

CERTAIN ASPECTS OF TREATMENT AND INVESTIGATION  
IN MENTAL DISORDER.

A THESIS FOR THE DEGREE OF DOCTOR OF MEDICINE OF  
THE UNIVERSITY OF GLASGOW

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## I.

### INTRODUCTION; OPEN AIR TREATMENT; THE CONTINUOUS BATH; OCCUPATIONAL THERAPY.

#### Introductory Remarks :-

"No attempt at psychiatric classification is entirely satisfactory - it is not the patients we are to sort out but the facts." (1)

Attempts at a satisfactory classification of treatment in mental disorder are equally difficult; there are even modifications in the incidence and course of physical diseases as they occur in those afflicted with mental disorder.

The fact that Psychiatry is intimately bound up not only with medical but with Legal and Social problems is emphasised by Tanzi (2).

That prevention is better than cure is a truism; that social and economic stresses are a prolific cause of mental derangement is undoubted, but there must be limits and limitations set to the powers of the State, of Councils, or of voluntary bodies - such as Associations for Mental Hygiene - in interfering with personal or family life.

For prevention and early treatment the best

hopes along medical lines seem to lie in :-

- (1) A greater attention to psychiatry in the medical curriculum.
- (2) A specialised knowledge of mental disease in the school medical officer. Several bodies already require this, e.g. Kent County Council. It is remembered, however, that the school doctor is a busy man, and that any interference by the teacher along psychiatric lines would probably do more harm than good. The teacher might draw the doctor's attention to children who showed conduct peculiarities along certain lines, and greater facilities given for personal touch between the school doctor, the family, and the family doctor. The subject is difficult, for the home has a weightier influence than the school, in most cases.
- (3) The provision of out-patient clinics in connection with Mental Hospitals. London is now divided into administrative areas all under the County Council, and each Mental Hospital might establish a clinic responsible for one area. Such clinics had better show nothing in the name to connect them with the parent hospital; every doctor would take his days for out-patient duty, accompanied by certain members of the staff, and to both such work should give an

added interest and valuable experience in dealing with their in-patients. Attempts to impart a knowledge of psychology - normal or abnormal - to the general public are not of undoubted value. Expert knowledge does not prevent nervous breakdowns, and relatives of patients have been warned to cease their reading of, sometimes unhealthy, psychological literature.

- (4) The extension of facilities for the treatment of voluntary boarders. These are given by The Mental Treatment Bill 1930. (3). This applies more to England than to Scotland. There will be preliminary difficulties in rate-aided hospitals if the voluntary cases show tendencies to regard themselves as in any way privileged as compared with their non-voluntary fellow patients. Such has been the experience with many patients of the private class.

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With regard to examination on admission the best of various methods is :- A complete mental and physical examination by the receiving doctor; a repetition of this within a day or two by a senior doctor; a final examination by the Physician Superintendent.

No definite rule can be laid down as to whether the physical or mental examination should come first. In practice the physical examination is usually done first, but cases have been met where no physical examination was possible till after a long preliminary talk, and, in the psycho-neuroses, complaints of physical ailments have led to a more detailed examination of the system alleged to be at fault.

Tanzi loc.cit points out that if a physician with 100 patients devotes six hours a day to his work he is only giving about  $3\frac{1}{2}$  minutes to each patient. There is no doubt that a larger provision of doctors and nurses would be of great benefit to the patients, but the physician has got to use his discretion in being selective. One day he may talk to a patient for an hour or more, and the next for only a few minutes to the same patient. There is bound to be a waste of time in writing statutory notes on patients, whose recovery is, to say the least, improbable. It is not, Tanzi states, economical to place mental patients in ideal surroundings, and yet the benefits of a little extra personal attention have been seen time and again. A patient who is regarded as very refractory is sent for some physical ailment to an open, well lit, airy hospital ward. Often that patient,

if not discharged, becomes a quiet, hard-working member of the hospital community.

The recovering patient stands out in a refractory ward as much as the refractory patient in a quiet ward.

It is not thought that the nursing of male patients by females can be adopted in all, or even in the majority, of cases. It has been found to work well with the quieter and older patients; it is impossible with the younger and violent patients e.g. excited cases of schizophrenia. Women probably make better hospital ward nurses than men, and, on the other hand, among the older and partly demented men it is possible that there is a greater community of interests with male rather than with female nurses. At the Maudsley Hospital the more acute wards are staffed by a combination of male and female nurses.

There can be no doubt about the benefit of entertainments, where patients of both sexes mingle.

The difference of opinion about the registration of mental nurses between the General Nursing Council and the Royal Medico-Psychological Association is unfortunate. As things are at present the nurses are advised to enter for the R.M.P.A. examinations first, and then try the

State Examinations. Lectures and demonstrations are arranged for both. Mental Nursing is a speciality, not to be picked up in a day, and everyone is not adapted for it. The Mental Nurse, at the same time, must have a certain amount of general training and at present they are in an anomalous position. The training of nurses does not cease once they have gained their Certificates.

#### Open Air Treatment.

"We are indebted to Easterbrook for introducing the open air treatment in the acute psychoses" (Devine) (4). Easterbrook wrote his paper over twenty years ago and Devine quotes him as writing:- "The fresh air has an undoubted soothing and soporific<sup>effect</sup> on the nervous centres, and the cooler outdoor atmosphere stimulates general bodily metabolism and appetite, both of which effects render the open air of special value in treatment of active insanity . . . . Indeed to arrive at the rationale of open air in the therapy of disease, we must take into consideration the entire gamut of its mechanical, chemical and physical properties and conditions, etc."

On admission every new case is put to bed in the open air. There are single rooms off the verandah for those patients who are too excited or restless to



be side by side with the others. Actually, if the weather is fine, the beds are disposed round a pleasant garden, allowing for suitable shade. This allows of a certain amount of complete quiet and isolation.

"Vita" glass is used for the roof of the verandah. This, it is believed, allows the essential actinic rays to pass. (Dove Cormac). (5)

Blinds are provided for the verandah, as in very warm weather it is apt to become stifling, and the glare of the sun very severe on the eyes. There are also sliding doors to be used in harsh weather. It is thought that there is no advantage in keeping patients out if it is very cold or foggy.

Many patients, who have never slept out of doors before, express their appreciation of the treatment. They say that they feel "much better in themselves" and more settled. In two hospitals the open air method has been available in the admission wards and in another it was not. In the latter case it was necessary to use sedatives, and the length of time taken to produce relative calm and a reasonable appetite was, in most cases, much longer than where open air methods were adopted.

The use of revolving huts, as practiced in

sanatoria, does not seem to be extensively employed in mental work.

It has been noticed that extremes of heat and cold are equally potent in leading to excitement and restlessness.

There is an artificial light department in active operation, but as Dove Cormac points out (loc cit) its activities are too often confined to the treatment of purely physical complaints.

#### Prolonged Baths.

(6) Good gives his conclusions as to the indications for, and the use of the continuous hot bath. He found that the most suitable cases were those of acute confusion with restlessness and a slightly raised temperature. He found that cases of acute mania and of katatonic excitement did not derive the same benefit. Only cases of so-called acute confusion with toxic symptoms and cases of acute mania have been tried, and Good's conclusions that the former derive most benefit was confirmed. If the baths were omitted for a day the manic patient was as bad as before, and the attack ran its full cycle. One case of toxic-confusion with great restlessness collapsed in the bath

and died from heart failure after being got back to bed.

The bath temperature is 100 F; a cold cloth is kept on the patient's head; the time is worked up every day by  $\frac{1}{2}$  hour up to five or six hours; the nurses are instructed to keep a careful watch on the pulse. In some cases small doses of medinal were found a useful adjunct and every effort is made to get the patient as free from sepsis as possible. The blood pressure, as recommended by Good, was not taken.

- (1) Facilities for prolonged bath treatment are only available for a few patients at one time.
- (2) The treatment involves a numerical strain on the staff.
- (3) Many of the patients, most suitable for treatment, are too weak on admission to undergo it.

#### Occupational Therapy.

Henderson (7) and others at the Glasgow Royal Mental Hospital have done much to stimulate interest in this subject and to place it on a more systematic basis. A lady occupation officer is now

attached to most mental hospitals.

It can be stated that in practically every case where this therapy has been tried benefit has resulted. With interest taken by the doctor and the nurse in the subject very few patients when approached, cannot be persuaded to do something, however small.

It is not always possible to have such an extensive and organised department as described by Henderson and Gillespie (8).

The occupation officer is not a member of the nursing staff, and the work is done, in a separate room, on alternate days, on each side of the hospital. On the days on which the officer is on the female side a male nurse teaches the male class carpentry and cabinet making, and much good work is turned out, which is afterwards sold in aid of the After Care Association.

When the patients are being interviewed for statutory notes, enquiries are made about their willingness and suitability for this form of therapy, and periodically the Sisters are asked to examine their wards with the same object. The numbers are limited by the size of the department, and not by the number of suitable patients.

The practice of ladies from the district coming in on certain days of the week to hold classes seems worthy of extension, provided the visitors are of the right type.

On the whole the best results of the therapy have been observed in schizophrenics, who, if they never become quite fit for discharge, become useful members of the hospital community. An aurally hallucinated, violent and faulty girl (B.V.) of this type aged 19 developed a thrombo-phlebitis and went to a hospital ward, where she relapsed into an almost stuporose state for six weeks. She came out of this state and her physical condition got better, but she remained very apathetic, and, if she answered questions at all would only do so in monosyllabic whispers. At this stage she was started on a little light raffia work which, to begin with, was only kept up for about 20 minutes a day. The occupation officer would visit her daily in the ward, and one nurse began to take a special interest in the patient. From the time she began the work there was an almost perceptible daily extension of her interests and, although she never discussed her acute episode, she became well enough to be discharged, three months after starting the therapy. So changed

was she in appearance that her former nurse, who had not seen her for some weeks, did not know her on discharge. A similar case (N.W.), a girl aged 21, who was just coming out of a stuporose period, when she had been tube-fed and was thought to have gangrene of a lung, was started on occupational therapy, and was discharged in six months. In her case, also the extension of interests and general betterment was coincident with the beginning of occupation therapy. These cases were beginning to improve when the therapy was started, and it probably hastened the improvement, but the question of employing the therapy is always considered as initiating improvement, more especially in all cases of schizophrenia, depressed patients, and the so called delusional insanities.

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## II.

### INSOMNIA AND STATES OF OVERACTIVITY.

Gillespie points out that, unlike the neurotic, the psychotic seldom complains of want of sleep. He also adds that direct psycho-therapeutic measures are

impossible in acute episodes but, that before resorting to drugs, attention should be paid to the general health, diet, bowels, and foci of infection. He recommends the giving of alkalis in certain toxic-infective psychoses. (9).

It is not believed that a wholesale condemnation of single rooms would be justified.

- (1) Many quiet patients prefer to sleep in a room.
- (2) A few have expressed a horror of being locked in, and, where possible, the door should be left open.
- (3) At Hanwell, where single rooms are plentiful the use of sedative and hypnotic medicines was less than in other hospitals where they were scarce.
- (4) At Hanwell a very useful provision for senile, restless, agitated patients was a number of padded cubicles. The walls were about  $4\frac{1}{2}$  feet high, there was a door and no roof. There is no seclusion, and the patient is under easy observation with a great minimising of the risk of injury.

The personal influence of the doctor on his rounds, or, of the nurses in the wards, in allaying

excitement and promoting sleep, has been found of the greatest value.

Apart from the use of a glass of hot milk at bed-time, the use of Sedin soup cubes (Bromides 33 grs.V) has been found very useful, especially in senile patients.

Most acutely excited patients sleep badly, but delusions, hallucinations and anxiety may keep a patient awake, apart from excitement.

Gillespie (10) points out that whilst every other method of procuring sleep and calming excitement should be used, before resorting to drugs, there are dangers in withholding them too long.

The nature of sleep is an unsolved problem. Whether it is physico-chemical in origin, controlled by centres in the brain, a process of inhibition, a function of the thalamus or, purely psychological in origin is unsettled.

Cloetta and Thomann found that the level of blood calcium fell during sleep (11). Demole found that he was able to induce sleep in animals by injecting a solution of calcium chloride near the floor of the third ventricle (12). He thought from this that if



there is a fall in blood calcium during sleep that this is due to its accumulation in the brain, and that hypnotic drugs and calcium have an adjuvant action.

The metabolism of calcium, phosphorus, magnesium and potassium is still very obscure.

- (1) It is generally believed that the parathyroid glands are regulators of calcium metabolism.
- (2) It is doubtful if the estimation of blood calcium is a true indication of its metabolism in the tissues (Pearson and Wylie). (13).
- (3) ~~Cushay~~ doubts if calcium taken by mouth is absorbed through the intestinal wall. (14).
- (4) Hyper-calcaemia among other things causes dullness, drowsiness and muscular flaccidity; The circulation fails and coma develops. On the other hand hypo-calcaemia excites the nervous system. (15).
- (5) Hunter states that during fasting calcium is the only fixed base drawn from body tissues.(16).

In view of these observations blood calcium estimates were done on 15 patients awake and asleep, and the following were the results :-

- (1) The blood calcium in all cases ranged from 10 - 11.2 mg. per 100 ccg.

- (2) The amount varied in the same patient from day to day, and, had no connection with the question of waking or sleeping.
- (3) With regard to reference 15 it was found that in one stuporose case of schizophrenia the blood calcium awake and asleep was 10; in another similar case it was 10.6 and 10.4 mgs. respectively.
- (4) The giving of 15 grs. of freshly prepared calcium lactate by mouth did not raise the level of blood calcium  $\frac{1}{2}$  hour afterwards.
- (5) The effects of combining calcium and hypnotic drugs have not been tried; if there is anything in Demole's observations which have been quoted, a more rational approach might be to try the effect of the injection of parathyroid extract, combined with the oral administration of hypnotics. The effect of parathyroid extract in mobilising calcium in tetan<sup>n?</sup>y is pointed out by Beaumont and Dodds, and the method of blood calcium estimations by the same authors (17).

Brain and Strauss (18) quote the work of von Economo and Pick on the differential action of sedatives on the nervous system. These last authors hold that

the Bromides, Paraldehyde, Alcohol and Anylene Hydrate act especially on the cortex, and that drugs acting on lower levels of the nervous system are :- Chloral, Chloretone, ~~Methone~~, Veronal, Luminal, Somnifen, Hyoscin. Morphia is supposed to act on all levels of the nervous system. In practice, combinations such as Bromide and Chloral, Paraldehyde and Medinal, are found to work much better than much larger doses of either drug alone.

Of all the more important drugs the Bromides appear to be the only ones which have not a combined sedative and hypnotic action and, in considering the individual medicines, the classification given by Gillespie (19) is the one adopted.

Chloral. This has not been used in doses of more than grs. XV t.d.s. and is always combined with a little nux vomica. 2 ounces of water are given with every dose, as it was found that if plenty of water were not given vomiting occasionally occurred after its administration. It was suggested at one time that the action of chloral was due to its combination with the alkalis in the tissues and the formation of chloroform. This view is no longer tenable (20). Chloral produces its effect in about  $\frac{1}{2}$  hour; the sleep, from which the patient can be roused, lasts about 6 - 8 hours. Dixon (21)

Cushny (22) and Hale White (23) all hold that its alleged toxic action on the heart has been much exaggerated. Cases who had been on chloral for several years were found post-mortem to have fatty degeneration of the heart muscle, but there was no reason to directly ascribe this to chloral. Rashes of an urticarial, morbilliform and scarlatiniform nature have been seen after its use. It works very well combined with bromides, e.g. 20 grs. Bromide, 10 grs. Chloral t.d.s. (vide supra). It has been found useful in all forms of excitement and insomnia especially in paraphrenia and involutional melancholia. General paralytics seem to have a great tolerance. Several epileptics at present are doing better on Chloral grs. XV t.d.s. both from the mental and incidence of fits, points of view than they did on either bromides or luminal or both combined. Another epileptic has up to 25 fits in a night if Chloral grs. XV is omitted. On the chloral she may have none or only one or two fits. It is never given if insomnia is due to pain, or if there is respiratory or cardiac disease. Its use as a rectal injection in the status epilepticus, and in the seizures of General Paralysis has been found very disappointing.

Of the other Chloral preparations the only

one used has been Chloralamide grs. 111 combined with a little brandy to hasten absorption. This has been tried with a few restless, sleepless, senile patients with fair effect.

Sulphonal. This is both sedative and hypnotic. The action is slow and uncertain, and, even taking every precaution, cumulative effects have been seen on 10 grs. t.d.s. It has been used in doses up to 45 grs. a day in cases of very acute excitement belonging to the groups of schizophrenia or the Manic-Depressive psychoses, after being satisfied that the physical condition was good. A few patients have complained of headache, drowsiness, and of "not thinking clearly" the day after, and sleep may not follow its use till up to six hours after administration. In one or two cases of very strong men in an acutely maniacal phase, chloroform and ether has been given, an enema, a stomach wash out and tube feed, 30 grs. Sulphonal, Paraldehyde 2 drachms and a castor oil. In seven hours it was possible to give another tube feed, another 30 grs. of Sulphonal and 2 drachms of Paraldehyde without a general anaesthetic. By the third day it was possible to go on with 10 grs. of Sulphonal a day.

Mercier recommended the combination of Sulphonal grs.25 Trional grs. 15 in cases of very acute excitement (24). "The trional puts him to sleep: the sulphonal keeps him asleep". This has been tried for a day or two in strong and very excited patients and has worked well. On the other hand Stoddart (25) quotes Soukhonoff as stating that trional produces rapid neuronal degeneration, and Stoddart says he has found trional a poor hypnotic and never uses it. Sulphonal is never given to melancholics, and, apart from its more prolonged action, no cases have recently been encountered where it was not felt better to use a combination of Medinal and Paraldehyde - even in the most acute excitements.

The signs that Sulphonal is having a bad, even poisonous effect are the occurrence of :-

- (1) Ataxia, inco-ordination, slurred speech.
- (2) Dark coloured urine with haematoporphyrin.

No simple chemical test is known for this substance. The urine in such cases is either port wine coloured or dark. In the latter case there is some other metal as well, which gives with the spectroscope an appearance like oxy-haemoglobin. This metal disappears on adding a little acid. Albuminuria is sometimes present.

(3) Rashes. All forms have been seen, but there is a common and typical one which does not appear to be described. It occurs about the mouth and lower part of the nose. In appearance it is like a collection of little grains of oats, set at right angles to the skin, and with a black spot on each.

Cushny (26) states that sulphonal is excreted by both bowel and kidney, and in cases of overdosage or idiosyncrasy large draughts of barley water are useful in helping the other eliminative and stimulating measures.

Sulphonal, over a few days or weeks, appears to have a degrading effect, e.g. the previously clean maniac becomes dirty, and within the last few years its use has been practically abandoned as much as possible.

Trional. This has not been used alone but only in combination with Sulphonal. Gillespie tells how Offler has used this drug to produce prolonged sleep in the psychoses. With regard to this method a young girl in a state of katatonic excitement, was kept under the influence of morphia, atropine and hyoscin for over a week. She could be roused for meals and slept most of the time. The course of her illness was unchanged.

The barbitone group includes :-

Medinal is the mono-sodium salt of veronal.

It has the advantage of being more soluble than sulphonal. It is both sedative and hypnotic and when used as the latter produces its effect in about  $\frac{1}{2}$  hour. As an hypnotic not more than 10 grs. has been given but as a rule 5 grs. are sufficient and as mentioned already a combination of Medinal grs.  $\overline{\text{lll}}$ , Paraldehyde 1 drachm proves an efficient hypnotic in the milder cases, e.g. where insomnia is due to anxiety. It has been used in all forms of excitement, except in cases where there is gross organic disease. Never more than grs.15 has been given in the day and the maximum employed is 10 grs. In a very excited patient if 5 grs. does not cause sleep it has a great calming influence. Some years ago, when the drug was less well known, a colleague was using up to 30 grs. a day. The effect varied. Some patients were unaffected; others were completely prostrate in a couple of days - with great ataxia and erythematous rashes. A more recent case was B.S. a young girl. She is an imbecile with a schizophrenic reaction and is noisy, restless and destructive. She was put on medinal grs.  $\overline{\text{v}}$  <sup>twice</sup> ~~once~~ a day, ~~but occasionally~~



~~she required it twice~~, in December 1929. A tendency to astasia-abasia was noted on 28.1.30 and the medinal was stopped. It was resumed again within a fortnight and continued as before. On the morning of 14.4.30 she appeared very ill and the following was found :- Pupils pin point; corneal, light and abdominal reflexes not obtained; all limbs very spastic; no patellar clonus; ankle clonus present; knee jerks very brisk; plantar reflexes flexor; coarse tremors of hands. Nothing else of note except that she was very drowsy. The patient was given brandy, glucose and a purgative. The medinal was stopped and she was her old troublesome self in a few days. The case was interesting because hysteria and meningitis were both thought of, and it is by no means quoted as a case of medinal poisoning. On the other hand medinal acts directly on the nervous system, and the toxin of lobar pneumonia can produce all the signs of meningitis - except changes in the cerebro-spinal fluid - without meningitis being present. In all other cases where it was thought that too much medinal was being given ataxia, flaccidity and loss of tendon reflexes were outstanding. Gillespie (28) states that its toxic action may be mistaken for

cerebellar disease. It relieves pain and has been used with success in a case of gastric cancer before going on to morphia. Its advantages appear to be its solubility; its rapid and effective action as an hypnotic, sedative or analgesic; it acts only on the C.M.S; toxic effects are rare and a case of addiction has not been seen. Maurice Craig (29) states that he has seen no ill effects or cases of addiction.

Luminal and Bromides. These are so largely used, alone or together, in the treatment of Epilepsy that it is convenient to consider them in the same place.

Luminal has also a sodium salt which is more soluble than the substance itself. It can also be used for hypodermic or intravenous injection. Gillespie (30) recommends the latter method.

In Epilepsy Henderson and Gillespie recommend 2 grs. of luminal as a maximum every 24 hours (31). Golla on the other hand in his series of 125 cases used as much as 6 grs. a day of the sodium salt. (32).

In the treatment of 61 cases of Epilepsy at present it has not been found necessary to exceed

3 grs. of luminal in the worst case - with or without bromides. In cases where luminal was used as a sedative, in patients without epilepsy, as much as 9 grs. a day have been used for short periods.

It is believed that luminal has marked a great step forward in the treatment of epilepsy but that it is not of universal value is shown in even this small number of cases :-

F.A. 7 fits a month very severe.  $\frac{1}{2}$  gr. luminal t.d.s. No fits. Better mentally.

F.R.A. 3 fits a night - Luminal 3 grs. a day. 2 fits a quarter. No mental improvement.

G.T.A. 8 - 9 major and many attacks of petit-mal a month. Since luminal grs. 2 a day about 1 fit a month and only an occasional attack of petit mal.

E.A.B. 9 severe fits a month; many attacks of hysteria and of petit mal; very dangerous: Luminal grs. 3 a day. No fits and much more tractable.

E.A.C. 13 fits a month. Patient much worse on Luminal grs. 2; violent, excited, and fits no better. Changed to chloral and bromide aa grs.  $\bar{X}$  t.d.s. Fits fell to less than 1 a month.

- L.D. 18 fits a month. Luminal grs.2 t.d.s.  
 Fits decreased. 10 grs. of Pot Brom.  
 t.d.s. Fits ceased. Much better mentally.
- E.A.F. One severe fit a week.  $\frac{1}{2}$  gr. luminal  
 daily. 10 grs. Pot.Brom. t.d.s. Fits  
 have ceased. Always <sup>an</sup> intractable patient  
 there is no mental improvement.
- D.H. 10 fits a month. Very violent. Luminal  
 grs.3 a day. Fits ceased. Better mentally.  
 These are only a few cases taken at random.

It will be noticed that one case, E.A.C., was worse mentally, and no better as regards the number of fits, on luminal therapy.

Among these 61 patients it was found that 10 showed no improvement mentally or as regards the number of fits when given luminal. 5 patients were definitely worse mentally, and the best distribution of medicines in the wards from all points of view has been found to be :-

Luminal 1 - 3 grs. a day	27.
Bromides up to 60 grs. a day	6.
Luminal gr. $1\frac{1}{2}$ Bromides up to 60 grs. a day	10.
Chloral grs.45. Bromides grs.30 a day	5.

Chloral grs.45 a day	11.
Luminal grs.1½. Paraldehyde 1½ drachms a day	1.
Sulphonal grs. <u>XV</u> occasionally	1.

The epileptic ranks high among the patients who are essential individualists.

Lovatt Evans (33) describes the work of Pavlow on Conditioned Reflexes and Inhibition and states that caffeine and strychnine augment all conditioned reflexes; that bromides do not affect them but increase the inhibitory action of the cortex and that alcohol depresses inhibition.

"More recently Hartenberg has advocated what is now the generally held view that the initial event in the epileptic attack is cerebral inhibition or arrest of function and that the positive events ... are release phenomena due to the action of lower centres in the absence of higher cerebral control." (Adie and Collier) (34).

After reading that, an attempt was made to think of certain states of over and underactivity in terms of levels of the nervous system. Thus epilepsy might be due to a sudden cortical discharge.

On the other hand it might be due to a process of inhibition in the thalamus, with sudden release. Epileptics as a rule are dull and slow to respond to all forms of stimuli. Bromides are supposed to act on the cortex; luminal on the thalamus, and some epileptics do better on one drug than on the other, and some do better on both. Difficulties at once arose in trying to think of cases of stupor or of the manic depressive psychoses in terms of this rather mechanistic hypothesis.

In cases of stupor the lack of motor response is the prominent feature; it is impossible to say in any given case how far cortical or thalamic sensation is affected. Minor, but what should have been fairly painful, operations have been done on them and the only response has been a slight turning of the patient's head and eyes to the seat of operation. No patient has been met who could, after coming out of stupor, give much if any account of subjective sensation. A young nurse was foolish enough to try to rouse a deeply stuporose katatonic by sticking pins in the patient's feet. Some months later this patient made a savage assault on the nurse, and still later, when in a state of remission, explained that she

attacked the nurse on account of the pin incident as "she had been very much hurt".

In this connection it may be said that, at Bexley in 1925, several cases of schizophrenia in all stages and depths of stupor were given caffeine by mouth or injections of caffeine sodium benzoate, more with a view of its tonic action than with any idea of producing a mental effect. An effect was produced but not a desirable one. They all became very restless; ill-directed deeds of violence were done by the hitherto resistive; one case showing marked *flexibilitas* paced the ward all day; those who had been mute used bad language; the nurses got alarmed about caffeine, and the treatment was stopped.

Going on the assumption that stupor might be an inhibition of the motor cortex four cases have, more recently been tried on grs.45 of Bromides a day, from periods of from four to six weeks. This trial of what<sub>x</sub> might almost seem an example of similia similibus curantur produced no changes which might not have been merely incidents in the course of the trouble.

The same patients were put on luminal 1 - 6 grs. daily for two weeks and except that they

slept most of the time, there was no marked change in any of them.

It is not believed that psychoses can be explained in terms of inhibitions and conditioned reflexes, nor that the nervous system can be divided into levels on purely pharmacological lines. That certain drugs have an adjuvant action is a clinical fact, but that the adjuvant action is always due to each affecting a particular portion of the nervous system is open to serious doubt.

Luminal has also been used as an hypnotic in doses of grs.  $1\frac{1}{2}$  in patient suffering from mild anxiety and agitation. It is not an analgesic.

Bromides. These have been extensively employed. The potassium salt has been found the most potent but commonly the three salts are combined in doses  $\text{ãã}$  5 - 10 grs. They have been found useful in cases of apprehension, restlessness, and agitation, especially in old people. Their routine use in cases of epilepsy has been mentioned. In Epilepsy there is an optimum dose, which has to be found for each patient; larger doses only lead to depression and confusion and do not reduce the number of fits.

(1) Bromide acne is sometimes severe and, there



h may be secondary infection with small abscess formation. *Liquor Arsenicalis* (Fowler's) is supposed to prevent acne due to Bromides and is always prescribed with them. In spite of that cases occur, and its administration after the acne has occurred has not been found of any benefit. If small boils form they are painted with 10% Iodine in preference to incision. People with a "sweaty" skin are liable to bromide rashes, and patients getting them should have frequent baths and attention to the other organs of elimination. Bromides are found in the body fluids more than in the tissues, and, among other methods are excreted by the sweat. (Cushny) (35).

- (2) Bromides work well combined with *nux vomica* or with alkalis (Martindale and Westcott) (36). *Nux Vomica* m  $\bar{X}$  has been prescribed with them for restless feeble old people, but it cannot be said that the advantages of so doing were obvious. Good results have been obtained in confused, very restless, patients by giving a mixture of Triple Bromides  $\bar{a}\bar{a}$  grs.5, potassium citrate grs. 10, and sodium bicarbonate 1 drachm, thrice daily.

If there is an advantage in giving nux vomica it is interesting to speculate if a certain amount of excitation leaves the neuron more vulnerable to drugs like the Bromides. On the other hand, it is clear that the acutely excited patients can stand an amount of sedative which would completely prostrate the ordinary man.

- (3) It has long been held that increase of salt in the diet is bad for epilepsy. Bromides are not simply added to the normal salts of the blood, but supplant the chlorides, which are excreted in quantity. (Cushny) (37). May the alleged ill effects not be due to an increased bromide excretion in those epileptics who are on this drug? Epileptics are troublesome about restricted diets, and it is very hard to arrange a pleasant low-content chloride one. It is easier to give a generous diet and increase the dose of bromide.
- (4) Henderson and Gillespie (38) describe cases of Bromide Intoxication. No acute cases have been seen, but in patients who have been on doses up to 60 grs. a day for some time a memory defect

for scattered, but otherwise important, recent and remote events has been seen. Such patients, too, usually develop a stolid, stupid expression.

No ill effects, other than those mentioned, have been seen from the use of Bromides. Close on two hundred of the worst female patients are at present on from 15 - 30 grs. a day. Bromides are not strong enough however, except in almost lethal doses to control the most acute forms of excitement.

Paraldehyde. This is regarded as the best and safest hypnotic. Its use as a sedative combined with medinal has been referred to. It has an unpleasant taste, which no amount of flavouring completely masks, and its excretion by the breath, for many hours afterwards is another unfavourable feature. Two cases of status epilepticus have recently been successfully treated by giving six drachms. For ordinary purposes doses of from  $1\frac{1}{2}$  - 3 drachms are found sufficient. In old people the addition of a little brandy helps the effect. 1 drachm of paraldehyde is barely soluble in 1 oz. of water. It produces its effect in from 15 - 30 minutes, the sleep as a rule lasts from 5 - 8 hours and as a rule is refreshing. A few patients have complained of headache, dizziness and confusion the

next day. One case of addiction was seen in an old man in whom the nightly dose had to be increased from  $1\frac{1}{2}$  to 4 drachms. A few patients are excited by it, and in these cases chloral, as a rule, has been found an efficient substitute. One case recently, on whom lumbar puncture was about to be done, was given  $\frac{1}{4}$  morphia and 2 drachms paraldehyde, (this is made a routine practice before lumbar puncture). She became very excited, but did not apparently feel the operation painful.

Hyoscin. Mercier (39) advocated the use of this drug in cases of very acute excitement, but he said it should only be used in emergency, and not as a routine hypnotic. He had used up to  $1/25$  gr. hypodermically, without ill effects, and he thought that if, with such doses, ill effects occurred they were due to faulty preparation of the drug or to impurities. Gillespie (40) on the other hand has seen alarming effects after the injection of  $1/100$  gr. It has not been used much alone, but sometimes  $1/75$  has been given to patients with slight respiratory trouble as a preliminary to giving them a paraldehyde draught. A few patients have been definitely excited by it.

A French preparation "Geno-Scopolamine" has

been given orally in two cases of Parkinsonism following Encephalitis lethargica. The rigidity became less, the sialorrhoea stopped, and mentally they became much brighter. This drug is being used at West Park in such cases with, it is believed, good results, but no reference on the subject is available.

Morphia and Opium. Morphia in doses of  $\frac{1}{4}$  -  $\frac{1}{3}$  gr. has been used in cases of great excitement, and then seldom except combined with hyoscin 1/150 and atropine 1/250. In cases of inoperable cancer morphia is withheld as long as possible as, if it is begun early, the final doses have to be so big. In such cases medinal, or nepenthe 40 minims, repeated have been found useful in the early stages. The latter unlike laudanum, does not upset the stomach. The excitement of a woman, with an acute fungating cancer of the breast was not controlled with hypodermic injections of morphia up to  $2\frac{1}{2}$  grs., but a much better effect was produced by medinal grs.  $\bar{V}$ , chloral  $\underline{XV}$  by mouth. Another patient, riddled with pulmonary and surgical tuberculosis, and who had been a cocaine and morphia addict, was made comparatively quiet and happy by giving m.15 Tincture of Opium thrice daily. The use of these preparations is practically limited to the relief of pain or in very acute cases of excitement.

Alcohol. Brandy up to six drachms diluted has been found of some benefit in three types of patient.

- (1) Senile agitated patients, usually combined with paraldehyde.
- (2) In alcoholic psychoses of recent origin.
- (3) In patients who require digitalis.

People who have been total abstainers are more susceptible to the influence of brandy as an hypnotic. A "nip" of brandy has also had a psychological effect, if nothing else, e.g. in patients who for any reason felt faint.

Two women who had been drinking very heavily were recently admitted. They were both in a state of acute confusion, misery and sleeplessness. The line of treatment adopted was elimination, but, from the start, with their daily meals of milk and glucose they were given 6 drachms of brandy. This was reduced by 1 drachm a day till by the end of a week they were having none. Their misery at the start was greatly lessened, and it is only in alcoholics, in whom misery is terrible on admission, that such treatment is adopted. Whether it is sound practice may be open to question. In this connected <sup>low</sup> it may not be out of place to say

that, out of many alcoholic mental patients, only one has ever expressed a desire for alcohol, either during the acute phase, or later on; the craving for smoking seems to die harder.

Price (41) states that the tinctures of Digitalis, Strop<sup>h</sup>anthus and Squills deteriorate, if kept for any length of time, freely diluted with water. This, however, cannot be advanced as an argument for diluting these tinctures with alcohol; the easier way is to prescribe the tincture undiluted, and add the water with each dose. On the other hand in feeble people, where there is failure of compensation, digitalis and brandy have often been prescribed; but there is no evidence that ~~its~~<sup>the</sup> addition <sup>of brandy</sup> altered the course of the illness one way or another, except perhaps that in some cases it helped to procure much needed sleep. Latterly, in many patients, the use of digitalis by mouth has been abandoned in acute cardiac conditions, and a course of injections of digitalin or strop<sup>h</sup>anthin, followed by quinidine, substituted.

It is believed that much of the use of alcohol in medicine is more of a habit than based on rational principles. At the same time it is held that it has its uses, even if these are somewhat limited,

in mental disorder, and relatives sometimes think that it makes the last hours of their loved ones easier.

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A brief summary of the sedative and hypnotic drugs which have been found most useful in the main mental types. It is only put forward in a very tentative way, as in prescribing medicines one is dealing with individuals, and to believe that chloral is the best sedative, say for all General Paralytics, would be about as reasonable a statement as to say that it is the best medicine to give people of a certain race or religion.

(1) Epilepsy. Bromides, Luminal or both.

In some cases Paraldehyde or Chloral work better.

No advantages or indications for Borax or Gardenal have been met with.

Status Epilepticus.

(1) Enema and Chloral grs.XV. by mouth.

If this fails :-

(2) Injection of Morphia  $\frac{1}{4}$ , Hyoscin 1/100, Atropine 1/250.

If this fails :-

(3) Continuous Chloroform.



- (4) Large doses of paraldehyde have been successful.

The injection of Sodium Luminal has not been tried. At Cane Hill in the last 20 years only 5% of all epileptic deaths have been ascribed to the status, and in the last 10 years not so many. Points such as attention to the heart, the prevention of pulmonary oedema and of the tongue falling back, and an adequate diet are kept in mind. Epileptics (not in the status) have been seen having fits during general anaesthesia. In one patient the seizure was limited to one side of the body.

(2) General Paralysis. Chloral or Paraldehyde.

(3) Mania. (a) Very acute. A hypodermic injection of morphia, hyoscin and atropine. The dose is regulated by the patient's physical condition. Attention to the diet and excretory organs.

(b) Sustained Acute.

1. Medinal grs.V Paraldehyde  
drs.II. b. vel. t.d.s.

or 2. Sulphonal grs.XV. Trional grs.X  
b. vel. t.d.s. (Dangers).

It is thought that these act better than chloral, bromides, or luminal.

(c) Chronic or Recurrent Mania.

1. Smaller doses than in (b)
- or 2. Chloral and Bromide aa grs.  
X t.d.s.
- or 3. Chloral grs. XV a day.
- or 4. Bromides grs. LX a day.
- or 5. Luminal 1 - 3 grs. especially  
in the Manic-Depressive Psychoses,  
but not long continued.

(4) Confusional Insanity. Avoid sedatives, if at all possible. Attention to general health and acidosis. If necessary. Medinal or Paraldehyde.

(5) Stupor. No drugs appear to have a marked effect. General bodily health and a mild tonic line of treatment.

(6) Melancholia. As in (5). Sulphonal never given and in cases with great agitation Bromides, Luminal, Chloral and Paraldehyde have been found best. These drugs have also been used in the excitements of schizophrenia and paraphrenia.

It is firmly believed that all new patients should be kept off all medicines, except those of urgency,

as long as possible, and that the best treatment of these new cases lies in general measures and in long interviews.

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### III.

#### ACETONURIA, ARTIFICIAL FEEDING, INSULIN IN STARVATION.

O'Reilley and Povey have investigated the presence of acetone in the urine in a limited number of cases (42). They came to the conclusion that <sup>t</sup> presence had nothing to do with the psychosis of the patient and was purely dietetic in origin.

When working with Brander, in 1924, the question was first investigated, and since then the urines of hundreds of patients have been examined for the Ketone bodies. No accurate figures are available for the last six years, but the number of patients, even those who are reported as eating badly, <sup>x</sup> who have acetone present, is very small.

Of 115 recent new admissions 17 or 14.4% had acetone. When it was present there was always a

history of starvation, and it was not associated with any particular type of mental disorder.

Mills and Wearne (43) recommend that if acetone is present the line of treatment should be :-  
(1) Purgation, Enemata, Rectal injections of salines or of Sodium Bicarbonate. (2) A liberal diet, containing sugar or lactose, and avoidance of eggs and broth. (3) Intestinal Antiseptics such as Thymol. (4) Stimulation where necessary, sponging for temperature and the general treatment of any severe illness.

Actually in every case encountered the acetone has disappeared in from 2 - 3 days by ensuring an adequate diet, the giving of an ounce of glucose with each meal, and purgation.

The method of giving continuous rectal salines has been found impracticable in these patients, and it is doubtful if intestinal antiseptics are of much value. The administration of bicarbonate and potassium citrate has been thought to help cases of the, so-called, "toxic infective psychoses." How much the giving of alkalis can convert an acid organism into a neutral one is still problematical.

There are 5 patients at present who have had glycosuria for years. Their blood sugar curves

after 50 grns. of glucose returns to normal within 2 - 3 hours, with a greatly increased output of urinary sugar - their daily average being 1 - 2%. Clinically they show no signs of diabetes.

N.H. aged 37 is a puzzling case. Her daily urinary sugar is 2 - 3%; her fasting blood sugar has been as high as 0.2 mgs; after 50 grs. of glucose it reached the unbelievable figure of 0.5 mgs; half an hour after 30 units of insulin her blood sugar fasting was 0.18 mgs. She shows no bodily signs of Diabetes Mellitus and her weight varies between 6st.8 lbs. and 7st. She is very sulky and resentful, has delusions of great wealth, and thinks her food is poisoned. She is kept on a diabetic diet, and recently, after a surreptitious meal of gooseberries, her urine gave an almost black reaction for acetone, with Rothera's test. She may be one of the uncommon "insulin resistive" types; or she may not be a true diabetic. The absence of coma, in spite of the strong bio-chemical findings, which have been checked, and the absence of bodily signs cannot be explained.

Benedict's Tests for Urinary Sugar, Folin and Wu's Test (modified) for Blood Sugar, and Rothera's Test for Acetone and Diacetic Acid are used. (Beaumont

& Dodds) (44).

Artificial Feeding. On admission the majority of patients are eating badly. In the majority of cases, with the regular hospital routine their appetite improves.

If there is absolute refusal of food, or a persistent acidosis, artificial feeding becomes necessary. Many patients dislike the use of the feeding cup so much that they begin to eat spontaneously.

Both the nasal and oesophageal routes have been employed, and nothing untoward has been encountered by either method.

The nasal route is slower, the exact locality of the tube is harder to define, it is more easily regurgitated into the mouth, it is not so suitable for washing out the stomach, and the food must be purely liquid. It is probably easier than the oesophageal method in very resistive patients, and the latter has the disadvantage that a gag is usually necessary, and it is hard to avoid damaging the teeth. On the other hand very finely minced meat and vegetables pounded up in a mortar, have been given by the oesophageal route. It is felt that there is too great a tendency to keep to milk and eggs in these feeds.

The only case of scurvy encountered in mental hospitals was in a man who thought his food was poisoned, and who lived largely on chocolate.

The stomach is washed out once a day with a weak solution of bicarbonate.

Whatever else is given in the feed, a little fresh fruit juice and glucose is added.

It is found that some patients can produce a block in the flow of the fluid by strongly contracting their abdominal muscles. It has been frequently found of value in such cases to detail a nurse to keep trying the Babinski reflex.

One case of haematoma auris, with permanent deformity, was caused through holding a patient's head.

A very stuporose young girl was fed for over a year and died of acute haemorrhagic pancreatitis which, was not discovered during life. The other organs were healthy. Another young katatonic who was fed for 2½ years began to eat spontaneously. In drinking a glass of milk one evening she suddenly died. It was found that she had enormous dilatation of the stomach, and that in about five or six circumscribed areas, about the size of a penny, the stomach was as thin as paper. No perforation was found. Another young woman J.C.

aged 27 was acutely depressed, but intensely fond of notice and seemed - a point noted in other women as well - to derive considerable satisfaction from tube feeding. In spite of steady perseverance with the feeds she got thinner, vomited everything, and acetone appeared in the urine. She eventually became too weak to feed, and instead intravenous injections of 50 ccs. 50% glucose in saline were given together with strychnine. There were no signs of gross physical disease. She died, and a post-mortem was refused; she had to be certified as "Exhaustion from Melancholia". It is hoped to obtain a wider experience of the intravenous use of glucose.

Rectal feeding has not been found of any value.

Patients being artificially fed are weighed twice weekly, and frequent urinary tests carried out.

Insulin in Starvation. While acting as a control for some Insulin experiments by Mann, at the Maudsley Hospital, it was found that if 10 - 15 units of Insulin were injected, an intense feeling of hunger, thirst and a "sinking feeling" in the epigastrium followed in about half an hour.

It was thought that insulin might help



patients who were eating badly.

Fischer and Rogatz (45) claimed good results in 60% of cases by giving small doses of insulin to badly nourished infants. They sometimes combined this with glucose therapy.

Trocello (46) in badly nourished adults gave 10 - 25 units of Insulin and reported an increase of weight, an increased sense of well-being, and a disappearance of neurasthenic symptoms such as headache, asthenia, or gastric disturbances.

In all 21 cases have been given insulin since 1927 with a view of improving the appetite. They were made up as follows :-

Stupor	4.
Katatonía	2.
Melancholia	7.
Delusional State	8.

The last were a mixed group consisting of paraphrenics, and people whose delusions were of food poisoning.

In some cases 10 units of insulin were injected twice daily half an hour before the principal meals, and in other cases 15 units were given before the mid-day meal.

A preliminary single blood sugar estimation was done before treatment started.

It is disappointing to state that the results all over were not striking.

The weight was taken weekly and the duration of treatment lasted from 2 weeks to 4 months.

In no case could it be said that there was a marked or even noticeable increase of appetite following the injections.

The weekly weight fluctuated considerably; there would sometimes be a gain up to 7 lbs. and then, perhaps, a loss of 2 or 3 lbs. the next week. Most of these patients were on extras such as milk and eggs.

In no case was there a marked change in the mental picture - with one exception, which it would be, to say the least, rash to put down to insulin.

Mrs. B. aged 38, was admitted to Hanwell early in 1928. She had been the champion lady typist of Europe, had travelled much, and there was a history of heavy alcoholism. She had tuberculosis of the right upper lobe. She was very agitated, had aural and visual hallucinations and marked, obvious, delusions of infidelity regarding her husband. She ate badly from the start and her condition did not improve by the end

of three months - in fact she was getting so emaciated that the question of tube feeding was considered. It was decided, however to take the risk of giving her an injection of 10 units of insulin. The effect was surprising. She ate the first good meal for months, the injections were continued once daily for a fortnight, she put on weight and in six weeks looked perfectly well and the psychosis had entirely cleared up. She was discharged and has since remained well, having so far as is known given up alcohol. The co-incidence at least was striking, but it is remembered, that in all cases, nurses take an added interest in patients receiving any form of special therapy.

Four very stuporose cases of schizophrenia have recently been treated with twice daily injections of 10 units of insulin. In addition, following the findings reported from Croydon on "Glucose In Asthenic Cases" up to  $\frac{1}{4}$  lb. of glucose in solution was given daily. (47).

<sup>2</sup>  
W.S. had gained 9 lbs. in weight at the end of 11 weeks. Still required much persuasion to eat and was as stuporose as ever.

E.C. was stopped at the end of the 5th week.

There was no gain in weight and she was still

eating very badly.

L.H. Weighed 4st.8 lbs. on admission in August 1929. In January 1930 her weight had risen to 6st.7lb. but she went into a state of deep stupor and again began to lose weight. She was started on insulin and glucose, and although she is still difficult with food, her weight is now 8st.1 lb. She is still very stuporose, but moves about a little voluntarily and smiles wanly when mention is made of milk and eggs.

N.S. deeply stuporose and eating badly, was 7st. in January. She was started on insulin and glucose on the 21st of the month but by June her weight had fallen to 5st. 10 lbs. and she was eating no better.

"A comparison between the normal and psychotic curves shows that in general the psychotic subject is resistant to the effect of insulin". (Mann and Scott) (48).

It is believed, however, that if this is the case, that it is during the general disturbance of metabolism, in the acute phases of the biogenetic psychoses, that the resistance is most marked.

The following experiment was done recently on 18 patients who were in a ward from which recovered people are discharged:- Each was given 15 units of insulin half an hour before the mid-day meal. Neither the patients nor the nurses were given the slightest hint as to the nature of the injection, nor what to expect and the latter were asked to report. The report showed that 13 out of the 18 had shown a considerable increase of appetite; that after the meal there was a more marked drowsiness than usual, and that several patients sweated profusely; whether the increase of appetite lasted till tea cannot be stated, but for that meal extra rations were ordered.

On the whole it does not appear that insulin is likely to prove of great value in stimulating appetite or in improving the general bodily tone in people eating badly during an acute phase of a psychosis.

#### IV.

##### SYPHILIS AMONG MENTAL HOSPITAL PATIENTS.

Lilley and Hopkins (49) found that out of 412 male admissions to Hanwell 105 had a positive

Wassermann. Watson (50) in two series of cases in men and women reached a mean total of 17 per cent.

These figures are high, but as the Wassermann is not done as a routine, no comment can be made on them.

No cases of primary or secondary syphilis have been met with among the certified psychoses.

In treating a known case of tertiary syphilis, the Wassermann is first taken of the blood and Cerebro-Spinal Fluid, and if no evidences of neurological changes exist in the latter, and the general condition is good, a course of intra-muscular injections of N.A.B. are given weekly for eight weeks. No ill effects have been seen from intra-muscular injection when the drug is dissolved in guaiacol-glucose, and it is believed that, as with tryparsamide, the excretion is slower.

The initial dose of N.A.B. is 0.25 grns. This is followed by seven weekly injections of doses up to 0.9 grns in men and 0.6 grns. in women. On the fourth day after each injection 1 gr. of mercurial cream is given into the buttock.

The Wassermann is again taken of both blood and Cerebro-Spinal fluid. Whether positive or negative the patient is put on Iodides and Mercury by mouth

for three months, during which no more injections of N.A.B. are given.

A recent case, S.S., whose blood Wassermann was +40+, had a full course of injections of N.A.B. and Mercurial Cream. At the end of eight weeks the reaction had fallen to +17. She was put on Mercury and Potassium Iodide by mouth, and in addition given eight weekly injections of a French preparation called "Bismuthyl". At the end of the period her reaction was again +40+. Further treatment has been stopped for the present. Several such cases have proved that it is no easy matter to change a positive Wassermann, in these late tertiary cases.

That Potassium Iodide has a resolvent action was shown in a woman suffering from fairly advanced pulmonary tuberculosis. She had a very large and chronic breaking down sore, just over the site of the femoral vessels, above the knee. It was feared that erosion of these might occur. After all manner of dressings had completely failed it was thought that the sore might be syphilitic. Her blood was found to have a Wassermann of +30; she was put on Iodide grs.10 t.d.s. and the sore dressed with black wash. It was completely healed in a short time.

At Bexley in 1924-5, being in charge for

15 months of the main male and female hospital wards a considerable amount of the Malarial treatment was seen.

In those years the total number of cases treated was 34. Of these 17 died, 8 remained in hospital and 9 were discharged - that is roughly 27 per cent.

In these patients the Wassermann reaction was done at the Maudsley Hospital, and the Lange, Cell count, and protein of the Cerebro-Spinal fluid locally. In addition a colleague was then doing a laevulose tolerance test on cases under treatment - the idea being that if liver efficiency fell greatly the treatment should be stopped; it was usually fairly apparent that it should be without this test.

Brander (51) has recently raised the question of the differential diagnosis between General Paralysis and Cerebral Syphilis. This led to much subsequent discussion at the meetings of the Royal Medico-Psychological Association, with, it is to be feared, little clarification of the situation.

Since 1924, however, and subsequently, it has been thought that patients showing mental or neurological symptoms, together with a positive



Wassermann in the blood, and cerebro-spinal fluid, an increased cell count and protein content, a paretic Lange curve and a positive Pandy, were people who were dangerously ill, and that, if it was thought they could stand it, the fairest and wisest thing was to give them malaria - although the treatment in 1924 was young in this country. Much of the confusion seems to have arisen from the want of agreement as to the meaning of the term "General Paralysis", but granting that probably many of the cases treated with malaria would not come into any one individual's conception of the term, it is impossible to believe that the recoveries reported are only remissions or that the syphilitic affection of the nervous system would have run a similar course without malaria. Further, the classical form was known long before the discovery of the cause or of the associated bio-chemical tests; it has only been encountered in a minority of the cases treated, but the course of other forms, without treatment, could just be as surely predicted, and cases diagnosed as "Cerebral Syphilis" and fluids showing a luetic Lange curve have been comparatively rarely encountered.

A very extensive literature has grown up

on the whole subject, and Rudolf<sup>(52)</sup> in his monograph gives over 400 references, so that only a few observations are made on the treatment as carried out in 1924-5.

- (1) Every case of General Paralysis was put on Hexamine grs.10 t.d.s. from the start. The statement of Stoddart (53) that this drug prevents the occurrence of seizures was not borne out.
- (2) The patient-to-patient method of giving the blood was adopted in most cases; but in a minority of cases infected mosquitos<sup>s</sup>, obtained through Colonel James of the Ministry of Health, were employed.

The relative merits of these two methods has led to a certain amount of discussion (54). It was found -

- (a) That with mosquito infection the incubation period was shorter (10-15 days), whereas with direct inoculation the infective period might last up to 24 or 25 days.
- (b) Earlier and more frequent remissions occurred when mosquito infection was employed.

- (c) The infection was harder to control with quinine.
- (d) With the patient to patient method, and then using the benign tertian variety of parasite it was found that the strain got attenuated in successive patients - a longer incubation period, fewer and less severe rigors, and a lower series of temperatures. The exact opposite has been a recent experience with a quotidian strain.
- (3) The serological reactions were not altered in any of the cases following malaria, and no striking case of a purely neurological change of a striking character is recorded.
- (4) The 15 indications of Rudolf (op.cit) for stopping the treatment were generally observed but not in detail. No hard and fast rule was observed about the number of parasites in the peripheral blood. Just after a rigor the average number of parasites found in 20 fields varied from 0 - 10; if one or two or more parasites were found in each of 20 fields the question of aborting the malaria arose. One patient during treatment suddenly developed

jaundice and died. To stop the malaria grs.5 of quinine bisulphate were given thrice daily for a fortnight, and a strong purge preceded its administration.

Only a brief reference to the technical details employed seems necessary. 5 ccs. of infected blood were drawn up into a paraffin coated syringe from a cubital vein of the donor, and injected into the scapular muscles; the recipient was put to bed, and a six hourly temperature kept; during a rigor the temperature was taken every fifteen minutes, and the highest "peak" specially recorded.- the temperatures during rigors averaged from 102 - 105. Number of rigors averaged 12.

In these cases the most marked mental changes after the treatment were :-

- (a) In those not discharged - a dull, listless, mental apathy with no or little improvement of memory; a complete lack of insight and indifference to the future.
- (b) In those discharged- A fair amount of insight, As a rule they expressed gratitude for the treatment. Several, e.g. a book-maker's clerk, and a coffee-stall keeper

returned to their old work; none, up till the middle of 1926 ~~were~~ known to have died or returned to hospital.

- (c) Those who died after treatment usually wasted away, developed cystitis or kidney trouble, and most commonly lobar pneumonia.

It may be added that the great majority of these patients were of the confused and depressed types, with profound memory defect, rather than the expansive, exalted variety.

#### TRYPARSIMIDE THERAPY IN GENERAL

##### PARALYSIS.

Dawson~~st~~ treated 20 cases of syphilitic nervous disease with this drug, and it is known that Tennant of the Maudsley, whose paper, if published, has not been seen, has had considerable experience of its use. Dawson reported a clinical improvement in 13 of his cases, a serological improvement in 7, and 2 died.

The experience of tryparsimide alone has been limited to about 6 or 7 female patients, but it was hardly a fair trial, as they were considered

unfit for malarial therapy. They were all of the heavy log-like type, and they all died.

The practice was to give 3 grns. tryparsimide dissolved in 2 ccs. guiacol glucose into the buttock as recommended by Dawson. In the cases where the serological tests were done afterwards there was no improvement.

Tryparsimide has a reputation of being a drug which is able to pass the barrier of the choroid plexuses and reach the brain parenchyma.

Brain and Strauss (56) quote the work of Weed, McKibben and others in the use of hyper and hypotonic salt solutions given intravenously in affecting the pressure and direction of flow of the cerebro-spinal fluid, and it might be that a clinical application of this is worthy of trial in conjunction with drugs such as tryparsimide.

The solution is always freshly prepared.

### COMBINED MALARIAL AND TRYPARSIMIDE

#### THERAPY.

Since August last 15 male cases of General Paralysis have been treated with Malaria and Tryparsimide. The results have been :- Discharged 5; Not Improved 6; Died 3; Failure to infect 1.

The strain is a quotidian one, and 2 ccs. of blood are given intra-muscularly from patient to patient. The strain is renewed every now and again by sending a patient to Horton to be bitten by mosquitos<sup>e</sup>. After, the malaria is stopped by a fortnight's quinine, and if he shows any improvement 8 injections of 3 grms. Tryparsimide.

In two of the patients the malaria had to be temporarily aborted by giving 5 grs. of quinine; the attacks recurred in 3 weeks and they had 9 rigors in all, but are not better from any point of view.

Complete serological records are not available before and after treatment for the majority of cases, but in a few, as in the second patient quoted, there is a slight improvement in both the blood and cerebro-spinal fluid.

Case 1. G.W.M. Married at 48. Admitted June, 1929.

K.J's lost - poor reaction to light. Memory very bad. Expansive delusions of great wealth and fleeting hallucinations of hearing and sight. Blood and C.S.F. +40+, and latter typical paretic ~~case~~<sup>curve</sup>. 2 ccs. malarial blood injected 6.7.29. 1st rigor 18.7.29 after an initial rise of temperature on 17th. 9 rigors

in all every day. Average temperature 104 - 105. Quinine given 28.7.29. Blood films negative for malaria on 31.7.29. Blood reaction and C.S.F. unchanged. Pulse very rapid on slight exertion. 8 injections 3 grams tryparsimide starting 25.9.29.

Mentally he remained simple, childish and facile but worked in an automatic way. He had lost his delusions of great strength. He was discharged to the care of his wife on January 9th and was doing odd jobs, at his old occupation of blacksmith satisfactorily. There was a history of a severe fall on head 2 years previously.

Weights 9st. 8 lbs. Before treatment.

10st. 11 lbs. On discharge.

Case 2. H.H. 47, married, barman. Admitted 11.7.29. Pain in back of head for 2 years. Thought he owned 2 million and was going to build homes for ex-service men out of this. Wife - one miscarriage. Gait and articulation normal. Rt.KJ.++. Left lost. L pupil > R. React very sluggishly to light. Slight tremors of lips. Had been drinking heavily for 6 weeks. Blood and C.S.F. +40+. Strong paretic



Lange 5555554321

Cells ++++. Protein ++.

23.8.29. Bitten by 7 malarial mosquitoes.

First rigor 7.9.29. 11 quotidian rigors

104° - 105°. Quinine 18.9.29. Allowed

up 7.10.29. Euphoric and irrational but

ideas of wealth had gone. 8 injections

3 grams Tryparsimide started 23.10.29.

He showed a steady improvement and by

6.2.30 he had gained insight but was slightly

euphoric and facile. He was working well

in ward. He had a temperature of 103° on

20.2.30 with parasites in the peripheral

blood. This was easily controlled by quinine

grs.X for 4 days.

29.5.30. Blood +30+.

C.S.F.+ 6+.

Cells+. Protein +. Lange 5443210000.

Discharged on 4 weeks' trial which lasted but

has been kept by family.

He had a bad fall from a horse in the Army

in 1915; was always of a brooding and obstinate

nature and latterly had been sleeping badly.

Case 3. F.S 24.9.29; about 45. Single, Engineer.  
K.J's ++. Speech slurred. Rhombergism  
marked. Pupils L > R. but react to L. & A.  
Had malaria 9 years previously abroad. Says  
he gives millions away every day, is an  
Admiral of the Fleet and an Army General.  
Marked labial tremor.

Blood +40+.

C.S.F. +40+.

Cells +++,

Protein ++.

Lange 5555432110.

10.11.29, 2 ccs. malarial blood. 9 rigors  
quot. Between the 3rd and 4th there was an  
interval of 5 days and no parasites could be  
found in the peripheral blood.

20.12.29. Very exalted. Going to dine with  
the King and giving a banquet shortly to the  
whole ward.

1.1.30. Course of Tryparsimide till 19.2.30.

20.1.30. Greatly improved mentally. A little  
euphoric but otherwise rational and allowed  
out to visit friends.

20.2.30 No change.

13.3.30. Transferred to another hospital.  
From there he was discharged "Relieved".  
Not yet found employment but living in  
care of his relatives.

He writes completely rational letters every  
month, saying he is looking for work and feels  
very well. The writing is straight and firm,  
but it is noticed that frequently there is a  
re-formation of letters.

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The figures are no better than those  
previously quoted for the earlier patients treated,  
where malaria was used alone, although the comparative  
death rate in this small series is a little less.

It is believed that this combined method  
of malaria and tryparsimide is the best method avail-  
able at present for treating General Paralysis.

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In 1927 - 8 in association with Hayes, now  
Superintendent of Porirua Mental Hospital, N.Z., and  
later with Moloney, of Hanwell, cases of General

Paralysis being treated with Relapsing Fever and with Coley's fluid, were part time patients.

Relapsing Fever. 4 male cases. 2 discharged, 1 died, 1 not improved. Hayes, obtained the blood from Golla, of the Maudsley, who kept the strain going in infected mice.

The incubation period averaged 4 - 7 days, the temperature remained up for 3 - 4 days in each paroxysm, the intervals between attacks varied from 5 - 10 days, and the maximum number of attacks were 4 in a patient who was discharged. The highest temperature was 106. The patient who subsequently died, collapsed one evening, and all that could be done for him was sponging and a stimulating line of treatment. The fever in all cases ended in several irregular bouts of low pyrexia.

Petrie (57), at Banstead, has reported a series of 28 cases treated, and suggests that intravenous N.A.B. may stop the fever; this was not tried.

From coming in contact with these 4 cases the conclusions drawn were :-

- (1) The fever is more difficult to control than malaria, should great prostration or pyrexia occur.
- (2) The results are no better, if as good as

those obtained by malaria.

- (3) The Spirochaete of Dutton is hard to find in the peripheral blood. After making repeated films it was thought it was seen once (?).
- (4) The treatment may be of value in places, such as Hanwell, where it is thought dangerous to have malarial patients.

The treatment was abandoned owing to a lack of patients admitted.

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#### Coley's Fluid.

Two cases of paresis, shared with Moloney, were injected by him, at Hanwell, with Coley's fluid.

The injections started with  $\frac{1}{4}$  minim of the fluid in  $\frac{1}{2}$  cc. normal saline into the pectoral muscles. Nothing happened and the dose of the fluid was increased up to several minims. The highest temperature reached was 101 with comparatively little local reaction, and this method of treatment was abandoned.

No case of cerebral gumma in a mentally disordered patient has been diagnosed during life, nor seen in over 500 post-mortems.

Comparatively few patients suffering from

cerebral syphilis have been encountered, and it has not been found, in these few, a condition at all easy to treat satisfactorily.

As an illustration of the difficulty in treatment, and also of the ever changing neurological signs F.C., admitted November, 1929, is quoted. On admission she was 48, was lethargic and sleepy and complained of severe occipital headache, when aroused. The head was turned to the right, the arms and legs were flexed and rigid, the eyes deviated to the right and, there was a slow internal bilateral strabismus. The right pupil was larger than the left and both were inactive to light. There was slight bilateral ptosis. The speech was drawling but not slurred, the tongue was protruded straight and was not tremulous. The muscles were much more rigid on the right side of the body than on the left, and there was hyperaesthesia on the same side. There was cog wheel rigidity of the legs on extension, and to a less degree of the arms. The tendon reflexes were all exaggerated, those of the right arm being greater than the left. Both plantars were extensor and could be elicited by stimulation up to the knee. There was no clonus, the muscles were not tender on deep pressure, Kernig's

sign was present. It was impossible to get a satisfactory view of the fundi, and there was no photophobia. The serological changes were:- Blood +20+, Cerebro-spinal Fluid +20; Cells +; Lymphocytes; Protein ++ ; Lange 0123443210.

She showed a great loss of memory, there was much clouding of consciousness, gave no connected account of herself, at times was restless and querulous, sleepless and troublesome with food. She was diagnosed as a case of syphilitic meningitis, and Dr. Izod Bennett, Consulting Physician to the Middlesex came to the same conclusion after examining her. The further course was as follows :-

- 9.12.29. Less lethargic and rigid. Headache severe.
- 17.12.29. Ptosis disappeared - agitated, restless and confused, and was put on small doses of luminal.
- 28.12.29. Left knee jerks now much greater than the right. Extensor plantar reflex left side; right flexor.
- 2.2.30. She developed bronchitis. Left pupil now greater than the right and both react briskly to light. The discs were now examinable and there was no sign of neuritis or of papilloedema. Leg movements free, the

muscles were not rigid. Both plantars were now extensor.

20.2.30. She had been on Iodide and Mercury all along and weekly injections of 3 grs. tryparsimide were started.

For the next month there was considerable bodily improvement and on

13.3.30 "Says she feels as fit as a king and would soon be up again". Speech clear, left leg very spastic and knee jerks much increased. Plantars extensor.

She developed a lobar pneumonia the following week and died. All through she knew that she was seriously ill, and was anxious to get well. There was no history of syphilitic infection, but there was of miscarriages. There was no history at all suggestive of encephalitis lethargica. A post-mortem was, even after much persuasion, refused.

Her physical condition was all along too weak to even consider malaria, otherwise it would have been given. It is doubtful if very small doses of N.A.B. were not indicated instead of tryparsimide, but any benefit would probably have only been temporary from the start. Henderson and Gillespie state that



the prognosis in these cases is always worse after 40 years of age. (58).

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## V.

### MISCELLANEOUS INVESTIGATIONS.

#### Blood Grouping.

Beaumont and Dodds (59) and other similar works describe the methods of blood grouping. At Hanwell, in 1928, the blood group of over 500 patients was tested. The classification of Mosso as described by Beaumont and Dodds was adopted, and the types of patient examined belonged to the excited, the depressed, the epileptic and the schizophrenic groups. In the first place the stock sera of Groups II and III were obtained from St. Mary's Hospital.

No idea of doing transfusions was thought of, and the objects were :- (1) To find if there was a preponderance of a particular group in different types of mental disorder or if, (2) sub-groups could be established. This second object involved an unlimited number of tests; thus the agglutinating properties of the blood serum of an excited person

would be tested on the blood corpuscles of 10 depressed people; the same was then done with the serum of one of the depressed, and the corpuscles of 10 excited people.

The test was easy and 25 or 30 could be done in an afternoon.

Both the micro-sopic and macroscopic methods were used.

The results found were entirely negative. The patients' bloods tested against that of other patients reacted in all cases just as they did with the stock sera. It was probably fantastic, if not actually unscientific, to expect anything else from the start but Beaumont and Dodds state "that even if the groups of the donor and recipient be compatible according to tests with sera II and III, untoward results have occurred, and agglutination has been found by the direct test. This is claimed by some to be due to the existence of sub-groups." Stitt (60) mentions work by Guthrie and Huck, who think that the accepted groups II and III are divisible into two sub-groups, and in a foot note on the subject in Halliburton's Physiology (61) it is doubted

if anything like a complete knowledge of the groups has been obtained.

The percentage figures are :-

<u>Group.</u>	<u>Accepted Groups.</u>	<u>Patients tried.</u>
1	7	6
2	40	45
3	10	9
4	43	40

In 87 depressed patients there was a slight tendency to fall into group 2. 47 per cent did so.

The Sachs-Georgi Test. Stitt (62) describes the various methods used in employing this test, and comparing it with the Wassermann draws the general conclusion that it should not be relied upon alone for the serum diagnosis of syphilis, but may be used as a control.

S.J.Cole (63) reviews the work of Platt on the test. Platt found a general agreement between the results of the Wassermann and Sachs Georgi reactions in 500 patients - including 49 cases of general paresis.

Between 30 and 40 tests have been done on blood serum and cerebro-spinal fluid. A good many of the original tests were very disappointing, many fluids with a strongly positive Wassermann being

completely negative according to the Sachs-Georgi reaction. The earlier results were vitiated by the lack of a "dropping pipette" which delivers a constant volume of saline in a given time, as described by Dreyer and Ward in the Medical Research Council's Report "On Flocculation Tests In Syphilis." They were also marred by the fact that there was a failure to recognise "zones of inhibition". Only four tubes and a control were used in the preliminary tests and Bigger (63) says "It is occasionally found that the first two or three tubes may show no flocculation, while later ones exhibit it in a marked degree. We have even observed a zone extending from the first to seventh tube." Since this was recognised and the dilutions carried higher, more flocculations have been obtained, but not always, in cases with a strongly positive Wassermann.

It should be pointed out that the antigen, which would be very difficult to make locally, was obtained from a thoroughly reliable firm of chemists, and that this firm's laboratory returned 4 sera as positive according to the Sachs-Georgi test, whereas only two of these had a Wassermann reaction of +40+.

It is not believed that this test is likely to have a wide application in local Mental Hospitals, nor that it would be wise to make a diagnosis on it alone,, especially where the Wassermann has given uniformly consistent results, as at the Maudsley Hospital.

In this connection it may be said that it was found impossible to obtain supplies of Luetin in London in 1925.

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Intestinal Infection. It is believed that sporadic cases of Enteric fever and of Dysent<sup>e</sup>ry occur, but that with proper hy<sup>g</sup>enic measures, strict segregation of carriers, and properly controlled routine laboratory work, epidemics of any proportion should not occur.

In one hospital the nurses were inoculated against typhoid, in another neither patients nor nurses, and in a third the patients but not the nurses. In these three hospitals Bexley, Hanwell and Cane Hill, no epidemic of the disease has occurred since 1926. Cases proved bacteriologically to be suffering from enteric who have run a very modified course have been met with in the last named, and the only disadvantage, if it can be called so, of inoculation, is, that it destroys the Widal Test.

No patient with an enteric rash has been encountered in mental hospital work, and the most typical case of enteric fever met was in a young imbecilic female at Hanwell in 1928. In her case all the laboratory tests were positive, <sup>and</sup> the blood, urine and faeces of 98 contacts were examined - the last two, three times. 11 positive Widal's were found, but no "carriers". It was known that this patient would eat all sorts of rubbish, and she was in a ward nearby the two intestinal infectious wards. She made an uneventful recovery, and although an imbecile, it was noticed that she showed a slight improvement in behaviour.

The best methods of preventing the occurrence or spread of these infections are believed to be :-

- (1) The complete isolation, in semi-hospital wards of all known carriers. There are 19 "carriers" at Cane Hill among 1260 female patients.
- (2) The routine examination of the faeces and urine of all patients, with special examinations in all cases of diarrhoea.
- (3) Medical inspection, at frequent intervals of the methods of disinfection in the "foul" laundry. Experimentally, moist steam for twenty minutes has been found effective;

it is super-heated to 210°F. and the pressure is 20 lbs. to the square inch.

Pieces of horse-hair, sheeting, blanket and "harden" were soaked in the Hanwell laboratory in living cultures of typhoid in broth. It was found that after leaving them in the ordinary solution of soap used for washing for one hour at a temperature of 65°C. that no growth could be obtained. Below that temperature growths were obtained. It was also found that soaking in  $\frac{1}{2}$  per cent formalin for half an hour was effective in preventing further growth.

The risks of these experiments were very much in mind, and also the fact that the organisms had been frequently sub-cultured.

- (4) A separate kitchen for cooking the food of the isolated wards.
- (5) Complete isolation of a ward in which a fresh case occurs till the laboratory findings are completed.

Recently several cases of diarrhoea with the patient running a temperature of 103° - 105° irregularly

for 2 - 3 weeks have been encountered. An organism, like Eberth's bacillus, which fermented lactose in 17 -20 days was isolated, but no agglutinating reactions could be obtained with it.

The laboratory methods which have been found most useful are :-

- (1) Specimens of Faeces and Urine :- Inoculate, as soon as possible, tubes of brilliant green broth, and the following day plate out on McConkey's bile salt agar. The typhoid group of organisms grow much more freely in the presence of brilliant green than the coliform group. C.H. Browning, it is thought, first pointed this out. On McConkey's medium suspicious colonies of the typhoid-dysentery group appears yellow. They are sub-cultured on McConkey's medium, as the sub-culture makes them more agglutinable.
- (2) A suspension is made and the fermentative action on sugars tested.
- (3) They are then tested against a serum of known titre.

The late lactose fermenters referred to have been seen to turn red on McConkey's medium after a few days. Bigger (64)



In suspected cases blood culture has been employed. The method consists of letting about 5 ccs. of blood from a cubital vein run into about 100 ccs. of bile salt broth and culturing the next day, after incubation, on McConkey's medium. (65).

In employing the agglutination tests, both the old Widal and Dreyer's modification are used.

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### Basal Metabolism.

In 1927, preliminary trials were made for Dr. Golla of a portable apparatus to determine the basal metabolism of patients. In principle the apparatus consisted of a mask into which the patient breathed; this was connected by tubing to a series of cans, containing sodium hydroxide to dry the air, and calcium chloride to absorb the expired carbon dioxide. To the last can was attached an electrically driven exhaust pump. By weighing the cans containing calcium chloride before and after the experiment the amount of carbon dioxide excreted in a given time could be calculated, and so an estimate of the basal metabolism carried out. Golla (66) was fully aware of the fallacies of such a method and soon abandoned the apparatus. It was

interesting to note, however, that if, with such a crude apparatus the patient tolerated the mask for any length of time, the calculated rate of basal metabolism fell, and that by any form of slight stimulation, or by the patient becoming restless through anxiety, it would go up enormously.

It is believed that if estimations of basal metabolism are to be of value in the psychoses they will follow a chamber method, such as that described by Pickworth (67).

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## VI.

### SUMMARY, CONCLUSIONS AND NOTE.

The above has been written after coming in contact with over 5000 patients suffering from a psychosis, and about 200 suffering from a psychoneurosis, during the last seven years.

It is held, and believed from experience :-

- I. (1) That for the prevention and cure of mental disorder greater attention should be paid to psychiatry in the medical curriculum.
- (2) That the school medical officer should have

a knowledge of psychiatry and apply it.

- (3) That out-patient clinics in connection with each mental hospital would not only be of benefit to patients, but increase the doctors' interest.
- (4) That the voluntary boarder system in rate-aided mental hospitals will need a considerable amount of re-adjustment in the hospitals.
- (5) The proportion of medical staff to patients, the training of nurses, and the nursing of male patients by female nurses are referred to.
- (6) The benefits obtained from open air treatment, from the use of the continuous bath, and from occupational therapy are discussed.

## II.

- (1) The alleged adjuvant action of calcium on hypnotic drugs is discussed, and it is not believed that such action so far as is known is likely to be of clinical use.
- (2) The practical effects of combining certain sedatives are known; it is doubted if, as a rule, there is a specific influence combined to one level of the nervous system.

- (3) The actions of various sedative and hypnotic drugs <sup>are</sup> is compared, and, it is found that the Bromides, Chloral, Medinal and Paraldehyde, alone or in combination, are of the most universal application. The uses, and dangers, of other drugs, such as Sulphonal, Alcohol and Morphia are pointed out.
- (4) The use of luminal in epilepsy, and in other states, is discussed. It is suggested that epilepsy may be due to a sudden release of pent-up sensations, recognising that most, if not all, motor activity depends on sensation.

- III. (1) Acetone is present in the urine of badly-starved patients. Its presence is purely indicative of faulty metabolism, and has nothing to do with any individual type of mental disorder.
- (2) Certain practical points about artificial feeding are discussed.
- (3) Injections of insulin have not been found of great use in increasing the appetite

or condition, of patients who are eating badly. It is held that during the acute stages of a psychosis, of the bio-genetic type, that there is such a disorder of bodily metabolism that insulin does not produce an effect in this respect. Its effect on the blood sugar is unaltered.

- IV. (1) About 34 cases of General Paralysis of the Insane have been treated with Malaria alone, and 15 with a course of Malaria followed by injections of tryparsimide. The results in the two series do not materially differ, but it is believed that the combined method forms the most rational and successful method available of treating the disease.
- (2) Cases of Cerebral Syphilis have been very uncommon in the patients encountered.
- (3) It is far from easy to produce a negative Wassermann in cases of late tertiary syphilis.
- (4) Relapsing fever, may be given with benefit to suitable cases of General Paralysis,

provided there are reasons for not giving malarial treatment. The latter is to be preferred - owing to its more certain course and control.

- (5) Injection of Coley's fluid<sub>x</sub> failed to produce a reaction in two cases.

V.

- (1) No special features were found in the blood groups of 500 patients belonging to different types of mental disorder.
- (2) Owing to the limited number of tests no definite conclusion is drawn as regards the value of Sachs-Georgi reaction as compared with the Wassermann. Even allowing<sub>x</sub> for technical errors the experience with the former was disappointing.
- (3) An outline is given of what have been found efficient administrative and laboratory methods in preventing and dealing with cases of intestinal infection.
- (4) It is thought that if the basal metabolic rate estimation is of any use in the psychoses its only accurate estimation can be done through some chamber method as described by Pickworth.

NOTE.

The most important branch of all therapy has hardly been alluded to, and that is psychotherapy.

The personal relationships of patient and doctor are intangible things, and, at times, as subtle as all human contact. It is an easy task to collect a series of "cases", and to describe colour changes in test tubes, or a number of microscopical slides. It is a harder thing to say or write how to become the guide and respected friend of a patient, getting to know his history and difficulties, and leading him, whether the way be long or short, to better things.

There is an evolution of the doctor in a mental hospital. He may metaph<sup>or</sup>physically begin with :-

"Trumpets' blare and martial shout  
And all the din that oft breaks out,  
When youths of victory sure".  
(Aytoun).,

believing that the hospital is similar to a general one, that mental disorder is nearly always due to some physical disease, that medicines may change the mentality of a patient, and that there is a great

gulf fixed between the "lunatic" and his fellows.

Then, as time goes on, and experience grows "The Captains and the Kings depart", and there is a growing realisation of the patient as a person with hopes and fears like his own - however limited these may be in the patient's case by dementia, and that a slight deviation at any stage of life, whether from endogenous or exogenous causes, may ultimately lead to the wilderness.

It is thought that, even during the last seven years, psychiatrists in this country are thinking less in "physiogenic" and "psychogenic" terms and more on the dynamic lines put forward by Bleuler on the Continent, and Adolf Meyer in America. It is not too much to say that the advancement and presentation in this country of this dynamic view is in no small measure due to a certain number of Scottish psychiatrists, who by their writings and teachings, are having an influence not only on medical students all over the country, but also on those physicians in Mental Hospitals who tended towards a more Freudian or a purely materialistic standpoint.

The dynamic school of psychiatrists takes



broad and moderate views. It admits factors in causation such as focal sepsis and sex but it holds that the majority of break-downs are determined by a combination of factors, among which focal sepsis and sex may play a part. It has a rational method of approach, holding that the essential thing in every case is to obtain as complete a knowledge as possible, and from all aspects, of the patient's life.

The adoption of this attitude places the whole subject in a new light, and gives an added interest. It gives better results, in the psychoses, than methods which present the patient with the broken fragments of his personality and, theoretically at least, ask him to reconstruct <sup>it</sup> ~~them~~ for himself.

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