	U.S.	6 (G.I.)	9 (Rec.)
49.	3880	30	?	1	C.S.	3	2
50.	3954	34	6.M.	0	C.S.	0	2
51.	3949	40	1.W.	2	U.S.	2	4
52.	3956	35	4.D.	1	C.S.	4	4
53.	3957	40	3.M.	1.5	U.S.	8 (Rec.)	5
54.	3958	30	2.M.	3	P.S.	1	7 (O.L.)
55.	3955	18	2.Y.	0	C.S.	4	7 (O.L.)
56.	3960	35	1.Y.	0	C.S.	2	4 (O.L.)

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TABLE 2 (CONT.)

CASE	NUMBER	AGE	PSYCHOSIS DURATION	E.I.R.	DIAGNOSIS	SIMPLE R.S.S. 1.M.AFTER E.C.T.	SIMPLE R.S.S. 15. M. a.a.
57.	3961	25	?	0	H.S.	0	0
58.	3962	36	?	1.5	U.S.	0	4
59.	3930	21	2.D.	3	P.S.	(Rec. Spontaneously)	
60.	3969	39	4.M.	3	U.S.	4	6(O.L.)
61.	3947	40	2.M.	0	C.S.	0	0
62.	3977	28	1.M.	0.5	C.S.	0	4
63.	3983	23	6.Y.	0.5	C.S.	1	1
64.	3987	20	3.M.	0.	U.S.	1	7 (O.L.)
65.	3998	38	8½M.	1.5	C.S.	1	2
66.	3990	24	4.M.	0	C.S.	0	0
67.	-	31	1.M.	0	P.S.	1	4
68.	3999	44	2.D.	3	P.S.	4	2
69.	4000	35	2.W.	1.5	C.S.	3	6 (O.L.)
70.	4006	30	4.Y.	2	C.S.	0	0
Totals (69 Cases)		2196	572.M.	93.5	N/A	185	309
Means(")		31.3	9.3.M.	1.3	N/A	2.67	4.47.
Totals (45 cases of less than 1 year's duration).		1452	120.M.	71.5	N/A	134	221
Means (")		32.2	2.6.M.	1.5	N/A	2.97	4.91.

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TABLE 1, (CONT.) - NO E.C.T. GIVEN.
(Refer Page 64 Sect. IV).

	AGE	PSYCHOSIS DURATION	E.I.R.	DIAGNOSIS	SIMPLE R.S.S. 1.M.AFTER E.C.T.	SIMPLE R.S.S. 15 M. a.a.
20 Totals(Cases of less than 1 year's duration)	611	134.W.	30	N/A	N/A	84
Means ("))))	30	6.7 W.	1.5	N/A	N/A	4.2
All cases (50)(Totals)	1533	760 W.	76	N/A	N/A	12:9
All cases (Means)	30.6	30.W.	1.52	N/A	N/A	2.58

Comparing group 1 with groups 2 and 3 combined, (Tables 1 and 2), and considering all cases, it can be seen that of the 50 cases in group 1, 7 recovered within fifteen months of admission and that the average period these spent in hospital, was 8.1 months. Of the 69 cases in Groups 2 and 3 combined, 7 cases recovered within one month after E.C.T., and the average period spent in hospital by these patients, was 7 months. Considering only those cases who were alleged to have been abnormal for less than one year before admission, it is found that of 20 in group 1, 6 recovered within 15 months of admission and that these spent an average period of 8 months in hospital, whereas of 45 cases in groups 2 and 3 combined, 6 recovered within one month of termination of E.C.T.

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and spent an average of seven months in hospital. (The 7th case relapsed before she could be discharged).

From a comparison of the mean rating scale scores of these groups, it is also seen that the score of the treated groups one month after termination of E.C.T., was no better than the score of the untreated group, 15 months after admission.

As the groups (1, 2 and 3 combined), are very similar, it may be concluded that no evidence was found to indicate that E.C.T. (one fit induced twice per week) gave better results than conservative methods. However, the matter was further investigated by the selection of two highly similar groups from Groups 1, 2 and 3, by the method to be described.

With the aid of a Hollerith machine, it was possible to sort out 21 patients from groups 2 and 3 combined, who could be matched with 21 patients from group 1, as regards age, duration of psychosis, and European influence rating. All patients were of course similar as regards sex, clinical diagnosis, and absence of appreciable physical abnormality. These two groups were named group 4 and group 5, respectively (See table 3), and were used to compare the results of E.C.T. with those of no specific treatment.

As it was assumed that only those who recovered within one month of termination of E.C.T. did so as a direct result of the treatment, the cases of group 4 were rated one month after termination of E.C.T., and the same simplified rating scale was used for these two groups, as

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in the case of group 1 (Table 1), but with the slight modification mentioned.

With a critical ratio of less than 1, it cannot be sid that there was a significant difference between the results of Group 4 one month after E.C.T., and the results of conservative institutional care in Group 5, fifteen months after admission; what advantage there was, lay with the latter group.

Moreover, those who recovered in the untreated group, were discharged within an average period of 6.2 months, whereas in group 4 the two who recovered, did not leave hospital in less than five months. It cannot therefore be said that E.C.T. in the way given, appreciably hastened the discharge of the patients in Group 4, as compared with those on conservative treatment in group 5. With courses of 30 fits given at the rate of two fits per week, E.C.T. may actually delay the discharge of patients who recover spontaneously during the course.

On the whole therefore, it may be again concluded, that E.C.T. (one fit induced twice per week until 15 or 30 had been given) has not been shown definitely to produce better results than the conservative hospital treatment of ten years before. Valuable, though short - lived immediate effects of E.C.T. are ofcourse not being taken into account here.

138/ Table 3.

TABLE 3.

(E.C.T. compared with conservative treatment, Matched groups used)

(GRP. 4) CASE.	SIMPLE R.S.S. 1.M. AFTER E.C.T.	(GRP. 5) CASE.	SIMPLE R.S.S. 15 M. a.a.
34	1	35	0
2	2	11	1
66	0	49	9
48	6	44	5
62	0	42	9
37	8	46	9
22	2	37	1
54	1	30	2
28	1	26	3
67	1	10	1
53	8	12	2
30	0	6	0
69	3	16	1
1	1	38	1
65	1	14	3
8	2	45	5
60	4	47	9
26	1	8	0

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TABLE 3. (CONT.)

GROUP 4.(E.C.T.)		GROUP 5. (NO E.C.T.)	
CASE.	SIMPLE R.S.S. 1.M. AFTER E.C.T.	CASE.	SIMPLE R.S.S. 15 M. a.a.
4	2	4	0
9	3	36	0
64	1	45	5
Total cases 21.		Total cases 21.	
Total score = 48		Total score = 44	
Mean (m.1.) = 2.3		Mean score (m.2.) = 3.1	
S.D. (σ 1) = 5.34.		S.D. (σ 2) = 10.45.	

$$C.R. = \frac{m1 - m3}{\sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}} = .94.$$

TABLE 4.

E.C.T. given bi-weekly to group 2 until a total of 30 major fits had been induced.

CASE.	R.S.S.(REES) BEFORE E.C.T.	R.S.S.(REES) AFTER 15th E.C.T.	R.S.S. 1.W. (REES)AFTER 30TH E.C.T.	R.S.S. 1.M. (REES) AFTER 30TH E.C.T.	SIMPLE R.S.S. 15 M. a.a.
1.	44	35	17	34	2
2.	30	28	31	32	2
3.	32	31	32	29	4

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TABLE 4. (CONT.)

CASE.	R.S.S.(REES) BEFORE E.C.T.	R.S.S.(REES) AFTER 15TH E.C.T.	R.S.S. 1.W. (REES)AFTER 30TH E.C.T.	R.S.S. 1.M. (REES)AFTER 30TH E.C.T.	SIMPLE R.S.S. 15 M. a.a.
4.	22	30	51	40	8
5.	41	40	44	38	1
6.	34	30	26	30	4
7.	43	40	32	15	9
8.	24	10	49	16	5
9.	22	20	17	22	2
10.	14	13	51	7	9
11.	36	10	9	5	9
12.	32	28	25	10	9
13.	40	19	4	4	9
14.	37	28	33	19	1
15.	53	8	51	52	9
16.	30	22	50	3	7
17.	51	14	0	0	9
18.	22	35	22	4	4
19.	37	14	33	26	9
20	48	21	32	8	5
21.	33	8	0	0	9
22.	40	32	31	37	1
23.	26	13	24	21	0
24.	47	26	29	26	6

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TABLE 4. (CONT?)

CASE.	R.S.S.(REES) BEFORE E.C.T.	R.S.S.(REES) AFTER 15TH E.C.T.	R.S.S. 1.W. (REES)AFTER 30TH E.C.T.	R.S.S. L.M. (REES)AFTER 30TH E.C.T.	SIMPLE R.S.S. 15M.A.A.
25.	33	33	41	28	2
26.	21	19	12	15	2
27.	16	16	5	0	9
28.	17	10	23	20	1
29.	33	12	9	26	2
TOTALS	958	645	784	566	149
MEANS.	33.0	22.2	27.0	19.5	5.

These figures (Tables 4 and 5) suggests, that E.C.T. improved the conduct of the group as a whole, but that 15 E.C.T's had a better immediate effect than 30, and that the score one month after 30 E.C.T's was hardly better than the score immediately after 15. It may be concluded from this that 30 E.C.T's given bi-weekly have not been shown to have a better effect than 15, given bi-weekly. Nor do the mean scores fifteen months after admission indicate that such benefits as resulted were better maintained in the group treated with the longer of the two courses; the critical ratio in this respect (less than 1) is not significant either.

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TABLE 5.

E.C.T. given bi-weekly to group 3 until a total of 15 fits had been induced.

CASE.	R.S.S.(REES) BEFORE E.C.T.	R.S.S.(REES)1.W. AFTER 15TH E.C.T.	R.S.S.(REES)1.M. AFTER 15th E.C.T.	SIMPLE R.S.S. 15. M. a.a.
30.	16	17	19	2
31.	9	3	0	9
32.	35	21	19	4
33.	41	4	32	6
34.	39	36	26	1
35.	25	24	4	9
36.	27	28	26	4
37.	30	10	4	9
38.	16	21	22	1
39.	40	40	22	0
40.	24	24	14	8
41.	19	24	19	8
42.	32	31	31	2
43.	30	14	4	2
44.	20	11	12	6
45.	22	29	9	5
46.	31	35	38	2
47.	32	34	36	2

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TABLE 5. (CONT.)

CASE.	R.S.S.(REES) BEFORE E.C.T.	R.S.S.(REES)1.W. AFTER 15TH E.C.T.	R.S.S.(REES)1.M. AFTER 15th E.C.T.	SIMPLE R.S.S. 15. M. a.a.
48.	23	3	1	9
49.	37	36	39	2
50.	40	37	36	2
51.	19	15	31	4
52.	29	0	10	4
53.	22	0	0	5
54.	27	17	13	7
55.	37	4	1	7
56.	36	12	22	4
57.	25	27	38	0
58.	23	26	25	4
59.	No E.C.T. given - Spontaneous recovery.			
60.	17	10	5	6
61.	43	17	38	0
62.	40	36	37	4
63.	40	26	30	1
64.	35	34	27	7
65.	39	27	31	2

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TABLE 5 (CONT.)

CASE.	R.S.S.(REES) BEFORE E.C.T.	R.S.S.(REES) 1.W. AFTER 15th E.C.T.	R.S.S.(REES) 1.M. AFTER 15TH E.C.T.	SIMPLE R.S.S. 15.M. a.a.
66.	40	22	19	0
67.	26	28	27	4
68.	20	34	22	2
69.	34	26	21	6
70.	41	38	42	0
Totals	1197	881	852	160
Means	24.5	21.3	20.8	4.0

As in the case of group 2, group3 shows a better score one month after termination of treatment than one week after it, but here the difference is less marked.

Taking from grou ps 2 and 3, only those cases with a psychosis, of duration less than one year before admission, it is found that their mean age etc., are as follows:-

MEANS.	Group 1a (21 cases) 30 E.C.T'S.	Group 2a (24 cases) 15 E.C.T's.
Age	31.6 Y.	32.8 Y
Duration of psychosis.	3.0 M.	2.3 M.

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AVERAGES (CONT.)

AVERAGES. (MEANS)	Group 1a (21 cases) 30 E.C.T's.	Group 2a (24 cases) 15 E.C.T's.
E.I.R.	1.7	1.4
R.S.S.(REES) before ad.	34.1	29.0
R.S.S.(REES) 1. W. after E.C.T.	23.8	19.6
R.S.S. (REES) 1. M. after E.C.T.	17.0	20.1
R.S.S.(Simple) 15. M. a.a.	5.42	4.41

One month after termination of treatment, 4 of the 21 in group 1(a) were fit for discharge as compared with 2 of the 24 in group 2(a). From the above data it can be seen that the two groups were very similar and that one month after treatment the group treated with 30 E.C.T's had an advantage in the number of cases fit for discharge, but not a significant advantage in the Rating Scale scores. The advantage may however merely be apparent, and due to the fact that Group 1 cases had

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two months longer in which to recover, their course of treatment having lasted for four, and not for two months, as in the case of group 2. Moreover, (21), of the four cases, was symptom free after the seventh, and one (17) after the 15th E.C.T; a third (19) was very much improved after the 15th E.C.T. Only case 27 first recovered within one month of the 30th E.C.T., so that there is little to suggest that the course of 30 E.C.T's was responsible for the advantage in recoveries shown by group 1 as compared with group 2.

To aid in deciding if 30 E.C.T's are more effective than 15, in the treatment of schizophrenia, two groups (6 and 7) were matched with the aid of a Hollerith machine. Group 6 was selected from the patients in group 2, and group 7 from those in group 3. They were matched for age, duration of psychosis, European influence rating, behaviour rating scale score (Rees), introversion, disconnection (Emotional, intellectual and conduct), Paranoid disposition and affective disturbances (depression, elation, emotional tension), being a modified item sheet similar to the one used by Rees. They were rated for improvement, by using the Rees behaviour rating scale, as well as the same simplified rating scale referred to in Table 2, one week and one month after treatment.

The figures on Table 6 will indicate that there was little difference between the scores of the two groups before treatment, and one month after treatment, on the Rees scale. Group 6 had a score indicating more abnormality than Group 7, one week after treatment, and this was probably due to the greater number of fits induced in the former group,

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as many convulsions are known to cause some confusion, a state of euphoria, and memory disturbances which are all transitory. Using the simple rating scale, there is a critical ratio of only 1.5, hence it cannot be said that the difference in results between these two groups was significant, and it may not be concluded that a longer course was shown to be better than a shorter course of E.C.T. in schizophrenia.

TABLE 6.

Comparison of cases treated with 30 and 15 E.C.T's respectively. Matched groups used.

GROUP 6 (30 E.C.T'S)						GROUP 7 (15 E.C.T'S)					
	Rees Rating Scale.			Simple R.S.S.	Simple R.S.S.		REES Rating Scale.			Simple R.S.S.	Simple R.S.S.
CASE	B.Tr.	1.W.a. Tr.	1.M.a. Tr.	1.M.a. Tr.	15.M. a.a.	CASE	B.Tr.	1.W.a. Tr.	1.M.a. Tr.	1.M.a. Tr.	15.M. a.a.
5	41	44	38	1	1	34	39	36	26	1	1
2	30	31	32	2	2	40	24	24	14	3	8
11	36	9	5	7	9	66	40	22	19	0	0
21	33	0	0	8	9	33	41	4	32	3	6
19	37	33	26	8	9	45	22	29	9	4	5
22	40	31	37	2	1	63	40	26	30	1	1
28	17	23	20	1	1	54	27	17	13	1	7
25	33	41	28	2	2	67	26	28	27	1	4
24	47	29	26	4	6	61	43	17	38	0	0

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TABEL 6. (CONT.)

Group 6. (30. E.C.t's)						Group. 7. (15 E.C t's)					
	Rees Rating Scale.			Simple R.S.S.	Simple R.S.S.		Rees Rating Scale.			Simple R.S.S.	Simple R.S.S.
CASE	B.Tr.	1.W.a. Tr.	1.M.a. Tr.	1.M.a. Tr.	15.m. a.a.	CASE	B.Tr.	1.W.a. Tr.	1.M.a. Tr.	1.M.a. Tr.	15 m. a.a.
14	37	33	19	1	1	52	29	0	10	4	4
6	34	26	30	0	4	30	16	18	19	0	2
1	44	17	34	1	1	65	39	27	31	1	2
8	24	49	16	2	5	60	17	10	5	4	6
18	22	22	4	4	4	51	19	15	31	2	4
14 cases Totals	475	388	315	43	55	14 Cases Tptals	422	272	304	25	50
Means	33.8	27.7	22.5	3.0	3.9	Means	30.1	19.4	21.7	1.78	3.6
S.D.				$\frac{97}{14}$		S.D.				$\frac{30}{14}$	
C.R.				1.52		C.R.				1.52.	

14%/Table 7

TABLE 7.

Alteration of symptoms after E.C.T. in Bantu Schizophrenics.

SYMPTOMATOLOGY. &	NUMBER OF CASES	RATING BEFORE E.C.T.		1.W. AFTER		1.M. AFTER	
		TOTAL	MEAN	TOTAL	MEAN	TOTAL	MEAN
Introversion.	60	203	3.3	155	2.5	153	2.5
Intellectual disconnection	51	149	2.9	114	2.2	95	1.8
Emotional "	60	164	2.7	128	2.1	133	2.2
Conduct "	55	134	2.4	99	1.8	104	1.9
Paranoid disposition.	40	82	2.0	50	1.2	46	1.1
Depression.	10	11	1.1	6	0.6	1	0.1
Elation.	8	11	1.3	3	0.3	0	0.0
Emotional tension.	18	21	1.1	12	0.6	9	0.4

Only cases who were rated on all three occasions and only those who scored at least 1 at the first rating, are reflected in table 7.

The figures indicate that on the whole mild degrees of depression or of elation, present in a few cases, were dispelled after E.C.T; and this was more evident one month after termination than one week after. Emotional tension was likewise, but not as completely relieved.

Introversion was alleviated after E.C.T. in so far as a "moderate"

149/rating for the

rating for the group as a whole, was converted into a "mild". It is noteworthy that there was no appreciable difference one week and one month after termination.

A "mild" Paranoid disposition rating for the group as a whole was converted into a "very mild", one week and one month after E.C.T.

Intellectual, emotional, and conduct disconnection, was improved somewhat after E.C.T., but hardly significantly so. (C.R. not calculated).

The figures in table 7 suggests than only symptoms of affective disorder were significantly improved after E.C.T., but paranoid disposition symptoms also seemed to diminish. There is no suggestion that improvement in any other respect was due to the E.C.T., and as no control group was used, no definite conclusions could be reached.

TABLE 8.

The onset of improvement during E.C.T. of Bantu Schizophrenics.

TIME DURING TREATMENT AT WHICH IMPROVEMENT FIRST APPEARED.	ALL CASES (GRPS. 2 & 3)			RECOVERED OR GREATLY IMPROVED WITHIN 1. M. OF TERMINATION.		
	GRP.2	GRP.3	TOTAL	GRP.2	GRP.3	TOTAL.
After 1st E.C.T.	0	2	2	0	1	1
" 2nd "	1	3	4	0	0	0
" 3rd "	3	0	3	0	0	0
" 4th "	0	3	3	0	0	0
" 5th "	0	2	2	0	1	1

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TABLE 8. (CONT.)

TIME DURING TREATMENT AT WHICH IMPROVEMENT FIRST APPEARED.	ALL CASES (GRPS. 2& 3)			RECOVERED OR GREATLY IMPROVED WITHIN ONE MONTH OF TERMINATION.		
	GRP.2	GRP.3	TOTAL	GRP.2	GRP.3	TOTAL
After 6th E.C.T.	1	4	5	0	0	0
" 7th "	1	0	1	1	0	1
" 8th "	1	0	1	1	0	1
" 9th "	0	2	2	0	0	0
" 10th "	0	1	1	0	1	1
" 11th "	0	0	0	0	0	0
" 12th "	0	0	0	0	0	0
" 13th "	0	0	0	0	0	0
" 14th "	0	0	0	0	0	0
" 15th "	2	4	6	2	1	3
" 16th-30th E.C.T.	6	0	6	2	0	2
No improvement at any stage	14	19	33	N/A	N/A	N/A
Totals.	29	40	69	6	4	10

The figures in table 8 do not indicate clearly that failure to respond early, to E.C.T., is a sign of poor prognosis. However, improvement if it occurs, seems to take place earlier during the course of E.C.T. more often than later.

15%/Table 9.

TABLE 9.

Cases which recovered or improved greatly within one month of termination of E.C.T.

CASES	AGE.	DUR.	E.I.R.	INTROV.	DISCON.	RESTLESSNESS	PAR. DISP.	AFFECT DIST.
10	30	?	0.5	2	3	4	3	2
11	21	7.M.	0.0	4	4	4	2	2
17	26	1.M.	0.5	4	3	5	0	2
19	23	9.M.	1.0	3	3	4	1	2
21	30	4.D.	0.5	3	3	0	3	0
27	32	6.M.	3.5	3	1	1	1	0
31	30	7.M.	4.0	2	1	0	2	0
37	29	3.D.	2.6	4	2	0	3	2
48	30	2.M.	1.5	3	2	0	1	1
53	40	3.M.	1.5	4	2	0	2	1
10 Cases	291	35.M.	15.5	32	24	18	18	10
Means	29.1	3.5.M.	1.5	3.2	2.4	1.8	1.8	1.0

From a comparison of the ten cases which were recovered or greatly improved one month after E.C.T., with the ten patients who were least affected by the treatment, certain conclusions may be drawn. (Refer Tables 9 and 10).

152/Table 10

TABLE 30.

Cases which were least influenced by E.C.T. (Grp.9)

CASES	AGE	DUR.	E.I.R.	INTROV.	DISCON.	RESTLESS	PAR.	AFFECT DIST.
4	50	2.Y.	0	5	4	3	4	2
5	20	18.M.	0.5	3	3	0	0	0
22	23	3.Y.	1.5	4	2	0	0	0
46	26	?	0.5	4	3	0	0	0
47	28	3.W.	1	4	3	0	0	1
50	34	6.M.	0	4	4	0	0	1
49	30	?	1	4	3	0	0	0
57	25	?	0	5	3	1	0	0
62	28	1.M.	0.5	3	4	3	0	2
70	30	4.Y.	2	4	3	3	1	0
10 Cases	294	11.Y.	7.0	40	32	10	5	6
MEANS	29.4	1.3.Y.	0.7	4	3.2	1	0.5	0.6

The average duration of psychosis in the unimproved group is much greater than in the improved and recovered group, and the degrees of introversion and of disconnection were also greater in the case of the former group.

The number of cases with paranoid disposition was 9 in the improved as compared with 2 in the unimproved group.

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Restlessness, European influence rating and affective disturbance, were all greater in the improved group than in the unimproved group. It may therefore be concluded that the following factors signify a poor prognosis:- Duration of one year or more, high introversion rating, high disconnection rating, absence of restlessness, absence of paranoid disposition, low affective disturbance rating (agitation, tension elation, depression). The following, it may be concluded, are of good prognostic significance:- Duration of less than 4 months, restlessness, paranoid disposition, affective disturbance (apprehension, tension elation or depression).

SUMMARY AND CONCLUSIONS.

1. Racial and environmental factors may possibly affect the outcome of schizophrenia in South African Bantu, so that the respective merits of insulin and convulsion therapy as determined in Europeans may not be valid for Africans.

A systematic evaluation of any form of convulsion therapy in Bantu schizophrenics has not previously been undertaken. The history and development of shock treatment is described. South African mental hospitals are overcrowded and inferior methods of treatment should be discarded. The assessment of prognosis of schizophrenia in Europeans and Africans is reviewed; in this connection Bantu intelligence, temperament and brain structure is considered as well as the conflict between tribal customs and European influences.

2. Onehundred-and-twenty schizophrenic Bantu women were investigated mainly as regards the effects of convulsion therapy (E.C.T.). Fifty-one had conservative treatment and sixty-nine had convulsion therapy, consisting of 15 to 30 major convulsions induced at the rate of two per week.

On this material rating scales were used and matched groups were sorted with the aid of a Hollerith machine. Criteria for matching were, sex, clinical diagnosis, absence of appreciable physical disease, age, duration of psychosis, European influence rating, behaviour, introversion, disconnection, paranoid disposition and affective disturbance. The significance of the difference between the mean scores of groups were calculated according to the formula C.R. = $\frac{m_1 - m_2}{\sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}}$

3. No definite evidence was found to indicate that E.C.T. as given, produced appreciably better results one month after termination of treatment than conservative methods, fifteen months after admission. (Refer tables 2 and 3). Treatment consisting of 30 convulsions given at the rate of two per week, may actually delay the discharge of patients who recover spontaneously. Nor has it been shown that a course of 30 convulsions benefits more than one of 15 only.(Refer table 6.)

4. Spontaneous recoveries in a group of 50 female Bantu schizophrenics of all ages, types and duration, amounted to 14 per cent, but in 20 of less than a year's duration, to 30 per cent, fifteen months after admission. As regards spontaneous recovery in schizophrenia of Europeans, Muller (4) concluded that the rate was probably 15 to 20 per cent in cases of all types and duration, and Mayer-Gross (5) reported a rate of 34.5 per cent in cases of less than one year's duration.

5. Recoveries within one month of E.C.T. in a group of 69 female Bantu schizophrenics of all ages, types and duration, amounted to 10 per cent, but in 45 of less than a year's duration to 13 per cent; 15 months after admission these percentages had risen to 20 per cent and 24 per cent respectively.

Cook, (1) concluded from his review, that the results of convulsion treatment in schizophrenia, (of Europeans) probably amounted to a recovery rate of 55 to 60 per cent, but Rees (2) reported only 38 per cent recoveries in cases of less than one year's duration, and

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Ross and Malzburg, quoted by Cook (3), reported only 11.5 per cent of recoveries with convulsion therapy.

6. The recovery rate of schizophrenia of Europeans and African Bantu, with and without E.C.T., may not differ appreciably, even though from the present investigation it seems as if the prognosis in Africans is poorer. Features indicating a good or bad prognosis are similar for Europeans and Africans.

7. Of poor prognostic significance were found to be:-

   a. Duration of psychosis of more than one year.

   b. Marked introversion and disconnection.

   c. Absence of restlessness.

   d. Absence of paranoid disposition.

   e. Absence of tension, elation and depression.

8. Of favourable prognostic significance were found to be:-

   a. Duration of psychosis of less than four months.

   b. Restlessness.

   c. Paranoid disposition.

   d. Elation, depression and emotional tension.

9. No evidence was found to indicate clearly, that failure to respond early to E.C.T. is a sign of poor prognosis in schizophrenia.

10. The result of this investigation should not suggest that more intensive E.C.T., over a shorter period, is not worth a trial, or that valuable short term benefits are not to be obtained with E.C.T., in Bantu schizophrenics.

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THE BLOOD SEDIMENTATION RATE IN SOUTH AFRICAN NATIVE MENTAL PATIENTS

AN INVESTIGATION OF A SERIES OF 200 CASES USING THE WESTERGREN METHOD

J. S. DU T. DE WET, M.B., CH.B., CAPE TOWN

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J. S. DU T. DE WET, M.B., CH.B., CAPE TOWN

Ask-Upmark (3), investigated the blood sedimentation rate in 93 cases of expansive affections of the brain (mostly tumours), using the Westergren method. From the results he concluded that the blood sedimentation rate tended to be raised above 5% (3½% in men and 5½% in women was regarded by him as upper limit of normality) in malignant tumours of the brain and in tumours of the pituitary region, whether they were benign or malignant. He considered it possible that the sedimentation rate might be raised by means of a central mechanism in the same way as the body temperature and the blood pressure was influenced by mechanisms of the central nervous system.

Izikowitz and Lindquist (6) investigated the nature of the blood sedimentation rate in 1,099 mental patients (435 men and 664 women), using the Westergren method. They found that 27% of women schizophrenics and 16% of men had raised sedimentation rates; 22% of manic depressive women were raised and about the same percentage of men. Of psychopathic personalities they found 27% of men and 30% of women were raised. In presenile psychoses (women) 41% had raised rates. In arteriosclerotic and senile psychoses 54% were raised (women) and 37% (men).

They regarded as normal a rate of not more than 3 mm. (1½%) in men and 7 mm. (3½%) in women. Borderline rates they called 4 to 7 mm. in men and 8 to 11 in women. Pathologically increased rates they called 8 mm. (4%) in men and 12 mm. (6%) in women.

On this basis they concluded from their investigation that a third of *all* their patients when admitted to mental hospital had pathologically raised sedimentation rates and that the incidence of such raised rates was the same essentially amongst schizophrenics, manic depressives and psychopaths; also, that the rate tended to increase with age. They found it impossible to get any definite relation of the onset of the somatic processes increasing the rates, to that of the psychotic symptoms. Their 1,099 cases consisted of approximately 30% schizophrenics, 16% manic depressives, 30% psychopaths, 13% senile and presenile psychoses, and 11% other types, chiefly of the organic reactive variety. On the whole, therefore, their series will bear comparison with the present series.

Goldwyn (14) using the Westergren method, investigated the blood sedimentation rate in the various psychiatric states. He regarded as normal

1% to 3% in men and 3% to 5% in women after 1 hour, from an investigation on 25 normal people, and including which he investigated 228 cases (57 male and 29 female schizophrenics, 17 acute alcoholic psychoses, 23 psychoses due to arteriosclerosis or senility, 13 general paretics, 14 manic depressives, 13 involutional melancholics and 31 other types of psychoses). His investigation is important for he did, apart from a careful clinical examination, a routine blood-count, urine analysis and Wassermann test on all his cases. He concluded that the sedimentation rate was normal in cases of manic depressive psychosis, psychopathic personality, psychoneurosis and paranoia uncomplicated by physical disease of one kind or another. Of schizophrenics he found that the rate was normal usually (that is, not higher than 3% in men and 5% in women) or occasionally raised 1% or 2% above this level. Raised rates tended to occur in senile psychoses, and psychoses due to arteriosclerosis, G.P.I., neurosyphilis, acute alcoholic psychoses and involutional melancholia.

At the Bloemfontein Mental Hospital (August, 1938, to August 1940) the sedimentation rates of the Native patients admitted were investigated In addition to these 5 healthy male native staff had sedimentation tests done and the readings varied from 2 to 3 mm. in 1 hour (1 to 1½%). Because psychotic patients were often restless and it was uncertain how much this influenced the sedimentation rate, these same men had their sedimentation rate taken immediately after a Soccer match of 1 hour, and the rates were found in each case to have been doubled, but in no case was it above 6 mm. (3%), after the first hour. The investigation was scheduled to consist of the clinical (mental and physical) examination of a series of 100 new admissions with a routine investigation of the blood Wassermann, urine, and C.S.F. in each case and blood sedimentation rate tests once a week for the first week and once a month for the first year, with accompanying notes on their mental and physical progress. Owing to the outbreak of war this investigation was never completed and only incomplete records of the cases that had been examined were taken with the author prior to enlistment and are at present available. Nevertheless, a few facts and figures may be of some interest in the light of those investigations by others, already referred to.

In some cases with an abnormal sedimentation rate there was, apart from mental symptoms, nothing abnormal discovered clinically and in others only slight clinical abnormalities such as septic gums and carious teeth or septic tonsils, under-nourishment, pallor of the mucous membranes, or mild signs of vitamin deficiency such as phrynoderma, as often seen in pellagra.

The results of the investigation as tabulated here, reflect only the blood sedimentation rate on admission and none of the serial tests, since these will have no particular significance in view of the absence of clinical notes on individual cases.

It should be mentioned, however, that serial tests generally confirmed the results of the test on admission in these cases.

TABLE I

Blood sedimentation rate in 100 unselected native female patients admitted to the Bloemfontein Mental Hospital 1938 to 1939. (The test was done as a routine and all types of mental patients are included.)

Blood Sedimentation Rate in 1 *hour* (*Westergren tube, column of blood* 200 *mm.*)	*Number of cases*	
0 to 5 mm. (2½%)	7	
6 to 10 mm. (5%)	15	30
11 to 15 mm. (7½%)	8	
16 to 20 mm. (10%)	12	
21 to 25 mm. (12½%)	15	40
26 to 30 mm. (15%)	13	
31 to 35 mm. (17½%)	5	
36 to 40 mm. (20%)	6	
41 to 45 mm. (22½%)	2	
46 to 50 mm. (25%)	3	
51 to 55 mm. (27½%)	1	
56 to 60 mm. (30%)	2	
61 to 65 mm. (32½%)	1	
66 to 70 mm. (35%)	2	
71 to 75 mm. (36½%)	1	30
76 to 80 mm. (40%)	1	
81 to 85 mm. (42½%)	1	
86 to 90 mm. (45%)	0	
91 to 95 mm. (47½%)	1	
96 to 100 mm. (50%)	2	
101 to 105 mm. (52½%)	1	
106 to 110 mm. (55% and over)	1	
111 and over (over 55%)	0	

Total number of cases 100.

From these figures it will be seen that 30% of cases showed a normal sedimentation rate on admission and 70% showed an abnormal rate. (It is usually accepted that the upper limit of a normal sedimentation rate in women is 15 mm. in 1 hour or 7½% (Westergren). These women were not menstruating when the test was done.) The patients were entirely unselected and the figures give a fair indication of the incidence of an abnormal sedimentation rate amongst female native admissions to the Bloemfontein Mental Hospital.

As pointed out by Goldwyn (14) the uncomplicated case of schizophrenia practically always has a normal sedimentation rate and the same applied to manic depressive psychoses and all other "functional" psychiatric states. Although there are no figures to indicate the percentage of the different psychoses which comprised this group, it can be stated with certainty that the great majority (probably 70%) were diagnosed as schizophrenia or manic depressive psychosis.

The result of this investigation seems to show that the incidence of abnormal physical states affecting native female mental patients, is distinctly high on their first admission to hospital. It is a state of affairs which warrants further investigation.

Of these cases 30% showed a blood sedimentation rate above 30 mm. (15%) in 1 hour, so that even if a blood sedimentation rate of 15% is taken as the upper limit of normality, the percentage of cases with a blood sedimentation rate above this is still very significant.

Although the incidence of positive Wassermann tests amongst these patients was high, it was not above 50% and in not more than 10% was there a clinically active syphilitic condition. The number of psychoses due to syphilis of the central nervous system was not more than 5%. A normal sedimentation rate frequently occurred in patients who had a positive blood Wassermann reaction and no other signs of physical disease, and syphilis cannot explain completely the results as tabulated.

TABLE II

Blood sedimentation rate in 100 unselected Native male patients admitted to the Bloemfontein Mental Hospital 1939 to 1940. (The test was done as a routine and all types of mental patients are included.)

Blood Sedimentation Rate in 1 *hour* (*Westergren Tube, column of blood* 200 *mm.*)	*Number of cases*	
0 to 5 mm. (2½%)	35	58
6 to 10 mm. (5%)	23	
11 to 15 mm. (7½%)	11	20
16 to 20 mm. (10%)	9	
21 to 25 mm. (12½%)	1	
26 to 30 mm. (15%)	5	
31 to 35 mm. (17½%)	0	
36 to 40 mm. (20%)	3	
41 to 45 mm. (22½%)	2	
46 to 50 mm. (25%)	3	
51 to 55 mm. (26½%)	0	
56 to 60 mm. (30%)	4	
61 to 65 mm. (32½%)	0	
66 to 70 mm. (35%)	1	22
71 to 75 mm. (37½%)	0	
76 to 80 mm. (40%)	1	
81 to 85 mm. (42½%)	0	
86 to 90 mm. (45%)	0	
91 to 95 mm. (47½%)	0	
96 to 100 mm. (50%)	2	
101 to 105 mm. (52½%)	0	
106 to 110 mm. (55%)	0	
111 and over (over 55%)	0	

Total number of cases: 100

From this table it will be seen that 58% of these patients were found to have a normal blood sedimentation rate on admission and 42% were abnormal, accepting a blood sedimentation rate of over 5% (10 mm. Westergren) as the upper limit of normality in native males.

Twenty-two per cent. had a blood sedimentation rate over 10% (20 mm.) on admission and this figure is regarded as significant in so far as it reflects, as in the female natives, a high incidence of an abnormal sedimentation rate amongst these patients, indicating, as with the females, a prevalence of physical disease amongst native mental patients admitted to the Bloemfontein Mental Hospital.

As amongst the females, the incidence of patients with a positive blood Wassermann reaction was high but could not entirely explain the results of the blood sedimentation rate tests as tabulated. Of 379 new male admissions on whom a routine blood Wassermann test had been done and amongst whom the 100 cases referred to here, were included, the Wassermann reaction was positive in 136 (36%) of cases.

Conditions in which the blood sedimentation rate was often, but not always, raised were general paresis, psychosis with cerebral syphilis, psychosis with pellagra and mi cellaneous groups of toxic-infective psychoses.

The following are the approximate figures indicating the representation of the different types of case in this group of 100 cases (males).

TABLE III

Diagnosis	*Number*
Schizophrenia	60
Manic Depressive Psychosis	2
Psychosis with Epilepsy	18
General Paresis	8
Psychosis with Cerebral Syphilis	2
Psychosis with Pellagra	4
Senile Psychoses	4
Other Psychoses	2
TOTAL	100

CONCLUSION

The incidence of a raised blood sedimentation rate amongst native mental patients admitted to Mental Hospitals in South Africa is probably a good deal higher than amongst European admissions. This is probably accounted for by the more frequent occurrence amongst natives of physical neglect, sepsis, malnutrition, mild degrees of anaemia, syphilis and pellagra and such factors are probably of greater importance at present in assisting the development of psychoses amongst natives than amongst Europeans.

Comparing these results with those of Izikowitz and Lindquist (6) it is clear that there is an enormous difference in the percentage of patients with pathologically raised rates in the 2 series (even adopting a standard for normality which was higher than theirs, i.e., regarding 16 mm. and 10 mm. as pathologically increased in females and males respectively, whereas they took 12 mm. and 8 mm. as their limits).

Of their cases 33⅓% had pathologically raised rates on their basis; 56% on the different basis as indicated had raised rates in the present series. It would probably be correct to say that the incidence of a raised sedimentation rate is twice as high amongst natives admitted to Mental Hospitals in South Africa as amongst the series of cases investigated by Izikowitz and Lindquist.

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THE ASSOCIATION OF UNDERNUTRITION AND PSYCHOSIS

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Frequently in dealing with Africans, it is difficult to know if hypovitaminosis is the cause of a psychosis or secondary to it; it is with such cases that this article is mainly concerned.

The relationship of the mind to the body is still controversial,[1] and the degree to which many psychoses are determined by physical factors remains uncertain, as does the significance of diagnoses based upon mental symptoms only. Symptoms resembling those of mania or of schizophrenia may be precipitated by organic conditions or by intoxications, and diagnosis of an organic-reaction type of psychosis is sometimes made on the history and physical findings, rather than on the mental features; this is unsatisfactory if it is possible to arrive at a more accurate diagnosis by careful consideration of the mental symptoms as well.

Henderson and Gillespie[2] describing the mental symptoms of organic-reaction types of psychosis, including vitamin-deficiency states, mentions disorientation, difficulty in comprehension, memory defects, suggestibility, and visual hallucinations; emotional instability—laughing and weeping without sufficient cause and often explosively; indecent behaviour.

As features of delirium, Curran[3] mentions disorientation, difficulty in comprehension, memory defects, suggestibility, visual hallucinations, apprehension, paranoid features, restlessness, changing lucidity of consciousness.

Kennedy,[4] describing the mental symptoms of vitamin-deficiency states such as pellagra and Wernicke's encephalopathy, names restlessness, delirium, confusion, shouting, grimacing, listlessness, amnesia, rambling speech, mild confabulation, hallucinations, apprehension, depression, emotional instability, mania, delusions of persecution, hypochondriasis and hysteria.

Considering the aforementioned symptoms, it is clear that many or all of them may occur in functional psychoses like schizophrenia and manic depressive psychosis, and others may appear in neuroses, but that a few, such as confusion, emotional instability and visual hallucinations, especially if occurring together, appear to be specially characteristic of the organic-reaction types of psychosis. It is thought, therefore, that in assessing a patient for important features of organic-reaction type of psychosis, the following item sheet[11] should be useful, with ratings applied as indicated:

1. *Confusion* (in the absence of schizophrenic symptoms, e.g., autochtonous delusions, thought-resonance hallucinations, ideas of passivity and of interference, thought disconnection and catalepsy)

Defective attention and concentration:	none,	mild,	moderate,	severe
„ ability to calculate:	„	„	„	„
„ „ „ memorise:	„	„	„	„
„ „ „ comprehend:	„	„	„	„
Disorientation for place and time:	„	„	„	„

Rating: absent —, slight 1, moderate 2, severe 3.

2. *Emotional Instability*

Apprehensiveness:	none,	mild,	moderate,	severe
Laughing and weeping:	„	„	„	„
Weeping:	„	„	„	„

Rating: absent —, slight 1, moderate 2, severe 3.

3. *Visual Hallucinations*

Rating: absent —, rarely present 1, present 2, constantly present 3.

CASES STUDIED

During the period 1 August 1952 to 1 August 1953, 142 non-European female patients were admitted to the Tower Hospital, and of these 52 had signs of undernutrition. This presented an opportunity to investigate the association of signs of undernourishment and symptoms of mental disturbance.

The patients with signs of undernutrition were rated for this according to the following method. First the degree to which signs of undernutrition were present was recorded as follows:

Polyuria

Less than 2,000 cc. passed in 24 hours:	absent	(—)
2,000–2,500 cc. passed in 24 hours:	mild	(1)
2,500–3,000 cc. „ „ „ „	moderate	(2)
3,000 and more cc. „ „ „	severe	(3)

Nocturia

Passage of urine once during the night:	absent	(—)
„ „ „ twice „ „ „	mild	(1)
„ „ „ 3 times „ „ „	moderate	(2)
„ „ „ 4 „ „ „ „	severe	(3)

Hypotension

Systolic pressure 110 mm. or above:	absent	(—)
„ „ 100—110 mm.:	mild	(1)
„ „ 90—100 mm.:	moderate	(2)
„ „ below 90 mm.:	severe	(3)

Bradycardia

Pulse above 65 per min.:	absent	(—)
„ 60–65 per min.:	mild	(1)
„ 50–60 per min.:	moderate	(2)
„ below 50 per min.:	severe	(3)

The remaining signs such as oedema, wasting, desquamation, phrynodermia, dry skin, purpura, cracking of the lips, glossitis, and increased tendon jerks, were rated absent (—), mild (1), moderate (2), and severe (3), according to the clinical impression of the observer.

Each sign of undernutrition having been rated, a total score was arrived at, which was used in the following manner to express the degree of undernutrition in general:

Total Points on Scale	*Undernutrition Rating*
0	— (Signs absent)
1— 2	1 („ doubtful)
3— 4	2 („ very mild)
5— 6	3 („ mild)
7— 9	4 („ moderate)
10—12	5 („ moderately severe)
13—15	6 („ severe)
16—20	7 („ very severe)
21—39	8 („ extreme)

The erythrocyte sedimentation rate (Westergren) of each patient was taken on admission and this was rated as follows:

mm. in 1 hour	
0— 15	— (absence of raised rate)
16— 20	1 (doubtfully „ „)
21— 30	2 (very mildly „ „)
31— 40	3 (mildly „ „)
41— 50	4 (moderately „ „)
51— 70	5 (decidedly „ „)
71— 80	6 (severely „ „)
81—100	7 (very severely „ „)
100 or more	8 (extremely „ „)

Each patient was further rated for signs of organic-reaction type of psychosis, according to the item sheet described above, and was then rated according to the following scale:

Total Points Gained on Item Sheet	*Rating of Features of Organic Reaction Syndrome*
0	— (absent)
1	1 (doubtful)
2	2 (very mild)
3	3 (mild)
4	4 (moderate)
5	5 (moderately severe)
6	6 (severe)
7	7 (very severe)
8 and 9	8 (extreme)

Table I, below, reflects the findings in the 52 patients mentioned, and the following abbreviations are used:

Unclassified-type schizophrenia	Sch U	Married	M
Catatonic schizophrenia	Cat	Single	S
Paranoid schizophrenia	Par	Widowed	W
Hebephrenic schizophrenia	Heb	Urban	U
Simple schizophrenia	Sim	Rural	R
'Infection-exhaustion' psychosis	IEP	Not improved	NI
Epileptic psychosis	Ep P	Improved	I
Senile psychosis	Sen P	Recovered	R
Manic depressive psychosis	MDP		
Arteriosclerotic psychosis	ASP		

'Infection-exhaustion' psychosis included states of undernutrition associated with confusion and emotional stability, etc.

In cases 1-23 no additional signs of physical disease were found, but cases 24-52 had added abnormalities and these are listed below.

(24) Frequent tachycardia+. She died suddenly during a struggle to spoonfeed her.
(25) Temporal arteries felt hardened.
(26) Pyrexia present. Pulmonary tuberculosis (?). Commencing cataracts and arcus senilis+.
(27) Pyrexia +. Cough and history of weight loss +. Commencing cataracts and arcus senilis +. Teeth carious.

TABLE I

Clinical Data	*Patients* 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Age (in years)	30	46	38	35	30	45	25	50	50	39	17	30	34	48	26	38	30	27	30	40	35	26	45	38	55	60
Marital state	M	M	W	S	?	W	?	W	?	W	S	W	M	W	?	?	M	S	S	W	W	S	W	M	S	W
Number of children ...	7	4	0	3	?	0	?	3	?	4	0	0	1	1	?	?	4	0	0	4	4	1	2	4	2	2
Duration of psychosis before admission (weeks) ...	12	1	1	2	?	1	?	20	?	52	52	3	?	1	1	1	?	?	104	104	2	2	16	?	1	?
District (rural or urban)	U	U	R	U	U	U	R	U	R	U	U	R	R	U	R	U	R	R	R	R	R	R	U	U	R	R
Wasting	2	0	1	2	1	0	3	3	3	2	3	0	2	2	1	0	2	0	2	1	1	2	2	1	2	1
Oedema	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	1	0	0	0	0	0
Bradycardia	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hypotension	3	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0	0	0	0	0
Desquamation (pellagrous)	0	1	0	0	1	1	1	0	0	0	0	0	2	0	0	0	0	1	2	1	0	0	0	0	0	0
Phrynodermia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dry skin; hyperkeratosis	2	1	1	1	1	1	1	3	2	2	2	2	2	2	1	0	1	2	2	2	2	0	1	1	2	1
Purpura	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cracked lips; cheilosis ...	2	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Glossitis	1	0	0	0	0	0	0	0	2	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0
Increased tendon-reflexes ...	2	0	1	1	0	0	0	0	2	0	2	0	0	0	0	0	0	0	2	0	2	1	1	0	0	1
Nocturia	1	0	0	0	1	0	?	0	0	0	?	2	?	0	0	0	0	1	0	2	0	1	0	0	0	0
Polyuria	1	0	0	0	0	0	?	0	0	0	?	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
UNDERNUTRITION RATING	6	1	2	2	2	1	3	3	5	3	4	3	3	3	2	2	2	3	4	3	5	2	2	1	2	2
Other physical abnormalities	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	+	+	+
Confusion	1	1	1	2	0	1	1	1	3	0	0	0	1	0	0	0	0	0	1	0	3	2	1	1	0	2
Emotional instability ...	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	1	1
Visual hallucinations ...	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ORGANIC-REACTION SYNDROME RATING	1	1	2	2	0	1	1	1	3	0	0	1	1	0	0	1	0	0	1	0	3	4	1	1	1	3
E.S.R. in mm. (Westergren)	61	13	19	45	6	13	50	15	58	21	47	15	30	44	47	25	8	13	24	21	63	60	22	14	90	108
RAISED E.S.R. RATING ...	5	0	1	4	0	0	4	0	5	2	4	0	2	4	4	2	0	0	2	2	5	5	2	0	7	8
Mental state after 3 months	I	R	NI	I	I	R	NI	NI	NI	NI	NI	NI	NI	I	NI	NI	NI	NI	NI	NI	I	R	I	Died	NI	Died
Clinical diagnosis on admission	Sch U	Cat	Cat	Sch U	Heb	Cat	Sch U	Sch U	Sch U	Cat	Cat	Cat	Sch U	Cat	Ep P	Cat	Cat	Ep P	Sch U	Cat	IEP	Par	Cat	Cat	MDP	IEP

TABLE I (*continued*)

Clinical Data	*Patients* 27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
Age (in years)	55	20	27	41	55	80	40	40	60	27	29	28	36	46	71	40	42	28	60	60	45	40	60	34	36	38
Marital state	W	S	S	M	?	W	?	?	W	S	S	M	W	M	W	M	S	M	W	S	W	?	M	W	S	S
Number of children ...	3	0	—	2	?	1	?	?	2	0	0	3	0	2	4	2	1	2	3	1	0	2	2	2	4	1
Duration of psychosis before admission (weeks) ...	1	52	?	2	?	250	?	?	4	12	6	?	104	8	?	1	2	1	8	25	25	?	?	?	1	2
District (rural or urban) ...	R	R	U	U	U	U	R	R	R	R	U	R	R	R	R	R	U	U	U	R	U	U	U	U	R	U
Wasting	2	3	2	2	0	2	3	0	3	0	1	3	1	1	3	0	2	1	1	1	2	2	1	2	1	2
Oedema	2	0	0	0	1	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Bradycardia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hypotension	0	2	0	0	0	0	0	1	0	0	1	1	1	0	0	0	2	1	0	0	0	1	0	0	0	1
Desquamation (pellagrous)	1	0	0	1	1	0	0	1	0	1	0	0	0	0	0	0	2	0	0	0	1	1	0	0	1	0
Phrynodermia	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
Dry skin; hyperkeratosis ...	1	0	0	1	2	0	2	2	2	2	0	2	2	1	2	1	2	1	1	0	2	2	1	0	1	0
Purpura	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cracked lips; cheilosis ...	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Glossitis	1	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Increased tendon-reflexes ...	1	0	0	0	0	0	0	0	1	0	0	1	0	2	2	0	2	0	0	0	2	2	0	1	1	?
Nocturia	0	0	0	0	0	0	0	0	0	0	?	?	0	?	0	0	2	2	0	0	1	0	1	1	0	1
Polyuria	0	0	0	0	0	0	0	0	0	0	?	?	0	?	0	0	0	0	0	0	0	0	0	0	0	0
UNDERNUTRITION RATING...	4	3	1	2	2	1	3	2	3	3	1	5	3	2	4	1	5	3	1	1	4	4	2	2	2	2
Other physical abnormalities	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Confusion	3	3	0	2	0	0	1	0	0	1	0	2	0	0	0	1	1	1	2	0	2	0	3	3	1	0
Emotional instability ...	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	2	2	2	0	0	0	0	0	0	1	0
Vistual hallucinations ...	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
ORGANIC-REACTION SYNDROME RATING	4	3	0	0	1	0	3	0	0	2	0	2	0	0	0	3	3	3	2	0	3	0	3	3	2	0
E.S.R. in mm. (Westergren)	50	143	17	45	12	22	110	48	7	36	35	4	35	57	22	66	75	146	13	12	40	3	14	45	29	99
RAISED E.S.R. RATING ...	4	8	1	4	0	2	8	4	0	3	3	0	3	5	2	5	6	8	0	0	3	0	0	4	2	7
Mental state after 3 months	R	R	NI	I	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	R	I	I	I	NI	R	R	R	R	R	R
Clinical diagnosis on admission	IEP	IEP	Heb	IEP	ASP	Sen P	IEP	Par	ASP	*	Cat	Cat	Cat	Cat	Sen P	IEP	IEP	IEP	Sen P	Cat	‡	Par	IEP	IEP	Cat	MD P

* Defective mental development.

‡ Psychosis with paraplegia.

(28) Irregular low pyrexia +.
(29) Blood Wassermann reaction (WR) ++. Tuberculosis (?).
(30) Low pyrexia with cough and pain in chest +. Tuberculosis (?).
(31) B.P. 170/120 mm. Hg. Commencing cataracts +.
(32) Senility +.
(33) Abnormal morning and evening temperature swings +. Tachycardia +. Blood WR +. Monocytes 14%. Septic abrasions +. Had 2 treatments by electro-convulsion therapy (E.C.T.).
(34) Blood WR +.
(35) Radial arteries sclerotic. B.P. 140/90 mm. Hg.
(36) Congenital hemiplegia +.
(37) Superficial scars in the neck +. Had 30 E.C.Ts.
(38) Frequent tachycardia. Had 7 E.C.Ts.
(39) Uterine fibroma. Had 8 E.C.Ts.
(40) Senescent. Hair very grey. Had 6 E.C.Ts.
(41) Temporal arteries hardened. Arcus senilis.
(42) Pyrexia +. Leukopenia 4,200 per c.mm. with relative lymphocytosis 60%.
(43) Scars of old adenitis in the axilla +.
(44) Low pyrexia +. Lochia +.
(45) Senility +.
(46) Thoracic kyphosis +. Tuberculous infiltration at right apex developed 2 months after admission.
(47) Spastic paraplegia with sensory loss up to hips +.
(48) Teeth very poor.
(49) Previously had pellagra. Teeth very poor.
(50) Blood WR +. Teeth carious.
(51) Dental caries +.
(52) Dental caries +.

Table II reflects the incidence of various clinical signs of undernutrition in the 52 patients mentioned.

TABLE II

Clinical Signs	*Total Rating Scale Score for the Group*	*Percentage Patients affected*
Wasting	85 ...	84
Dry Skin	69 ...	80
Increased E.S.R.	65 ...	69
Increased tendon jerks	31 ...	38
Desquamation	24 ...	32
Hypotension	19 ...	24
Nocturia	16 ...	23
Glossitis	15 ...	15
Cracked lips	10 ...	9
Oedema	9 ...	13
Polyuria	3 ...	4
Phrynodermia	2 ...	2
Bradycardia	1 ...	2
Purpura	0 ...	0

Wasting, dry skin and a raised erythrocyte sedimentation rate were therefore the most outstanding clinical signs in the group, whereas purpura was never observed and polyuria, bradycardia and phrynodermia were all very infrequent. The degrees of undernutrition seen were mild on the whole, but the number of patients affected was clearly high (35% of admissions).

The following is a classification of the group according to clinical diagnosis:

Catatonic schizophrenia 17, Infection and exhaustion psychoses 12, Unclassified schizophrenia 7, Paranoid schizophrenia 4, Senile psychosis 3, Epileptic psychosis 2, Manic depressive psychosis 2, Arterio-sclerotic psychosis 2, Defective mental development 1, Hebephrenic schizophrenia 1, Psychosis with Paraplegia.

The incidence of psychosis thought to be probably due to hypovitaminosis was therefore less than 9% of total admissions.

Table III reflects the correlation of a raised erythrocyte sedimentation rate with signs of undernutrition.

TABLE III. CORRELATION OF E.S.R. AND UNDERNUTRITION

Number of Patients	*Mean Undernutrition Rating*	*Mean Raised E.S.R. Rating*
52	2·66	2·88

r (coefficient of correlation) is $= \frac{\Sigma x y}{\eta \sigma_1 \sigma_2} = 0 \cdot 2$.

TABLE IV. CORRELATION OF E.S.R. AND ORGANIC-REACTION SYNDROME

Number of Patients	*Mean raised E.S.R. Rating*	*Mean Org. React. Syndr. Rating*
52	2·88	1·28

r (coefficient of correlation) is calculated to be $=0 \cdot 3$.

TABLE V. CORRELATION OF ORGANIC-REACTION SYNDROME AND UNDERNUTRITION

Number of Patients	*Mean Org. React. Syndr. Rating*	*Mean Undernutr. Rating*
52	1·28	2·66

r (coefficient of correlation) is calculated to be $=2 \cdot 7$.

The coefficient of correlation was calculated according to the product moment measure, where $r = \frac{\Sigma x y}{\eta \sigma_1 \sigma_2}$, because the rank difference measure, where $\text{Rho} = 1 - \frac{6 \Sigma D^2}{\eta (\eta^2 - 1)}$, would have been unwieldy to employ owing to the number of cases in the group.

The high correlation of undernutrition and organic-reaction type of psychosis is understandable, because the degree of undernutrition was low in most cases and the incidence of marked features of organic-reaction syndrome was also low, but it does not prove that a high degree of undernutrition will also be correlated with marked features of organic-reaction psychosis.

Tables VI and VII, below, serve the purpose of a comparison of the erythrocyte sedimentation rate and symptoms of organic-reaction type of psychosis in 2 groups of selected patients.

TABLE VI. GROUP 1: 15 CASES OF PSYCHOSIS WITH SIGNS OF UNDERNUTRITION BUT NOT OF OTHER PHYSICAL DISEASE

Case Numbers	*Age*	*Duration (weeks)*	*Undernutrition Rating*	*Org. React. Psych. Rating*	*E.S.R. Rating*
16	38	1	2	1	2
43	42	2	4	3	6
21	35	2	5	3	5
50	34	12	2	3	4
51	36	1	2	2	2
6	45	1	2	0	3
1	30	12	6	1	5
3	38	1	2	2	1
4	35	2	2	1	4
14	48	1	3	0	4
36	27	12	3	2	3
15	26	1	2	0	4
40	46	8	2	0	5
12	30	3	3	1	0
30	41	2	2	2	4
Means ...	36	4	2·8	1·4	3·5

TABLE VII. GROUP 2: 14 CASES OF SCHIZOPHRENIC PSYCHOSIS WITHOUT ANY CLINICAL SIGNS OF PHYSICAL DISEASE

Cases	*Age*	*Duration (weeks)*	*Org. React. Psych. Rating*	*E.S.R. Rating*
a	34	24	0	2
b	40	1	0	2
c	50	2	1	2
d	26	4	1	0
e	47	4	0	0
f	42	16	0	2
g	27	8	0	1
h	38	?	1	0
i	23	4	1	5
j	32	24	1	0
k	22	24	0	0
l	30	28	0	0
m	17	12	1	0
n	25	?	1	2
Means ...	37...	12	0·5	1·14

With the Critical Ratio (C.R.)= $\frac{\textit{Difference between the two means}}{\sqrt{\frac{\sigma_1^2}{\eta_1} + \frac{\sigma_2^2}{\eta_2}}}$

it is calculated that C.R. is 1·1 as regards the features of organic-reaction type of psychosis, and the two groups therefore did not differ significantly in this respect; this is perhaps not surprising, for the cases of undernutrition were mainly a mild type. Nevertheless, from a simple comparison of the mean scores, it appears that some slight difference did exist between the groups.

The Critical Ratio for the erythrocyte sedimentation rate of the two groups is found to be 5·5, and this is highly significant, especially as there was no appreciable physical disease apart from vitamin-deficiency signs in group-1 patients, who were selected on the basis of age (36) and duration

of psychosis (1-3 months). Moreover, the mean rating of the vitamin-deficiency signs was only 2·8 (less than mild). However, there is no suggestion that the E.S.R. is any criterion for the diagnosis of 'Organic-Reaction Type of Psychosis' and it can merely be pointed out that in psychotics the E.S.R. is more often raised in association with hypovitaminosis than without it.

Summary of Correlations

1. In the group of 52 patients here reported, there is a high correlation between the degree of undernutrition and the degree to which mental symptoms of organic-reaction type of psychosis were present. However, as both conditions were mild in most cases, this correlation is perhaps not very significant.

2. The correlation between the degree of undernutrition and a raised E.S.R. was low and not significant. This was possibly due to complications affecting the E.S.R. associated with undernutrition, and their uneven distribution in this group. But the significant difference in E.S.R. for the two groups reflected in Tables 6 and 7 is remarkable, considering the mild degree of undernutrition, and suggests that the test is of value in differentiation between patients on physical grounds, when they show only mild external signs of physical abnormalities.

3. The low correlation of a raised E.S.R. and intensity of mental symptoms of organic-reaction type of psychosis is unexpected and unexplained in this group; it suggests that the E.S.R. by itself is of no help in the differential diagnosis of organic-reaction psychosis and functional psychosis, if an association of mental symptoms alone is to be looked upon as the criterion by which 'organic-reaction psychosis' is to be diagnosed. The test obviously has not the value in diagnosis of organic-reaction type of psychosis which, for instance, the Wassermann test has in the diagnosis of general paralysis of the insane, nor has it been shewn by this investigation that a raised sedimentation rate in any way conditions the development of the characteristic mental features of the organic-reaction syndrome.

Although it is conceivable, perhaps even likely, that in certain organic-reaction psychosis there may be significant correlation between improvement in psychosis and improvement in E.S.R., no attempt has been made here to demonstrate this.

Table VIII reflects various data for rural as opposed to urban Natives.

TABLE VIII

	Rural Natives	*Urban Natives*
Mean E.S.R. of Group	41 mm. in 1 hr.	36 mm. in 1 hr.
Mean Undernutrition Rating Scale Score of Group	5·5	5
Total Population[12]	1,781,259	132,985
Ratio of Population	1	13
Ration of Population expressed as a percentage	7%	93%
Cases in Group	29	23

There is no evidence in Table VIII that the degree of undernutrition differs significantly in urban and rural Natives, but on the other hand, the incidence would appear to be 10 times as great in urban females as in rural ones. Moreover, although the proportion of males to females in these populations is not known, it is very likely that there are proportionally more Native males than females in urban than rural areas and the incidence of undernutrition, therefore, becomes even more significant in urban as compared with rural Native females admitted to mental hospitals.

The mean age for the group of 52 patients is 40·8 years, and of these 12 were married, 18 widowed and 14 single. Nine were of undermined status and therefore likely to be separated or widowed, which would bring the totals to 23 widowed or separated, 18 single, 12 married. The number of children for each widowed woman was 2 as compared with 1 for the single group.

It may be concluded that most of the women affected were widowed or separated, and that the situation might be alleviated by paying special attention to the diet of unattached middle-aged Native females, especially those with children.

Comparison of 'recovered' and 'not improved' patients, after 3 months in hospital, is reflected in Table IX below:

TABLE IX

	Duration of Psych. before Admission (weeks)	*Mean E.S.R. Rating*	*Mean Under-nutrition Rating*	*Mean Org. React. Syn. Rating*	*Mean Age*
'Not Improved' Group ...	26	2·6	2·6	0·9	39
'Recovered' Group ...	10·5	3·4	2·4	2·3	40

It can be seen therefore that the groups differ as regards duration of psychosis and symptoms of organic-reaction type of psychosis, and that a good prognosis is probable if the psychosis has not lasted much longer than 3 months and if features of organic-reaction type of psychosis are present.

Eight of the 'not improved' patients were treated with E.C.T., and 3 of the 'improved' patients, but all had vitamin therapy according to their needs.

SUMMARY AND CONCLUSIONS

The incidence of undernutrition in association with psychosis amongst female Natives of the Eastern Cape Province is reported and discussed.

An association between signs of undernutrition and features of organic-reaction type of psychosis was found to exist.

The erythrocyte sedimentation rate, although more often raised in the undernourished than in the well-nourished patients with psychosis, was

not found to be highly correlated with the degree of undernutrition or with features of organic-reaction type of psychosis.

The incidence of psychosis associated with undernutrition was much greater amongst urban than rural Native women admitted to hospital; on the whole it must be approximately one case per year for every 10,000 of the African population in the Eastern Cape. Most of the women were widowed or separated and the majority of cases showed mild forms of undernutrition only.

I wish to thank Dr. J. G. de Kock, Physician Superintendent, Tower Hospital, for permission to publish this article, and Sister Burger and other members of the nursing staff for their great help.

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CLINICAL ENDOCRINOLOGY

Clinical Endocrinology. Vols. I and II. By Lewis M. Hurxthal, M.D., F.A.C.P. and Matalija Musulin, B.S., M.D. (Pp. 1599 with 482 figures. £9 9s. 0d.) London: J. B. Lippincott Company, 1953.

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This two-volume *magnum opus* running to 1,599 pages (weight approximately 7½ lbs.), adequately covers the subject of clinical endocrinology.

This is field in which the spectacular growth in recent years has outstripped many a physician's ability to keep pace with recent developments. The experienced authors have devoted considerable study to the literature and as a reference text this compilation will be welcome to the busy physician.

There are 25 chapters. The first, logically, deals with normal growth and development, and the remaining chapters discuss the physiology and diseases of the endocrine glands and other organs having endocrine functions. In addition there are general chapters on dwarfism, obesity, hormones, etc., and these help to provide comprehensive cover to clinical endocrinological problems. Each chapter relating to the main glands is divided into a 'preclinical' and a clinical section. In the 'preclinical' sections an attempt has been made to discuss consistently for each gland, the anatomy, embryology, congenital abnormalities, histology, functions, chemistry, bio-assay, pathology, classifications, chief findings of hypo- and hyper-secretion and the examination of the patient. The respective clinical sections deal with the recognized syndromes of glandular dysfunction and their recognition and therapy. In general hypo- and then hyper-function is discussed.

The text is clear and well illustrated. The figures and charts are instructive. There are 39 cases described representing various endocrine syndromes. The bibliography is very comprehensive, e.g., the section on Cushing's syndrome runs to 201 references. It is refreshing to find that the authors have consulted the continental literature as well.

This book is primarily a reference book and with its telegraphic style and arrangement in double-column form does not make for easy reading. More important, it does not provide opportunity for reasoned discussion on difficult points of function, diagnosis and therapy. The monotonous occurrence of 'normal' on some pages, and repetition in the clinical sections of many of the facts reported in the preclinical sections, will be irritating to some readers. In the reporting of serum electrolytes the authors have not maintained their declared object of preserving uniformity; Meq/L. and mg./100cc flourish side by side.

In spite of these defects it is recommended as an extremely useful reference book on this subject. A practical and comprehensive cross-reference system enhances its value. It is a welcome addition to the endocrinological literature. L. E.

Various Manifestations of Psychoneuroses of Infancy and the Origin.

1. *The new-born.*

The healthy new-born's first impulse is to suckle immediately after birth, thereafter it falls asleep. The modern teaching, however, does not allow the infant to suckle at the breast for 24 hours or more after birth. The consequence, then, is that there is a struggle to get the infant to suckle the breast.

Later, the fear of *overfeeding* has become such a fetish that the infant is not allowed to drink its fill at the breast and the mother is threatened by the nurses that her babe will suffer all ills if she allows it to drink more.

Meanwhile the babe is filled with glucose water by the nurse, it howls all the time, the nursery becomes a bedlam and the babe a curse.

Save yourselves not only the pyjama parade, but also think reasonably why we hear so much about *malnutrition* to-day and why we do not adhere to Nature's laws.

This type refuses feeds and vomits.

2. *The premature.*

A premature babe is coddled from birth and receives much attention. At the age of 1-2 years the infant does not receive all that attention and begins to show resentment. To attract attention these infants howl until blue in the face and then throws fits. The infant becomes limp after the fit and causes the family much concern. The *premature* and the *first-born* behave much in the same way, and these types display a psychoneuroses in the manifestation of fits.

3. *The beautiful child with the most beautiful eyes.*

This child is to be pitied. From birth friends and relatives have gazed into its eyes with adoration, making profuse remarks about its beauty.

This type shows a dread and absolute fear of being gazed upon by the adult. It is most pathetic to see an infant of 5 months, as I have done, constantly shielding its eyes as soon as an adult approaches.

4. *The Devil's child.*

I use this expression because the parents describe him as such and willingly get rid of him to me. This type is more prevalent among the boys. Invariably the parents disagree about his upbringing. At the age of 1 year upwards the child shows a stubborness, refuses food, vomits, spits and foams, screams and will gnash his teeth and try to wrench his cot to pieces—a sad sight to witness. Correctly handled, this child becomes an angel instead. I have never witnessed such absolute cruelty by parents as is meted out to this type.

5. *The delicate child.*

After the recovery of some serious illness, this child is often looked upon by the parents as being delicate, and in consequence develops a neuroses about its health. The parents often keep this child in bed for fear that it might catch some disease. The child is fussed about, surrounded by flowers and toys, numerous adult visitors, so it begins to look upon illness as a virtue.

This type often practises masturbation.

6. *The only child.*

Precociousness is the rule. The child becomes the mimic of the adult.

The little knowledge I have of infants has been gained by practical experience in my own Institution, where I hold the triplicate post of doctor, nurse and mother.

I plead for the infant, the future generation of this country. Let our teaching depend on the correct handling and feeding of the infant from birth, and not on the numerous prescriptions written. In this way we can render our country greater service by depleting the mental hospitals and the juvenile courts.

Convulsive Therapy and Analytical Psycho-therapy in a Case of Psychoneurosis.

By J. S. du T. de Wet, *Major, S.A.M.C.,*
formerly of the staff of the Bloemfontein Mental Hospital.

NOTHING would be more regrettable than for convulsive therapy, even in combination with analytical psycho-therapy, to become a routine method of treatment in the psychoneuroses. The publication of a case of psychoneurosis treated with a combination of analytical psycho-therapy and convulsive therapy, after the former method alone had failed, might serve a purpose, all the more since the whole field of treatment in psychoneuroses is to-day being threatened with an invasion by convulsive therapy.

Before describing the case it must be mentioned that the decision at the time to resort to convulsive therapy was only arrived at because of the assumption or theory held then that some obsessional features in a neurosis may react as favourably to convulsive therapy as do delusions of bodily disorder in certain psychoses, and because the symptoms were extremely distressing and held a possible danger of suicide; the existence of war-time conditions amounting to a state of emergency as regards hospital accommodation, general care, and disposal was also a deciding factor.

Name: B. R., A.C.2 (air gunner and observer, ex-flight-sergt.), R.A.F. Aged 21. He was tall, fair, blue-eyed and of athletic physique; intelligent and able to express himself well.

He arrived at Oribi Military Hospital, Pietermaritzburg, South Africa, on the 30th July, 1942, by hospital ship from the Middle East. On admission he was sent to a ward, from where the medical officer after a few days, and partly on account of overcrowding, sent him to the convalescent depot. After a few days he had to be readmitted to hospital, for his condition had become much worse.

Mental Condition on Readmission: His appearance was pale, worried, and distressed, but he was natural and relevant in conversation and gave an excellent account of himself. He had an obsessive fear that his breathing might stop, and did usually find it possible to believe that all his somatic symptoms and the "air hunger" were consequences of his neurosis. He was obsessed with taking deep inhalations. In behaviour he was restless and obviously worried and had insomnia and anorexia. He found it difficult to sit still or concentrate; at night he frequently jumped out of bed and sought the night sister or any nurse he could find, on account of his severe anxiety attacks and the obsessive fear that his breathing might stop as soon as he fell asleep.

Physical: Athletic physique. N.A.D. clinically, except tachycardia 100/m and tremor of the hands outstretched. Urine N.A.D.; no albumin and no sugar. Blood (Kahn) negative. Blood S.R., 4 mm. in one hour. B.P. 140/90.

Family History: His mother suffered from asthma ever since he could remember, and is of a highly-strung, nervous disposition. His father was a heavy drinker and often caused his wife much unhappiness. He has one brother older than himself who used to suffer seriously from nervousness and bed-wetting as a child.

Personal History: He did not himself ever suffer from somnambulism or nocturnal enuresis, but was sensitive and cried easily. He went to school at the age of 5, was fairly happy, and up to the age of 10 was considered quite brilliant, but after that he dropped behind for no particular reason of which he was aware. He took part in games and won cups for swimming. At home there was frequent unhappiness on account of his father's difficult behaviour and his mother's constant attacks of asthma. At the age of 15 he insisted on leaving school as his father was not supplying him with an allowance that was sufficient and

had, moreover, deserted his mother, so that he went home to be with her. Because he had no school-leaving certificate he could not find work immediately and stayed at home with his mother for about two years, merely gardening a little and keeping pigeons. Eventually he found work in an architect's office in Brighton, but soon left on account of some trivial incident. He stated that he was always conscientious and sensitive and inclined to form trivial obsessions, such as arranging his room in a certain way or having to do certain things more than once to make sure that they were in order. After one week he obtained work in the A.A. at Newhaven, where he continued to work until October, 1939, when he joined the R.A.F.

As a child he had no sexual experience of any importance. Masturbation was a habit only for one year at the age of 16. When he was 19 years old he had his first opportunity for sexual intercourse, but he did not make use of it because he "did not think it was right", in accordance with his mother's standard of morals. While on service he frequently consorted with women, but never indulged in actual intercourse.

He joined the R.A.F. in October, 1939, as a wireless operator under training, passed out after six months, and went to a gunnery school to train as an air gunner, after which he went on operational flying with a unit at Norwich. In November, 1940, they flew to Malta and from there to Egypt to serve in the first Libyan Campaign, where he took part in much fighting, and states he had "terrible experiences" seeing aircraft crash and friends killed. In June, 1941, the whole squadron was sent to Palestine for rest and re-equipment, and there he became seriously worried by the prospect of returning for service similar to that which he had been through in Libya. He drank heavily at the time. He saw the officer-in-charge and told him he "had had enough" of flying, so he was left out of the squadron when it was finally sent back to duty.

However, he was still available as an air gunner and had not been officially taken off flying, so eventually he was sent back to Egypt to continue as a flight-sergeant. On arrival there he refused to fly, and was sent before a Medical Board at Cairo, which found him fit. He was accordingly sent back to an R.A.F. Unit at Hel Whan to await "stripping" prior to being placed on the ground staff, still Cat. "A". By this time he was considerably upset, had severe attacks of anxiety and drank even more heavily than before. At night he had frequent bad dreams of crashing aircraft and guns firing. While lying awake one night, unable to sleep, he imagined he noticed a strange difficulty in breathing, became intensely anxious, and soon developed an obsessive fear that unless he consciously kept his breathing going all the time, he would automatically stop breathing and might die in his sleep. Most of his anxiety, which was extremely intense at times, became fixed on his breathing, and eventually it seemed to him that he was no longer worried over flying at all, but only about his physical condition, so that he became almost convinced that an organic change had taken place inside his chest, and at times wondered if he was not developing asthma. The anxiety was so acute at times that he became very tremulous and even developed attacks of diarrhœa. There were pains over the heart, a feeling of tension over the eyes and pressure on the head. He felt compelled to feel his pulse at all times, and worried intensely because it would not stop racing. All the time he wandered about, unable to sit still for any length, and felt compelled to take frequent deep inhalations. He reported sick, the M.O. diagnosed "Effort syndrome with anxiety neurosis", and sent him to hospital.

He considered that he had been treated unjustly in being stripped just because he had said he could fly no more. His contention was that the first Medical Board overlooked his neurosis, and that he should not have been treated on disciplinary grounds. He was eventually admitted to No. 2 P. and N. Centre, Middle East, where he was kept for many weeks and given "psycho-therapy" without lasting benefit.

He was eventually boarded as being "Temperamentally unstable", and a suggestion made that he was developing schizophrenia. He was sent to South Africa by hospital ship in July, 1942, and admitted to Oribi Military Hospital as already stated.

Progress of Case: After three weeks of analytical psychotherapy at Oribi Military Hospital, no evidence of what might be termed "homo sexual complex" was discovered. From the material let loose under evipan (which was given on three occasions), it was clear that he harboured considerable resentment against the military authorities for depriving him of his rank and that he intended to become "Britain's Air Ace No. 1". He also appeared to have suffered from hetero-sexual inhibitions.

The conclusion arrived at was that he was emotionally not indifferent, but that he was genuinely concerned about all his symptoms and that there was no sign of schizophrenic dissociation setting in. His concern about his breathing and his compulsions to take deep breaths were based on an obsessive fear that he might have an internal disease (at first associated with his mother's respiratory trouble) and not on a fixed belief (delusion) that he actually had an organic disease of the chest.

Originally the conflict was between the fear of going into action again and the necessity of keeping up an appearance of bravery. Then, after his stripping, resentment at the way he had been treated led to a wish actually to have some organic trouble; this obsessive preoccupation with his breathing was the expression of a protest that his anxiety state had been overlooked and that he should have been treated with more consideration. This was bound up with a fear that such trouble had actually set in, therefore producing a new conflict in which he lost sight almost entirely of the original issue concerned. These were the immediate and exciting factors concerned in his neurosis, but the more fundamental factors were those of a psychasthenic temperament and a home atmosphere which predisposed him towards neurosis—eternal conflict between father and mother, and subsequently a certain degree of identification with his mother and unexpressed resentment against his father. It was notable that on being asked if he himself could explain the obsession with his breathing, the patient volunteered the information that it might be connected with the asthmatic attacks of his mother.

It was clear that the incentive for relinquishing the obsessive preoccupation with his breathing would be defective until such time as he stood a chance of obtaining some redress for the dishonour which he felt had been unfairly inflicted upon him, and it is considered that this outweighed the influence of a transference which seemed very satisfactory, because it was never judged to be so strong as to interfere seriously with the relinquishment of his symptoms. It is true that a certain degree of counter-transference did take place, but an end was soon put to this when the patient was given clearly to understand that nothing more could or would be done for him except to keep him in the closed ward, unless he cared to allow us to try the effect of convulsive therapy. This was finally, but reluctantly, consented to after some days of anxious restlessness and an obsessive preoccupation with his breathing.

On 20/8/42 he was given 5 c.c. leptazol and a major convulsion followed. The next day there was a marked change in his appearance and the obsession had entirely disappeared, and he stated that he had his first night of real sleep. He looked bright and cheerful; two days later the concern about his breathing was no longer an obsession, although he thought about it and often inhaled deeply. In the days following he showed a certain tendency to revert to his former state, and nine days after his first convulsion he came to ask for another one, which was given with much improvement on the following day, similar to the previous occasion. Two weeks later this condition was still maintained; sleep and appetite were good, and although he was still subject to occasional anxiety attacks, these were of no great intensity. The obsession had disappeared, although he occasionally wanted to be reassured that a functional condition or a neurosis could not produce organic changes. Psychotherapeutic advice had more effect now, and he accepted more readily explanations of his condition, for he

was no longer harassed by the obsession. He left for England by troopship at his own request, and four months later wrote to say he was well and stationed with the R.A.F. near Cambridge.

On 31/5/44, two years after treatment, he wrote to say that he was well and still in the R.A.F. "I have, after a long struggle, managed to get my rank back with effect from the date it was taken away from me, so one of the causes for my discontentment has been removed." "I landed into plenty of trouble on various occasions and ended up in the guard-room several times. The medical authorities showed me little sympathy; I guess they thought it must be kill or cure for me. Until I got my rank back, two or three weeks ago, I harboured a grievance which obsessed me for long periods." "On looking through a book of verse some days ago, I found 'The Hound of Heaven'; it's certainly a wonderful poem and has special meaning too." ("The Hound of Heaven" was given to him to read while in hospital, but at the time did not make a great impression.)

Conclusion.

The letter received from the patient two years after treatment serves to confirm the view of the psychogenesis of the case held at the time when convulsive therapy was started.

Although a satisfactory transference had been established almost from the start, analysis and explanation failed to result in the "analytical experience" (Stekel) and a condition of "cognition without effect" resulted, so that the obsession remained essentially unaltered and a form of "secondary repression" had no doubt developed. In fact, it is possible this had already developed before the patient came to Oribi, and partly as a result of previous "psycho-therapy". The continuation of somatic symptoms served as a form of resistance also.

That convulsive shock served as the agent to induce the "analytical experience" seems possible, but in this case it is not considered that it did so because the patient regarded it as an expiation of a sense of guilt (Grinker and McLean). If the convulsive therapy had any psychological effect which caused the improvement to take place, it seems in this case more reasonable to consider that it did so, because a new self-confidence was established in the patient as a result of submitting himself to a form of treatment of which he had heard a great deal previously and of which he was thoroughly apprehensive before he ever started it. In this connection it must be remembered that the precipitating cause of his anxiety was fear of further air combat.

It is also a theory that convulsive therapy was beneficial on account of its effect on the cerebral neurones subserving the obsession, on account of the evidence that exists of destructive changes in the brain following the experimental use of convulsive therapy in animals, and bearing in mind the results of prefrontal lobotomy. However, it is not considered that convulsive therapy without previous psycho-therapy would have produced any lasting benefit in the case reported here, since the destructive effects of two convulsions can only be very slight.

It is interesting to mention in connection with this case that sodium evipan always had a markedly beneficial effect which was temporary, and that if it had been looked upon as a prognostic test, the result would have been considered as of favourable significance.

To summarise, it is thought that the patient got better before proceeding to the United Kingdom, and lost his obsession with breathing, for some or all of the following reasons:

1. Because the transference was satisfactory enough to reconcile him to a certain extent with authority whom he hated.
2. Because the psychological effect of the leptazol-induced convulsion was to make him regain self-confidence in his ability to face danger, and in this manner induced the effects of the analytical experience.
3. Possibly because of an effect upon the brain and the neurones subserving his obsessive preoccupation with breathing, functionally interfering with them to such an extent that the obsession was temporarily lost and full insight was easier to acquire and to retain.

His subsequent progress indicates that instead of retreating once more into an illness from which he derived narcisstic and masochistic compensations, he had substituted healthier aggressive tendencies which formerly had been repressed.

This case report is submitted not to advertise the use of convulsive therapy in the neuroses, but rather to serve as an expression of the importance of a psychosomatic point of view, and to indicate that if convulsive therapy is used at all in a case of psychoneurosis, it should only be resorted to in those cases which bear a superficial resemblance to a psychosis with delusions of physical disorder, and if an effect of anxious depression associated with the possibility of suicide is present, and then only after analytical psycho-therapy has failed, and if, in addition, there exists reason to believe that the convulsive therapy might assist in inducing a feeling akin to the "analytical experience" of psycho-analysis. However, convulsive therapy is considered inadvisable in cases of cardiac neurosis, for experience with convulsive therapy over a period of two years, during which nearly two thousand convulsions were induced, made it clear that although all cases were carefully selected, the development of a persistent tachycardia, especially with leptazol, was not uncommon, and will, therefore, in such cases, merely serve to increase the feeling of cardiac disability.

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My thanks are due to the O.C. Oribi Military Hospital, Col. G. Alley, M.C., R.A.M.C., for permission to record this case.

A Handbook of Ophthalmology. By Humphrey Neame, F.R.C.S., and F. A. Williamson-Noble, F.R.C.S. 5th ed. With 12 plates, containing 46 coloured illustrations and 189 text figures. Pp. x + 333. London: J. & A. Churchill Ltd., 1944. Price 18s.

A further edition of this popular Handbook is welcomed. The fact that two editions have made their appearance in war-time indicates that it meets a genuine demand. The contents have been brought up to date in several respects, notably in the use of the sulphonamides, which have revolutionised the treatment of many eye conditions. Improvements in some operations are dealt with, and a useful addition is the chapter on Eye Diseases in the Tropics, which should prove of value to those who practise in hot climates. We can recommend the Handbook to senior medical students and general practitioners for whom it was intended when first written. It covers the whole of ophthalmology in a concise manner and the teaching generally is sound. A word of praise is due to the publishers for an excellent production under adverse conditions.

A. W. S.

TABLE I: INTESTINAL PARASITES

Parasites	Cato Manor		Chesterville		P
	No.	%	No.	%	
Trichocephalus trichiura	308	60·3	203	39·5	<0·01
Strongyloides stercoralis	5	1·0	1	0·2	0·06
Heterodera spp. ..	10	2·0	11	2·1	0·80
Hookworm spp. ..	29	5·7	23	4·5	0·42
Oxyuris vermicularis ..	3	0·6	1	0·2	0·30
Ascaris vermicularis ..	257	50·3	134	26·1	<0·01
Schistosoma spp. ..	9	1·8	2	0·4	0·64
Hymenolepis spp. ..	3	0·6	2	0·4	0·65
Taenia spp.	56	11·0	27	5·3	<0·01
E. histolytica	89	17·4	78	15·2	0·33
E. coli	281	55·0	271	52·7	0·47
E. nana	142	27·8	137	26·7	0·68
I. butschlii	62	12·1	50	9·7	0·22
C. mesnili	19	3·7	13	2·5	0·28
G. lamblia	19	3·7	25	4·9	0·37
Monads	9	1·8	3	0·6	0·08
Coccida	5	1·0	3	0·6	0·47
METAZOA	401	78·5	289	56·2	<0·01
PROTOZOA	349	68·3	347	67·5	0·79
PARASITES	473	92·6	423	82·3	<0·01

The figure *P* in the final column gives the probability that the differences observed may be due to chance. Where this probability is less than 0·01, the difference may be considered highly significant.

TABLE II: WEIGHT OF INFESTATION

Parasite Species per Patient	Cato Manor		Chesterville	
	No.	%	No.	%
0	38	7·4	91	17·7
1	91	17·8	123	23·9
2	142	27·8	134	26·1
3	107	20·9	93	18·1
4	76	14·9	55	10·7
5	40	7·8	15	2·9
6	10	2·0	3	0·6
7	6	1·2	—	—
8	1	0·2	—	—

$X^2 = 52{\cdot}44$ $P = <0{\cdot}01$

TABLE III: SPECIES PER PATIENT

Species per Patient	Cato Manor	Chesterville
Protozoa	1·23	1·12
Metazoa	1·33	0·79
Parasite	2·56	1·91

whereas the corresponding figure for Chesterville is only 2.5. The number of protozoal species per case in Cato Manor is 1.23 as against 1.12 in Chesterville, but for the metazoa the figures are 1.33 and 0.79, respectively.

There is no doubt that this very heavy parasite load must be a drain both on the health and economic potential of the population and the provision of better housing has an immediate effect on the metazoal population though the effect on the protozoal population is likely to be delayed.

SUMMARY

A slum, Cato Manor, and a municipal housing scheme, Chesterville, have been surveyed for intestinal parasites. The immediate effect of better conditions is not seen on the protozoal populations, but the metazoa are markedly affected.

Our thanks are due to the Council for Scientific and Industrial Research and the Natal Provincial Administration for their continued support and are particularly due to Miss E Goddard and Mr. A. Dhlamini of the Health Education Section of the City Health Department of Durban, without whose assistance the collection of the specimens would have been impossible.

TUBERCULOSIS IN NON-EUROPEAN PSYCHOTICS

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The diagnosis of tuberculosis is a matter of special importance in mental hospitals for non-Europeans,[1, 2] mainly on account of the risks of spreading the disease but also because of the possible effects of convulsive therapy on the infection in individual cases.[3]

Dormer [4] published figures indicating that in 1950 the tuberculin sensitivity of adult South African non-Europeans was 80 to 90% as compared with 40% for Europeans in South Africa. Patients with schizophrenia and especially those with catatonic schizophrenia, are particularly prone to develop tuberculosis [2] and owing to their peculiar mental state, the infection may remain undetected for months: moreover as the habits of these patients are frequently most unhygienic it seems possible that living or working in wards for non-European psychotics holds a special risk of tuberculous infection.

During the last quarter of 1952, a tuberculosis survey in the form of mass radiography and tuberculin testing was carried out by the Union Health Departmeent at the Tower Hospital, Fort Beaufort, an institution which admits

only non-European patients from the eastern parts of the Cape Province, Transkei and Border.

The following tables reflect the results of the tuberculin tests performed. The patients have been grouped according to their year of admission with the expectation that this might indicate whether infection occurred more rapidly inside the mental hospital than outside. From these figures this would not appear to have been the case, for the tuberculin sensitivity rate amongst the most chronic patients differed only slightly from the rate amongst patients admitted during 1952.

Dormer[4] reports that the tuberculin-positive rate in 1926 was at least 60% amongst rural Natives, and in 1950 it was 80% for Natives aged 25 to 30 years and 90% for those of 30 years and over. Unfortunately there are too few patients left in this institution who were admitted before 1926 to make a comparison of the present tuberculin-sensitivity rate in such a group, with the rate outside institutions in 1926, of any value.

TUBERCULIN SENSITIVITY—MALES

Year of Admission	*Positive*	*Negative*	*Positive*	*Negative*
1952	146	24	86	14
1951	74	20	79	21
1950	54	8	87	13
1949	56	20	74	26
1948	56	7	89	11
1947 and earlier	477	100	83	17
Totals ..	863	179	83	17

TUBERCULIN SENSITIVITY—FEMALES

Year of Admission	*Positive*	*Negative*	*Percentage Positive*	*Percentage Negative*
1952	75	34	69	31
1951	54	17	76	24
1950	28	15	65	35
1949	38	10	79	21
1948	38	13	75	25
1947 and earlier	377	205	65	35
Totals ..	610	294	67	33

TUBERCULIN SENSITIVITY—MALES AND FEMALES

Year of Admission	*Positive*	*Negative*	*Percentage Positive*	*Percentage Negative*
1952 ..	221	58	79	21
1951 ..	128	38	77	23
1950 ..	82	23	78	22
1949 ..	94	30	76	24
1948 ..	94	20	82	18
1947 and earlier	854	305	74	26
Totals	1,473	474	76	24

On mass-radiography, out of a total of 2,500 patients, 58 (2%) were found to have tuberculosis or suspected tuberculosis, several patients previously diagnosed on clinical grounds as having tuberculosis, were found to have negative radiograms, yet at least one of them has since come to post-mortem and been found to have pulmonary tuberculosis; the introduction of mass-radiography into mental hospitals therefore has its dangers in that the medical and nursing staff may come to rely upon it to the exclusion of other methods.

In two wards accommodating about 500 male patients, all thought to be in fair health and many working in labouring spans, 9 cases were discovered on mass radiography to have pulmonary tuberculosis. They were thereupon examined clinically and compared with a group of 9 patients from the same wards and with the same age, mental state and duration of stay in hospital, but whose chest radiograms were reported to be negative. Using the item sheet and rating scale as recommended by Rees,[5] it was ensured that the psychiatric status of the two groups were comparable.

The following clinical features were studied in the examination of the two groups, and numerical values were assigned to each:

(1) Degree of vitamin-deficiency signs (mild, moderate, severe).
(2) Degree of clubbing of fingers (mild moderate, severe).
(3) Degree of asthenic physique (mild, moderate, severe).
(4) Degree of wasting (mild, moderate, severe).
(5) Mean pulse-rate over a period of 3 days.
(6) Weight-loss over the previous 6 months.
(7) Mean difference between the morning and evening temperatures for 3 days.
(8) Degree of positive clinical signs in the chest (mild, moderate, severe).
(9) Blood sedimentation rate (Westergren).

In the case of items 1, 2, 3, 4 and 8, values were assigned on the following basis:

No signs	0
Mild signs	1
Moderate signs	2
Severe signs	3

Sputum infectivity and coughing are not listed, as it was found that more than half of this group of patients never coughed and the remainder only did so very occasionally; in not one of the 9 cases was it ever found possible to collect a specimen of sputum.

Group 1 consisted of those 9 patients in whom pulmonary tuberculosis had been diagnosed by the radiologist on mass-radiography, and who had not been known to be ill, previous to this.

Group 2 consisted of those 9 patients who were used as controls, whose chest X-rays had been negative and who were similar as regards age, stay in hospital and mental state.

It was thought that a comparison of 2 such groups as regards the clinical features enumerated, would reveal to what extent different clinical examinations, exclusive of radiography, are of value in the diagnosis of tuberculosis amongst psychotics.

The following tables reflect the clinical features of the two groups in a manner suitable for statistical evaluation. By a simple comparison of the mean scores of the two

GROUP 1: MALE PSYCHOTICS WITH TUBERCULOSIS-POSITIVE CHEST-RADIOGRAMS

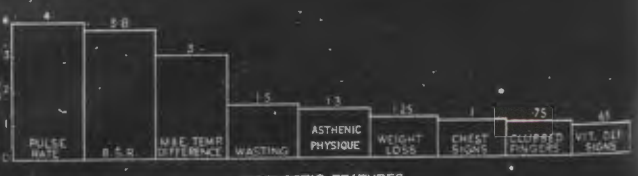
Patients	Degree of Vit. Def.	Degree of Clubbing	Degree of Asthenic Physique	Degree of Wasting	Mean Pulse Rate	Weight Loss (lb.)	Mean M and E Temperature Diff.	Degree of Positive Chest Clinical Signs	B.S.R Westergren mm.)
1	0	0	2	2	101·5	7	3	1	124
2	0	0	1	0	84·5	2	1	0	16
3	0	0	1	0	73·5	4	1	0	42
4	0	0	0	0	83·5	8	2	0	61
5	1	0	2	2	77·5	3	1	0	111
6	0	2	0	0	71	0	·4	0	96
7	0	0	1	0	83	0	2	0	12
8	0	0	1	0	91·5	4	2	0	76
9	1	0	2	2	73	4	·4	0	65
Total Score	2	2	10	6	749	32	12·8	1	603
Mean Score	·22	·22	1·1	·66	83	3·5	1·42	·11	67
Standard Deviation	$\sqrt{\frac{1·55}{9}}$	$\sqrt{\frac{6·725}{9}}$	$\sqrt{\frac{4·89}{9}}$	$\sqrt{\frac{8·004}{9}}$	$\sqrt{\frac{538·7}{9}}$	$\sqrt{\frac{60·25}{9}}$	$\sqrt{\frac{6·066}{9}}$	$\sqrt{\frac{·889}{9}}$	$\sqrt{\frac{12398}{9}}$

GROUP 2: MALE PSYCHOTICS WITH NEGATIVE CHEST-RADIOGRAMS

Patients	Degree of Vit. Def.	Degree of Clubbing	Degree of Asthenic Physique	Degree of Wasting	Mean Pulse Rate	Weight Loss (lb.)	Mean M and E Temperature Diff.	Degree of Positive Chest Clinical Signs	B.S.R. (Westergren mm.)
1	1	0	0	0	75	0	·5	0	9
2	0	0	1	0	70·5	0	·5	0	17
3	0	0	1	0	73·5	10	·4	0	60
4	0	0	0	0	70	0	·6	0	5
6	0	0	2	0	73·5	0	·7	0	10
7	0	0	2	1	71	0	·8	0	18
8	0	0	0	0	68	5	·8	0	7
9	0	0	0	0	74	0	·8	0	13
Total Score	1	0	6	1	651·5	15	5·4	0	144
Mean Score	·11	0	·66	·11	72	1·66	·6	0	16
Standard Deviation	$\sqrt{\frac{·887}{9}}$	$\sqrt{0}$	$\sqrt{\frac{6·00}{9}}$	$\sqrt{\frac{·887}{9}}$	$\sqrt{\frac{56·75}{9}}$	$\sqrt{\frac{102}{9}}$	$\sqrt{\frac{·28}{9}}$	$\sqrt{0}$	$\sqrt{\frac{2358}{9}}$

groups, it will be evident that signs of vitamin deficiency, such as phrynodermia, clubbing of fingers, asthenic physique, wasting, and positive chest signs, were all more frequent in group 1 than in group 2. The mean pulse rate of group 1 was 83 as compared with 72 for group 2. The mean difference between morning and evening temperatures was 1.42° F for group 1 as compared with 0.6° F for group 2 and the mean B.S.R. was 67 for group 1 as compared with 16 for group 2.

Using the formula $CR = \frac{\text{Difference between means}}{\sqrt{\frac{SD_1^2}{N_1} + \frac{SD_2^2}{N_2}}}$ calculation of the critical ratio for each diagnostic feature indicates as shown in the diagram below, that the two groups differed significantly only as regards pulse rate, sedimentation rate, and difference between morning and evening temperatures.



DIAGNOSTIC FEATURES

SUMMARY AND CONCLUSIONS

1. Tuberculosis is an important problem in mental hospitals for non-Europeans.

2. In many cases mass-radiography alone does not seem adequate for the diagnosis of pulmonary tuberculosis in psychotics.

3. Clinical examination of the chest, using the stethoscope, is of very little value in the discovery of tuberculosis in most cases of psychosis.

4. In the diagnosis of tuberculosis, or of a state of health which may predispose towards the development of tuberculosis, the pulse rate, sedimentation rate and difference between morning and evening temperatures, are of value in psychotic patients.

I would like to express my thanks to Dr. de Kock, Superintendent, Tower Hospital, for helpful suggestions and for permission to submit this paper for publication, and to Dr. Dormer of King George V Hospital. My thanks are also due to Mr. J. Wilson of the nursing staff for his willing assistance.

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A CASE OF FANCONI'S ANAEMIA

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In 1927 Fanconi [2] reported a severe refractory hyperchromic anaemia occurring in 3 brothers under 7 years of age, all fatal. This familial syndrome was characterized by bone-marrow hypoplasia, microcephaly, skin pigmentation and other abnormalities. Dacie and Gilpin [1] (1944) recorded a similar type of anaemia in 3 members of a family. One of these cases died after an illness lasting 4 years. This patient developed a dusky pigmentation of the skin and showed no growth in his last 2 years. The bone marrow was hypoplastic and a congenital kidney abnormality was present. Weil [7] (1938) in addition to recording a familial example of this syndrome also reported a sporadic case in a girl of 6 years, who suffered from severe hyperchromic anaemia, leucopenia and thrombopenia and also had a brownish pigmentation of the skin. Uehlinger [5] (1929) recorded a sporadic case in a boy of 7 years associated with developmental abnormalities, amongst which was an absence of the right kidney. Van Leeuwen [6] (1933) reported a sporadic case, in which splenectomy was performed without benefit. This case died after a 5-years' illness, at the age of 14 years, and showed, in addition to other developmental abnormalities, absence of the right kidney. All these cases presented many common features and the case to be recorded here is an example of this syndrome, unsuccessfully treated with adrenocorticotrophic hormone (ACTH).

Kunz [3] (1952) reported additional cases of this disease and emphasized a haemolytic component in the pathogenesis of the anaemia, which we have not found in our case.

CASE REPORT

F. J., a male child aged 6 years, was first admitted to hospital in January, 1951. He was brought because of increasing weakness and pallor, which had started 9 months previously. There was no history of excessive bruising. He had had measles and scarlet fever earlier. There were 2 sisters who were quite well, as were the mother and father.

Examination. He was an extremely pale child, lying quietly in bed. His skin showed a dusky discolouration and there were some darker pigmented areas on his trunk. Microcephaly was not noted. No cyanosis or jaundice. Weight 34½ lb. Pulse rate 120 per minute. Temperature 98° F. No palpable lymph nodes. There was a systolic thrill and murmur over his praecordium, best heard in the 4th interspace to the left of the sternum. Nothing abnormal in the respiratory or central nervous systems and no evidence of hyperreflexia. Spleen and liver not palpable. The 5th finger on each hand was short and curved inwards, being similar in appearance to the abnormal 5th fingers associated with mongolism. There was left inguinal hernia. Genitalia normal.

Investigation and Progress. His blood group was AB and he was Rh positive. The Coombs' test and the Schumm's test were both negative. A blood count gave the following result:

Haemoglobin	5.2 gm. %
Colour index	1.05
Erythrocytes per c.mm.	1,610,000
Leucocytes per c.mm.	3,100
Neutrophils	29%
Monocytes	3%
Lymphocytes	68%

The platelets were reduced in number.

The red cells showed fairly marked anisocytosis. There was a severe normochromic anaemia and a leucopenia associated with a neutropenia and a relative lymphocytosis.

[He was given a transfusion of 500 c.c. whole blood, and a subsequent blood count 4 days later gave the following result:

Summary.

EVUALUATION OF A COMMON METHOD OF CONVULSION THERAPY IN BANTU SCHIZOPHRENICS.

SUMMARY AND CONCLUSIONS.

1. Racial and environmental factors may possibly affect the outcome of schizophrenia in South African Bantu, so that the respective merits of insulin and convulsion therapy as determined in Europeans may not be valid for Africans.

A systematic evaluation of any form of convulsion therapy in Bantu schizophrenics has not previously been undertaken. The history and development of shock treatment is described. South African mental hospitals are overcrowded and inferior methods of treatment should be discarded. The assessment of prognosis of schizophrenia in Europeans and Africans is reviewed; in this connection Bantu intelligence, temperament and brain structure is considered as well as the conflict between tribal customs and European influences.

2. Onehundred-and-twenty schizophrenic Bantu women were investigated mainly as regards the effects of convulsion therapy (E.C.T.) Fifty-one had conservative treatment and sixty-nine had convulsion therapy, consisting of 15 to 30 major convulsions induced at the rate of two per week.

On this material rating scales were used and matched groups were sorted with the aid of a Hollerith machine. Criteria for matching were, sex, clinical diagnosis, absence of appreciable physical disease, age, duration of psychosis, European influence rating, behaviour, introversion, disconnection, paranoid disposition and affective disturbance. The significance of the difference between the mean scores of groups were calculated according to the formula C.R. = $\frac{m_1 - m_2}{\sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}}$

3. No definite evidence was found to indicate that E.C.T. as given, produced appreciably better results one month after termination of treatment than conservative methods, fifteen months after admission. (Refer tables 2 and 3). Treatment consisting of 30 convulsions given at the rate of two per week, may actually delay the discharge of patients who recover spontaneously. Nor has it been shown that a course of 30 convulsions benefits more than one of 15 only. (Refer table 6.)

4. Spontaneous recoveries in a group of 50 female Bantu schizophrenics of all ages, types and duration, amounted to 14 per cent, but in 20 of less than a year's duration, to 30 per cent, fifteen months after admission. As regards spontaneous recovery in schizophrenia of Europeans, Muller (4) concluded that the rate was probably 15 to 20 per cent in cases of all types and duration, and Mayer-Gross (5) reported a rate of 34.5 per cent in cases of less than one year's duration.

5. Recoveries within one month of E.C.T. in a group of 69 female Bantu schizophrenics of all ages, types and duration, amounted to 10 per cent, but in 45 of less than a year's duration to 13 per cent; 15 months after admission these percentages had risen to 20 per cent and 24 per cent respectively.

Cook, (1) concluded from his review, that the results of convulsion treatment in schizophrenia, (of Europeans), probably amounted to a recovery rate of 55 to 60 per cent, but Rees (2) reported only 38 per cent recoveries in cases of less than one year's duration, and

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Rods and Malzburg, quoted by Cook [3], reported only 11.5 per cent of recoveries with convulsion therapy.

6. The recovery rate of schizophrenia in Europeans and African Bantu, with and without E?C.T., may not differ appreciably, even though from the present investigation it seems as if the prognosis in Africans is poorer. Features indicating a good or bad prognosis are similar for Europeans and Africans.

7. Of poor prognostic significance were found to be:-

   a. Duration of psychosis of more than one year.

   b. Marked introversion and disconnection.

   c. Absence of restlessness.

   d. Absence of paranoid disposition.

   e. Absence of tension, elation and depression.

8. Of favourable prognostic significance were found to be:-

   a. Duration of psychosis of less than four months.

   b. Restlessness.

   c. Paranoid disposition.

   d. Elation, depression and emotional tension.

9. No evidence was found to indicate clearly, that failure to respond early to E.C.T. is a sign of poor prognosis in schizophrenia.

10. The result of this investigation should not suggest that more intensive E.C.T., over a shorter period, is not worth a trial, or that valuable short term benefits are not to be obtained with E.C.T., in Bantu schizophrenics.

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THE PLANTAR REFLEX BEFORE AND AFTER MAJOR EPILEPTIC FITS INDUCED IN THE PROCESS OF ELECTRICAL CONVULSIVE THERAPY

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Twenty-five patients suffering either from schizophrenia or manic depressive psychosis were given electrical convulsive therapy. A major epileptic fit was always induced and the plantar response of each patient was examined on three such occasions—before the fit, immediately afterwards, and once two and five minutes after each fit.

It is assumed here that the type of plantar reflex elicited after such fits is likely to be similar to that occurring after an idiopathic major epileptic fit. It is generally and somewhat loosely assumed that the plantar reflex is extensor after an epileptic fit, but the exact incidence of this and a clear description of the behaviour of the component parts of the reflex in these cases, is not easy to find in the literature.

As a very simple clinical investigation it is thought that notwithstanding electro-encephalograms and other special tests for epilepsy, it was still worth undertaking.

In the tables given, a half response indicates a response on the part of one limb only, and this will perhaps make it clear that the response on the two sides was not always the same. On trying to elicit the plantar reflex immediately after the fit ceased there was never a response of any description in all of the patients examined.

The meaning of the symbols used in the tables given below are as follows: —

[illegible]		I.	Inversion.
[illegible]		W.D.	Withdrawal of the whole or part of the limb.
[illegible]		B.T.	Big toe.
[illegible]		S.T.	Small toes.
[illegible]		Ev.	Eversion.

TABLE I

Normal Responses (Responses Before the Fit)

Type of Response				
W.D.	25	22½	24½	2
B.T. Flexion	25	17½	5½	2
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Table I indicates that in 25 of the 75 tests done, the "withdrawal" response was absent normally, and that flexion of the big toe was absent in 2½ out of 75, and flexion of the small toes was absent in 3 of the 75 responses; also that a very strong withdrawal response was present in only 2 of the 75 responses.

TABLE 2

Type of Response	*After 1 minute*	*After 2 minutes*	*After 5 minutes*
W.D. (+, ++ or +++)	6½	37½	56
B.T. Flexion (+, ++ or +++)	1½	13	17
B.T. Extension (+, ++ or +++)	8½	21	13½
S.T.'s Flexion (+, ++ or +++)	11½	11½	47½
S.T.'s Fanning (+, ++ or +++)	1½	18½	4½

Each figure in Table 3 indicates the number of responses of that type obtained out of the 75 reactions investigated.

TABLE 3
Analyses of the Withdrawal Component of the Reflex

W.D.	*Before*	*After 1 minute*	*After 2 minutes*	*After 5 minutes*
–	25	68	36	17
+	22½	5½	12	16½
++	24½	2	21	31
+++	2	0	3	8

From Table 3 it is evident that the "withdrawal" response becomes distinctly exaggerated after the patient has had a fit.

SUMMARY AND CONCLUSIONS

The plantar reflex of each of 25 patients was examined on 3 occasions before and after an epileptic fit induced in the process of electrical convulsive therapy. A total of 75 such examinations was therefore done.

From this investigation it can be stated that no responses were obtained immediately after the fits had ceased and that an extensor plantar response, or positive Babinski, was found in not more than 21 of the 75, and that a larger number of such responses was obtained two minutes after the fit than was obtained one minute and five minutes afterwards. The "withdrawal" response became more marked after the fit than it had been before, and an exaggerated response in this respect

became even more intense five minutes afterwards, so that it formed a distinct contrast to the type of withdrawal found in the normal subject.

By studying the plantar response immediately after, and up to five minutes after a "fit", and by comparing it with the type of response obtained in the same patient independent of any fit, some information can be obtained which is helpful in the differential diagnosis of epilepsy on purely clinical grounds. The absence of a positive Babinski reflex cannot exclude the possibility of epilepsy. Neither can a flexor plantar reflex be looked upon as negative proof of epilepsy.

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