PSYCHOLOGICAL AND CARDIOLOGICAL ASPECTS

of

PENTAMETHYLENTETRAZOL THERAPY

as occurring

in the treatment of

MENTAL ILLNESS

by

RANKINE GOOD, Capt., R.A.M.C., M.B., Ch.B., D.P.M.

THESIS SUBMITTED FOR M.D. EXAMINATION

ProQuest LLC.
789 East Eisenhower Parkway
P.O. Box 1346
Ann Arbor, MI 48106 – 1346

C O N T E N T S

It is proposed in the following pages to deal with some psychological and cardiological aspects of pentamethylentetrazol therapy as encountered during this treatment of cases of mental illness. The observations noted and the deductions drawn therefrom represent a critical revision and expansion of four short papers (1,2,3,4) previously published by me.

In these papers, there were recorded certain observations of some importance never before noted (e.g. the acute cardiac dilatation which follows immediately on a convulsion) or referred to by other writers as if the phenomena were infrequent sequelae (e.g. cardiac abnormalities of rate and rhythm) while, in actual fact, these are of almost invariable occurrence in those cases investigated towards that end. Further, while stress was primarily laid on a postulated biological basis to account for the mentally beneficial results (5), the psychological factor in treatment I deal with at the great length which, in my opinion, is commensurate with its importance.

This thesis is divided into four sections. The first of these sections deals with the history, chemistry and pharmacology of the drug appertenant to this paper. The second section deals with psychological aspects, and

the third and fourth with some cardiological aspects of pentamethylentetrazol therapy.

These combined investigations extended over a period of three and a half years and were conducted on 300 patients. Their mental states ranged from frank malingering to profound psychosis. The total number of injections given, including repeat doses, numbered 3380 and of these injections 2307 produced convulsions. From this large number of cases and injections I have thus had abundant opportunity to collect data and thereafter to formulate opinions and, what I believe to be important, I thereby avoided the error of generalising from a small series of cases and had the opportunity to correct prematurely formed impressions as I proceeded with the investigations.

S E C T I O N I.

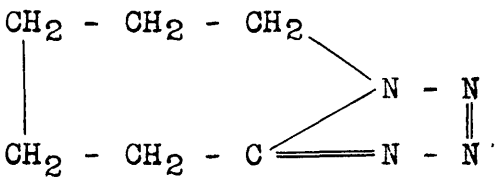
HISTORY, CHEMISTRY AND PHARMACOLOGY

HISTORY, CHEMISTRY and PHARMACOLOGY

References are found in earlier writers (6,7) to the mentally beneficial results which may follow the administration of camphor to insane patients with the object of producing convulsions. Muller (8) in 1930 summarised the evidence for the hypothesis of an antagonism existing between epilepsy and schizophrenia. Nyiro (9) in 1932 attempted without therapeutic success to treat schizophrenics by transfusions of blood from epileptics. In 1933, v. Meduna, acting on the hypothesis of a mutual antagonism between epilepsy and schizophrenia, abandoned the method of intramuscular administrations of 20% solutions of camphor in gradually increasing doses until convulsions were produced, with therapeutic effect, and adopted pentamethylentetrazol as a convulsant (5). This latter substance was arrived at (10) by chemical synthesis in experiments directed towards the discovery of water soluble substances from camphor which would retain the therapeutic virtues of the parent substance. Pentamethylentetrazol and camphor are, however, quite unrelated chemically.

The preparations of pentamethylentetrazol used

in the following investigations were "Cardiazol" (manufactured by Knoll) and "Phrenazol" (manufactured by Boots). For uniformity and convenience of description, however, the word Cardiazol in this thesis should be taken as referring to pentamethylentetrazol and as covering the two aforementioned proprietary preparations which have the identical structural formula of



It is a synthetised, white, crystalline powder, readily soluble in water, giving a stable, neutral solution which can be sterilised without decomposition and which keeps indefinitely.

It is a reputed analeptic, i.e., a medicament which raises the excitability of the vegetative centres of the central nervous system (thereby making them more responsive than normally to external and internal stimuli) and it is ordinarily employed for that purpose in doses of 1.0 - 2.0 c.c. of 10% solution (0.1 gm.). Some people are sceptical concerning its analeptic effect (11). It may be administered orally, in liquid or tablet form, or parenterally.

For parenteral administration, the 10% solution commonly in use is adjusted with disodium hydrogen phosphate ($Na_2HPO_4, 10H_2O$) to a hydrogen ion concentration of pH = 7.5 - 8.0. The original object of adding this substance was for the purpose of eliminating pain due to its otherwise slight irritant action at the site of injection if some of the solution were accidentally injected paravenously. Even using the pure unadjusted solution alone, however, it does not, as I discovered, lead to pathological change such as abscess or necrosis.

Of the routes of administration, the rapidity and intensity of effect is greatest (an equivalent dose being given in each case) with intravenous injection. With regard to the latter route, it may be stated that the effect of the drug is dependent upon the rate of administration. The effect was found to be proportional to the time taken to administer the dose, e.g. 5.0 c.c. administered quickly has a much greater effect than when the same dose is administered slowly. Consequently, when the greatest effect of a single dose is required, as it is in convulsive Cardiazol therapy, the dose is administered with the greatest possible rapidity through a Wassermann needle of 2.0 mm. bore.

Unless otherwise stated, the administration of Cardiazol throughout this thesis should be taken as referring to the administration under the foregoing conditions, viz., the intravenous administration of x c.c. of 10% solution of the drug buffered with disodium hydrogen phosphate given with the greatest possible rapidity through a Wassermann needle of 2.0 mm. bore.

When Cardiazol is administered to a patient in a dose considerably exceeding that necessary to produce the reputed analeptic effect, there are produced such phenomena as muscular, myoclonic twitchings resembling those seen in Jacksonian epilepsy, or an aura alone, which may be the sole component of Jacksonian epilepsy (12). These phenomena may be the end result of the administration of the dose or they may proceed to a generalised convulsion of the patient similar to but not identical in all minor details with the grand mal of idiopathic epilepsy. The difference in detail is later discussed in Section 2 of this thesis. The dose necessary to produce a convulsion varies within very wide limits, from, in my experience, as little as 1.5 c.c. in less than one second to such quantities as 44.0 c.c. (11.0 c.c. three times repeated) within two minutes, and 50.0 c.c. administered

orally followed forty minutes later by 9.2 c.c. intravenously.

My own views as to the mode of action of Cardiazol as applied to the treatment of mental disorders is relevant to this thesis and are discussed in sections two and three.

At this point, however, it is convenient to note the suggestion (13) that "The possibility that 'speed shock' may be a contributory factor to the production of Cardiazol fits appears to us to be worthy of considering: by that we mean that the effect produced by the rapid intrøvenous introduction of fluid may per se predispose to the fit". "Speed shock" is the term applied to "certain phenomena produced by the rapid intravenous injection of almost any substance, whether pharmacologically active or inert". Such reactions are described as having "the common characteristics of the histamine phenomena", e.g. "nitritoid crises". Further, "the rapidity of injection of the Cardiazol in the recognised technique of Dr.von Meduna is necessary to the effectiveness of the process because it produces speed shock which renders the patient liable to convulsion".

The essentials of this treatment as described

by v.Meduna (5) is the production of a series of major epileptiform convulsions which, combined with psychotherapy, is effective in producing a cure or amelioration of the patient's symptoms, thus achieving a social recovery, complete or partial.

Among those of the present series herein reviewed and who were treated with convulsive doses, the total number of convulsions produced in any one patient varied. The number of convulsions depended upon the mental progress achieved by the patient - from as few as one to as many as thirty-four. The average number of convulsions was from five to twenty.

A convulsion was produced twice or thrice weekly and thus the average course of treatment was from three to ten weeks.

The initial dose in a convulsive course was arbitrarily fixed in the case of females at from 4.5 to 5.0 c. c. and in males from 5.5 to 6.0 c.c., these doses I found to be the average minimal convulsive doses in the female and male respectively. The dose, if it was intended to convulse and did not, was repeated as often as was necessary until effective. Each subsequent dose, both in the case of males and females, was increased by

0.2 c.c. as a slight degree of tolerance to Cardiazol is developed. If any dose proved to be ineffective in producing a convulsion, as well as repeating the same dose until a convulsion was produced, the dose on the subsequent day of administration was increased by 1.0 c.c. Thus, in Case 6 already cited, the dose of 11.0 c.c. was repeated until a total of 44.0 c.c. was given within two minutes and, on the next day of administration, the dose was increased to 12.0 c.c. and proved effective.

Following upon the administration of a convulsive dose there is a latent phase, the phase between the administration of the dose and the onset of the convulsion. The duration of this latent phase varies from five seconds to twenty minutes (the latter time is quite exceptional), the average latent phase being from eight to fifteen seconds. Quite commonly during or immediately after the injection the patient experiences a mild pain radiating proximally along the course of the vein and leads one to the conclusion that the veins of the body are acutely sensitive to certain forms of stimuli. During the latent phase, there is invariably an aura and very commonly manifestations of fear in the shape of the patient looking startled and trying to get out of bed.

In most cases there occurs a cry, as in the grand mal of idiopathic epilepsy. Frequently there is a short premonitory cough often followed by an increase in the extent of the respiratory excursion, characteristically a fine tremour of the closed eyelids and perhaps a dropping of the lower jaw.

The patent phase is abruptly terminated by the patient becoming contorted by tonic muscle spasm with loss of consciousness and a dropping of the lower jaw if it has not already done so, these occurrences marking the beginning of the convulsion. The tonic phase of the convulsion with cessation of respiration and consequent cyanosis and increased rate of cardiac action terminates in the clonic phase. The clonic phase begins with the spasmodic relaxation of the tonic muscles in a series of coarse myoclonic movements which gradually diminish in range and amplitude with increasing time between each movement until the movements cease altogether and the convulsion is terminated. The total duration of the convulsion is usually not longer than ninety-five seconds.

The musculature of the patient is now quite flaccid: the patient is motionless, cyanotic, not breathing and, if prophylactic measures have not been

taken, perhaps incontinent to urine and faeces.

The state of profound and complete muscular relaxation of this "limp phase" (as profound as that obtaining in deep general anaesthesia with chloroform) is usually of not more than seven seconds duration though frequently very much less.

The eyelids are commonly open or half open: the pupils are widely dilated and immobile to light. The plantar responses are extensor in type: commonly the abdominal reflexes are absent and the tendon jerks diminished. Incontinence may be met with in this stage as well, and, in my experience, it is usually in this stage that it does occur if it occurs at all.

This limp phase passes abruptly, usually to the accompaniment of a prolonged expiration, into one of varying duration, though usually of not more than three minutes, characterised by stertorous breathing through a pharynx and larynx in which there is much mucus and saliva, the breathing through such causing frothing at the mouth, perhaps blood-tinged if the tongue has been bitten, diminution and rapid disappearance of the cyanosis which is succeeded by an unwonted pallor and often earthy appearance, and return to consciousness.

In this phase, as in the following one, there may occur, if the patient does not pass into a deep sleep - as he not uncommonly does - certain types of behaviour which are referred to and fully discussed in the second part of this thesis.

Following the return to consciousness, there is invariably some confusion, although, as stated, not infrequently the return to consciousness is followed by the patient passing into a deep sleep. During the confusion there is invariably retrograde amnesia for the events proceding the injection, the injection itself and its sequelae. This amnesia is of variable duration. Frequently some hours elapse before complete rapport with the patient's surroundings have been regained.

Such, in broad outline, are the ordinary sequelae which follows the administration of a convulsive dose of Cardiazol. Important departures from this average type of reaction are met with and are referred to in the first section of this thesis.

It is rare for a second convulsion to follow the first after the administration of a single convulsive dose, for the rate at which the drug is excreted from the body is very rapid (14), amounting to 0.85 mgm. per

kilogram of body weight per minute. I have met with this phenomena on only two occasions, in each patient some of the dose passing subcutaneously and one of these patients had organic brain disease.

S E C T I O N 2

PSYCHOLOGICAL ASPECTS

of

PENTAMETHYLENTETRAZOL THERAPY

PSYCHOLOGICAL ASPECTS OF CARDIAZOL THERAPY

While the purpose of the present section of this thesis is, firstly, to demonstrate that the various phenomena exhibited by patients undergoing Cardiazol therapy are not isolated events to be considered singly, but that, on the contrary, a relation between these phenomena can be demonstrated, nevertheless, for convenience of description and discussion, the individual phenomena will be considered singly in the first instance. Secondly, it is proposed to demonstrate the psycho-dynamics of Cardiazol therapy. Thirdly, the theoretical significance of certain phenomena are considered.

Before proceeding to the consideration of these points, however, it may be advisable to present the main reasons which prevented my adoption of the biological theory, already mentioned, to explain the beneficial mental results of this treatment, and caused me instead to seek an alternative explanation more in accordance with the facts observed.

It is regrettable that in the literature relating to Cardiazol therapy the reaction of a patient to a convulsive dose was allowed to overshadow other effects

and be accorded a dramatic prominence which closer investigation would seem to deny it. The subsequent demonstration that epileptics may show schizophrenic features (15,16) and that mental disorders other than schizophrenia may benefit from Cardiozol therapy goes far to vitiate the hypothesis (17) on which the inception of Cardiazol therapy was founded that there is an essential biological antagonism between epilepsy and schizophrenia. The original hypothesis is still further detracted from by the fact that idiopathic epilepsy may be treated with benefit by Cardiazol (18). There is the further negative fact that, while fleeting biological changes in the blood-chemistry have been noted (15,19,20,21) as the result of the convulsion, yet since the inception of Cardiazol treatment in 1933 there has never been demonstrated any constant and lasting physical change during or after a course of treatment (which one would expect in support of the postulate of biological antagonism), the change lasting as long as does the remission. Lastly, I have demonstrated that beneficial effects even to the extent of "recovery" may occur in cases of mental illness from the employment of sub-convulsive doses alone. Other investigators have reported similarly (17, above). The originator

of the treatment has himself now admitted (22) that the hypothesis of a mutual antagonism between epilepsy and schizophrenia is insufficient as an explanation of the results of convulsive treatment.

In attempting to estimate the significance of the reaction of a patient to Cardiazol treatment in so far as it applies to mental disorder, a rough comparison between two types of nervous reaction to a situation may be instructive, viz., the "spanking" that may be given to a recalcitrant yet not incorrigible child and the reaction in a case of mental disorder with a favourable outcome to a convulsive dose of Cardiazol. That both have a psychological effect is obvious. That both may have a similar action on the two mental states is apparent to those who have witnessed the results of both methods of treatment, viz., the forceful apprisal to the recipient of outer objective reality, and the need, if further such treatment is to be avoided, of maintaining a socially commendable and permissible relationship to reality. However different the two situations may be basically from a psychological point of view, the end result achieved in both cases is the same despite the employment of dissimilar methods which have dissimilar effects on the central nervous

system. The association of marked phantasy-dread with a spanking given to a child would be disputed by few. What is less commonly appreciated is that the same phantasy dread is associated with the administration of Cardiazol to a patient. This point is referred to later and its presence makes the similarity between the two methods a still closer one.

The basic difference between the nature of these two methods becomes less if, instead of using a convulsive, one uses a sub-convulsive dose sufficient to produce an unpleasant, unwanted feeling as in the case of a colleague (23) who employed such doses to excellent effect in a mentally defective youth of hitherto incorrigible behaviour which sprung from a psychopathic disposition: the patient's behaviour thereafter remained model during his sojourn in hospital. In a similar case of mine, two sub-convulsive doses administered within a few minutes' time of each other with the statement that more treatment would still be required if his stuttering and slight tic of his face did not disappear was sufficient to "cure" his hysterical conversion for a few days.

Examples of reactions where the same end-result is obtained by the employment of different methods of

treatment are not peculiar to psychiatry. A solitary example among many is the antipyretic action of phenacetin and the similar action of a tepid sponging, both acting in their own way on the central nervous system and producing in favourable cases the same end-reaction.

Viewed in this light alone, it does not seem reasonable to ascribe the end-result of one method of treatment in which a certain action is produced a successful application that one would deny the other. If only for that reason, it is difficult to appreciate the viewpoint of those who admit to no beneficial effects of a mental nature resulting from the employment of sub-convulsive doses alone (24), or, what is the same thing, insist on the occurrence of the convulsion as the necessary factor in producing mental improvement (25).

That sub-convulsive treatment can be effective in bringing about social recovery in patients afflicted with mental disorder is shown by a perusal of the case histories of cases 20, 77 and 80.

In addition, I have treated several cases where the average number of convulsions was but one fifth or even less of the total number of injections with a similarly beneficial mental result.

The reason why I did not endeavour to treat all cases in a sub-convulsive fashion was that the sub-convulsive dose required to produce a mentally beneficial result was usually of such an amount as to produce a very unpleasant mental effect referred to in the following subsection dealing with fear and its relation to the aura. So acute is the anxiety and apprehension thereby engendered that it is desirable for humanitarian as well as for nursing difficulties while the patient is in that state to terminate his mental distress by giving a convulsive dose forthwith.

Fear and anxiety in treatment.

Apparent from the inception of Cardiazol therapy, and apparent from the very first in the cases treated by me, was the fact that intimately and inextricably bound up with this treatment is the presence of fear.

This fear results from the experiencing of the aura which follows the administration of a large sub-convulsive or convulsive dose of Cardiazol. The aura so resulting is the first of all the effects of the administration of Cardiazol, and is very often to be observed while the Cardiazol is still being injected intravenously,

and is commonly accompanied, if a more extreme action does not result, by a whining, soft moaning like a person experiencing a nightmare. The aura is cumulative in effect, usually beginning with a feeling of strangeness while the Cardiazol is being or has just been injected as if the patient were aware of some untoward happening. This is particularly evident in cases of chronic mental illness with profound dementia when, just after the first injection has been given, surprise registers on features which perhaps have been devoid of non-stereotyped emotion for years. This feeling of strangeness and surprise arises from what appears to be the recognition by the patient of sensations arising from a localised stimulation of one area of the brain. He may experience the seeing of flashes of light (stimulation of the visual centre), the taste of toffeed almonds (gustatory centre), the smell of phosphorus (olfactory centre), a widespread feeling of heat in the body (sensory area or ? the hypothalamic area), localised or widespread paraesthesiae (sensory area), or the patient may be conscious of movement in his body (motor area) which latter is objectively verifiable more frequently and easily than in connection with the other areas. In connection with the motor area, it would appear that

comparatively frequently that portion which controls the musculature of the pharynx and larynx are specially selected as judged by the frequent complaints of a choking sensation while, in actual fact, there is no objective evidence of this beyond, possibly, a short cough.

Progressing from the experiencing of these sensations resulting from the stimulation of localised areas of the brain, the aura becomes still more cumulative, probably as a result of the spread of the stimulus over the brain. This cumulation rises to an acme of intense fear and terror which is cut short by the onset of unconsciousness if the dose of Cardiazol administered be large enough to produce a convulsion. The end point of the aura, however, is peculiar to each patient. This fact would appear to be of some significance, apart from the apparent conclusion that it is difficult to give an entirely somatic explanation for the individual nature of the aura experienced.

Depending upon the intelligence and gift of verbal expression possessed by the patients, the auras are variously described. The following are a few examples: "like murder", "the mind standing still but the head hurtling away from the mind at a speed of thirty

miles per hour", "hovering like a disembodied spirit on the brink of eternity", "hurtling downwards through an illimitable inky nothingness", "like being roasted alive in a white-hot furnace", "like going suddenly blind", "like looking on God and Satan alternately", "like being in a 'bus smash and wakening up in hospital".

It must not be thought that these descriptions are easily come by: on the contrary, the patient is usually extremely hesitant to describe his aura and still more so to discuss it. Its ultimate confession is only arrived at by dint of much perseverance and persistence on the part of the interrogator in the face of an obvious reluctance on the part of the patient. When afterwards questioned about the sensations following an injection, the description given in the first instance is often a misstatement, e.g. the prick of the needle hurts so much on injection. When it is further enquired, in the face of this obviously unsatisfactory answer, why they have never displayed such a reaction and objection to, say, an ordinary sedative "needle", they might reply that the ordinary sedative injection never made them feel as if they were being electrocuted. Asked if they have ever experienced an electric shock, they almost invariably

reply that they have not, but that is what they imagine an electric shock to be like. Asked in what particular part of the body the shock is experienced, they may reply that it begins in the arm or leg injected whence there is a generalised spread of the electric feeling. This statement is in turn made light of as an insufficient cause of their deep-rooted objection to treatment and their attention is directed elsewhere, perhaps to the head, say, of which the patient may previously have given indication. For instance, in the immediate pre-convulsion phase they may have exclaimed with a scream, "O God, my head!" Asked if they have ever felt anything of especial note in the head as the result of the injection, they may confess after much persuasion and after considerable agitation that they felt "as if the skull bones were about to be rent open and the brain on the point of bursting through them". The above is an actual example of the steps one usually has to take before one arrives, frequently at the expiry of fifteen to twenty minutes, at a fair description of the aura experienced. Their previous descriptions such as being electrocuted were but steps on the way to the acme of indescribable fear and terror.

The word "indescribable" is used advisedly as,

even after the description of the aura has been obtained, one is invariably left with the impression that the patient is withholding further information concerning it. It seems as if, associated with the aura, there went unpleasant phantasies. That this is more than supposition is shown by the fact that even the patients themselves will frequently admit that the sensations experienced as the result of the administration of the "crocodile juice" beggars even the description they have given. It is something, they say, that never before have they experienced or even remotely conceived of, a "terrible thing" which they "wouldn't prescribe for my worst enemy". Some patients refuse to discuss the aura in any way.

There is no doubt about the phantastic associations connected with the aura and of how the personnel actively connected with treatment are incorporated into the phantasy, precisely, as previously stated, as there is phantasy-dread associated with a spanking.

This is well shown pictorially by the interposed drawing executed by a patient who had had such treatment. He is not included or otherwise referred to in this series as he was the case of a colleague: the only contact I had with him was to administer the injections of his


INJECTIONS
A[redacted] W[redacted]
26-9-41

course of treatment. He was a professional cartoonist in civilian life. His own copy of the original is faithfully reproduced save that I have blocked out his name which he fully inscribed. The drawing was one of a series by which he illustrated the life of the hospital.

The phantastic superimposition upon the real is obvious - the terrorised patient with hair standing on end, the demoniac leer of the nursing orderly standing expectant at the head of the bed with the mouth gag ready, the monstrous phallic-looking syringe not held by the handle of the piston but by the barrel, and the point of the needle directed not towards the arm but towards the middle of the patient's body, the savage ferocity of the M.O. gnashing his teeth during his assault upon the patient, who is at his mercy, the whole scene being enveloped in whorls of black smoke.

In the same connection is Case 173 who regarded the nurses and myself as diabolical figures because of our association with his treatment.

The terrifying nature of the patient's sensations is equally obvious when judged from an objective viewpoint. To plunge headlong through the ward window and thereafter betake an extremely hurried, unorthodox,

barefooted and half-clad exit from the hospital in an endeavour to avoid "being roasted alive in a white-hot furnace"; to clamber in a frenzy of desperation over a twelve-foot-high wall in the black-out, and then cross a busy railway goods yard oblivious of the attendant perils of doing so, in order that she, a middle-aged undemonstrative woman normally, might escape on the morrow from the experience of hurtling downwards through an illimitable inky nothingness; to scale with an easy facility in a matter of seconds on to the roof of the hospital, the repetition of which act in order to secure him took half an hour by the following attendants, to escape from an aura which he could only describe by an aghast shuddering; or even to attempt to dive through a locked door rather than experience the aura, are all but extreme examples of the actions performed rather than submit to the Cardiazol injections.

Commoner and less extreme actions to escape are refusal of the injection, most often expressed verbally, though frequently reinforced by a physical struggle when the refusal is firmly, but sympathetically, ignored; the tendering of what might at first sight seem "excuses" such as "I don't feel I ought to have it to-day", "I'm

sick", "I've got a headache", or "I'll die", extreme reluctance to undress to receive the injection in bed and infinite slowness of undressing if persuaded to do so: or just as the injection is about to be given the request to "have it in the other arm". Indeed, the tendering of any "excuse" or the performance of any action to escape the injection is the rule. Sometimes the "excuse" is psychotic in nature, as in Case 6 who refused to submit to the terrifying experience of "hovering like a disembodied spirit on the brink of eternity" before he and I had together interviewed a detective who, the patient said, was awaiting us downstairs to enquire into the legitimacy of the injections. The nature and function of these "excuses" are subsequently discussed.

A rough pharmacological measure of this fear may be cited as it occurred in a patient to whom, ordinarily, two drachmas of paraldehyde was an excellent night sedative, but eight drachmas of the same substance administered per rectum as a premedicament to Cardiazol which he guessed he was to receive was quite ineffective in producing sleep or even a dulling of the faculties. Further, it has not been my experience, contrary to the experience of other investigators (26,27) that morphine

and/or hyoscine in doses of gr.^{1}/4 and gr.^{1}/100 respectively are of any value, other than before the very first injection, to allay the apprehension associated with the imminence of treatment in those patients in whom this treatment produces even a moderate fear.

Papers on the subject of Cardiazol therapy usually make light of the above facts in connection with fear of treatment by refraining to mention them or by cloaking them under such terms as "undue apprehension"; and it is a noticeable fact that one of the advantages of the electrical method of inducing convulsions in the treatment of mental disorder was stated (28,29,30) to be that the fear normally attendant upon convulsion treatment as produced by Cardiazol was thereby eliminated. This same advantage is held out (31) for other convulsants such as picrotoxin not related chemically to Cardiazol. The significance of these observations is dealt with below

The manifestations of fear in connection with Cardiazol treatment do not, however, all fall within the range of the extremes of extreme terror with unseemly struggles and active headlong flight through various gradations of diminishing obstreporousness and resistance to these cases in which the protest is rendered in such

verbal expressions as "Don't you think I've had enough, doctor?" or "How many more injections am I to have?" For, in a very few cases, one is confronted with the easy task of deducing this fear by brushing aside the diaphanous disguise of an actual request for an injection to be given, as, e.g. in Case 117, an intensely masochistic and actively suicidal patient who, on the approach of "the needle" with his second injection, reacted by a withdrawal of his arm in which there was a slight functional tremor, and his expression before convulsing was one of terror (even allowing for the hideous facial contortions into which the facial musculature is often thrown by a pre-convulsion spasm) - which was confirmed by his uttering a sound halfway between a scream and a roar, quite distinct to begin with from the epileptic cry which followed. In a still fewer number of cases, the patient may display no obvious fear before the injection, but, in such cases, the fear becomes manifest <u>after</u> the injection and during the post-convulsion amnesic period in which the patient invariably forgets that the injection has been given. In this amnesic period, such a patient as Case 212 often starts up excitedly and, with a demeanour which registers fear, determinedly states that he is for no injection

(believing that he has received none such), and the amount of energy that one (frequently fruitlessly) expends in endeavouring to reassure such patients that their desire will be granted is a very good measure of the extent of the fear which one at first might believe to be absent. Alternatively, however, the presence of fear can be unmasked in those patients in whom otherwise it has to be deduced by (unintentionally) administering a dose intended to be convulsive but which proves sub-convulsive in its effects. Even with a repeat dose almost immediately administered to produce a convulsion, the fear thereafter becomes quite patent for the remaining number of injections in the course of treatment.

The presence of this fear, not patently demonstrable before, after the injection is most often to be seen in those patients who receive a dose intended to be convulsive in its effects but which proves to be sub-convulsive. The time taken to administer a repeat dose, short though it may be, is sufficient to subject them to the terrifying aura more than they normally would. In these cases, such as Case 230, after the convulsion following upon the repeat dose, their behaviour is often that indicative of extreme terror in which they scream, shout

aloud or loudly moan, usually to the accompaniment of extreme restlessness as if they were trying to escape from something terrifying. Gentle attempts at pacification in these cases is of no avail, and such behaviour with its disturbing effects on the other patients awaiting treatment in the same ward frequently necessitates the removal of the patient from the ward.

The conclusion that these patients are indeed experiencing extreme fear can be subsequently verified by enquiry. Case 159, for instance, stated to another physician ... "When I came out of the injections, I laboured under the delusion that I had no soul. This is a fear I had when I was very young, about five years old .. I am convinced he (i.e. myself) was trying to kill me, but only God saved me from him" ... Case 244 confessed during his course of treatment that compared with his terrifying feeling during the latent phase, he was not really scared when he thought of his feelings in the post-convulsion period - "It was the feeling of being absolutely terrified". (Of what, he was unable to say.) "I wanted to scream but it wouldn't come out. I felt it would have done me a lot of good". He told me, also, that on the morning of his subsequent injections, he carefully

arranged beforehand with an orderly to repeatedly reassure him during the amnesic period that he had had the injection in an endeavour to counteract the terrifying feelings he had: not only so, but he would frequently recall the orderly to have the assurance repeated. Nor was he reassured even then, for, as he afterwards told me, he would inspect both arms in search of the puncture mark of the needle as a further reassurance against the terrifying sensation. Fairly frequently, one notices other patients also searching their arms, and I am of the opinion the same explanation holds in their cases too, viz., reassuring themselves that the injection has been given. A further example of the fear experienced after the injection (long after the injection indeed) is quoted later in the text of the thesis in connection with the psychodynamics of Cardiazol therapy. Case 185 said that his feeling after the convulsions was that of being dead and removed from his body, a feeling he found terrifying.

The fear which the patient undergoes does not stop short with the completion of a course of treatment or his dismissal from hospital. This fear is shown even months afterwards, e.g. during an electrocardiograph check-up, when, through the facade of apparent mental

well-being, there protrudes this feature of fear long-continued. For, when they are again asked to lie down in bed (even though it be in the general ward of a hospital instead of a mental observation ward) to have an electrocardiogram taken, one again witnesses the same (though with attempts at disguise) behaviour as during treatment - reluctance to lie down, to undo a costume, roll up the shirt sleeves and trouser leg, or, when they are suitably arranged in bed, one sees functional tremors, detects markedly increased cardiac action, catches a rapid scrutinising glance to see if there is a cardiazol tray in the vicinity, or a brave, resigned smile as equally devoid of amusement or mirth as their mental state is fraught with apprehension. Indeed, the question has been put, usually in a feigned jocular manner, "Are you sure I'm not for more treatment?" and, in one case, the question was rhetorical and persuasion was of no avail to convince him of the contrary; and the electrocardiogram had perforce to be taken with the patient sitting instead of lying down.

A further example may be given of the facility with which the fear associated with treatment may be unintentionally reinvoked long after treatment has been terminated. Recently, I unexpectedly surrendered my

railway ticket to a collector whom one year previously I had convulsed for an attack of paraphrenia and I was reluctantly compelled to note the restrained agitation and the mild perspiration which broke out on his brow and palms and to ignore, on account of the sudden appearance of these symptoms, the smiles which accompanied his affirmations of physical and mental well-being. Again, one meets with cases who, after dismissal from hospital, have successfully transmitted this fear to their relatives, e.g. Case 2 who utilised his waking hours by the detailed recounting of all his subjective sensations and experiences met with during active treatment, so successfully that his mother complained of her "blood running cold" several times a day, and of her newly-developed reluctance to stir unaccompanied beyond the threshold of her house in the late evening. Exactly the same transmission occurs, of course, during treatment as judged from the frequency with which relatives ask for treatment to be stopped, even though the relatives appreciate the fact that treatment has done the patient good.

I have even met with one case of a mother who was apprehensive about the possibility of her son (Case 250) receiving Cardiazol treatment before he actually did

receive it, so dramatically must other patients have informed her of what possibility lay in store for her son. Her protest was expressed in writing.

> "Dear Sir,
> I came to visit my son last Saturday
> "at the hospital and I was shocked at his condi-
> "tion ... Then I heard a young man in the
> "grounds say <u>you</u> had given them the needle.
> "Well, doctor, I want my son home as soon as
> "possible. I have seen his own doctor and he
> "will be responsible for him and he won't give
> "him the needle. He has treated Norman before
> "for the same thing and he has been cured. If
> "I don't hear from you soon I will write to the
> "army officer as Norman must come home before
> "he is ruined altogether.
> "Mrs.L."

The transmission of the fear by the patient to other people is of practical importance where comparatively large numbers of patients are gathered in circumstances where segregation of Cardiazol from other patients is not possible. The effect is added to if there is little to occupy these other patients' attention save to discuss among themselves the accounts rendered by patients in their midst who are undergoing or have undergone treatment. It is not uncommon to find in these circumstances that the mere mention by myself of the possibility of the institution of some treatment unspecified is sufficient to cause them to become considerably agitated and to enquire with trepidation as to the exact nature of treatment, and, if

this be told them, to assert that they have always had a dread of injections and that they are improving in any case. I have had one such case from such circumstances who raised the topic of injection treatment in the first few sentences of the interview, long before any suggestion of treatment would ordinarily have been raised.

A consideration of all the above facts in connection with fear lead me to the conclusion that the experiencing of fear, terrifying though it undoubtedly is, would not in itself sufficiently explain the patient's abhorrence of treatment. This point was later confirmed during an investigation into Cardiazol treatment in war psychoneurotics, where many of these had borne with comparative fortitude and bravery the brunt of enemy action. Yet they persistently resisted the apparent trifle of an intravenous injection, of which previously they had received not a few but of a different admixture.

As well as confirmatory, it was explanatory to the point now about to be made. These men in the thick of an enemy action stood "a fighting chance", a chance, small though it may have been, to escape from the perils of the active warfare which beset them (even although these perils might also act as precipitating or aggravating

factors of their psychoneuroses) whereas with Cardiazol treatment they were beset with perils, the terrifying aurae, from which there was no escape.

Thus there is engendered in all patients under Cardiazol therapy a feeling of utter helplessness in the face of a terrifying danger of a phantastic nature. Consequently this leads to the production of anxiety of an extreme degree.

It is the forceful subjection to this anxiety, then, that is the real factor in treatment which is objected to so strongly on the part of the patient - the feeling of utter helplessness in the face of a terrifying danger, so terrifying that subsequently they cannot adequately describe it.

The objective evidence of this anxiety is beyond doubt. To hear a grown man (grandiosely convinced that his piano-playing equals that of Chopin and his tenor voice in song surpassing the mellow richness of Caruso's) feverishly implore the aid of his mother (whom he knows to be dead for years) to rescue him from the dire terrifying predicament into which the Cardiazol injection has plunged him; or to be frequently stayed by the appeal, as one turns to lay down the emptied syringe, of "Don't

leave me, doctor!" (the doctor having been temporarily endowed with the attributes of the good mother), or even to hear one patient who actually did say "Mother! Mother! Don't leave me, mother!"; to hear an elderly woman, the mother of several children and who had endured years of heroic toil amidst poverty to rear them, bemoan with despair how all is darkness and she the sole inhabitant of the darkness; to hear a frenzied and ear-splitting appeal from a woman to save her from being suffocated; to hear the despairing cry of another woman as she is hurtling and falling, falling, falling through an illimitable inky nothingness; these few examples illustrate this anxiety from an objective viewpoint. And it may now be appreciated why the employment of sub-convulsive Cardiazol therapy in doses that just fail to convulse is inferior from a humanitarian viewpoint to convulsive therapy where the patient's mental distress is cut short by the onset of the convulsion. It will also be understood why Case 138, for instance, after a sub-convulsive dose said, "I'd rather be put away", meaning that she had a preference for that dose after which she remembered nothing, i.e. a convulsive dose.

To sum up my impressions of fear and anxiety in treatment, the quality of these and how they affect

patients, I cannot improve on the description of fear intuitively divined and recorded (32) by a marked psychoneurotic - and ultimately a psychotic. "La peur .. c'est quelquechose d'effroyable, une sensation atroce, comme une décomposition de l'ame, un spasm affreux de la pensée et du coeur, dont le souvenir seul donne des frissons d'angoisse ... cela a lieu dans certaines circonstances anormale, sous certaines influences mysterieuses en face de risques vagues. La vraie peur, c'est quelque chose comme une réminiscence des terreurs fantastiques d'autrefois". Scarcely one word is inapplicable to the Cardiazol situation and the psychological insight shown into the nature of fear is of no inconsiderable degree.

Connection of the aura with symptoms.

Questions which arise in connection with the aura are why the patients should so object to the aura, why they fight shy of attempting to describe the aura, associate on and do their best to forget it.

A case will be quoted fairly fully in an endeavour to find a solution. A few points are introduced which have no direct bearing on the answers but relevant

to the discussion which follows.

The mental illness of Case 158 was precipitated by the quite unexpected recovery of a younger sister from a serious illness. There were many indications that the patient was bitterly and sadistically hostile to this sister on an unconscious level: she would, for instance, speak of this sister and death almost in the same breath, and the mention of her sister by me was invariably followed by a hostile, aggressive verbal outpouring directed usually against me, the nursing staff or the institution. On the conscious level, however, the patient showed the reaction-formation of kindliness, consideration and "deep" affection towards this sister.

At one point in her stream of talk she remarked how she had known for many years now that her "father was Satan" and that "Satan had entered into her".

Her rationalisations to account for her disturbed state of mind preponderantly partook of a religious colouring. She had "denied God the Father" and had thus sinned, but, after her dismissal from hospital, she was determined to become a convert to Roman Catholicism in order to "find solace in Mary the Mother" by which means "all would be well again", meaning that "by finding the Mother" she would also be "reconciled to God".

The aura experienced by this patient was described by her as "like looking on God and Satan alternately".

A few hours after one of her convulsions as normal rapport with her surroundings was returning, she said with a considerable display of guilt-feeling that ever since she could remember she had been in the habit of masturbating herself with a finger. As treatment progressed, it was very noticeable that there was a feverish, determined, compulsive ("I've got to do it!") plaiting of her hair with one finger (this gradually increasing until all ten fingers were in use) immediately before she received her injection - it appeared that the plaiting of her hair served as a reassurance against the anxiety associated with the coming aura.

> As treatment progressed and the mental condition of the patient improved while her anxiety concerning treatment remained stationary, if somewhat more controlled, the above symptoms disappeared and some facts, such as her masturbation, when gently recalled to her were indignantly repudiated.

The correlation between a portion of the stream of her talk and the aura experienced by her as the result of the administration of a convulsive dose of Cardiazol was found to be by no means unique. Another woman, for instance, frequently expressed the delusional belief that she was "a fallen woman", having committed adultery in her mind, and the aura experienced consisted of the sensation of her "falling, falling, falling".

It must be admitted, however, that in many cases no such correlation can be observed between the delusions and the aura experienced: but, in any investigation to discover if such a connection might exist as an invariable occurrence, an important factor operating to hinder the possible discovery is the psychic inaccessibility of many patients, particularly schizophrenics, to any prolonged investigation, all the more so since, as already mentioned, a full description of the aura even in patients who are co-operative is obtainable only with difficulty. Yet, even in those cases who are inaccessible, a similarity can often be noted between the aura

experienced and the type of mental illness. "Hovering like a disembodied spirit on the brink of eternity", for instance, is vividly reminiscent of the descriptions of the unreality feelings so commonly met with in schizophrenics, and the description was, in fact, from a case of dementia praecox.

It was not until far advanced in these investigations that I was fortunate in encountering a patient in whom the process of dementia was not far advanced and from whom whole-hearted co-operation in treatment was readily given. Such circumstances obtained in Case 244.

> He was typically schizophrenic and had, on the day before admission, made a determined attempt at suicide by slashing his wrist with a razor blade in order to bring to a final end terrifying feelings of unreality to which he had been frequently subject since ever he could remember. When afflicted with these unreality feelings, he felt that he was swelling up to the point of bursting. As well as these unreality feelings, he was hallucinating visually, repeatedly seeing a cat dash across the floor. The patient's eldest brother, whom I interviewed, said that he also had appreciated the hallucinatory quality of this while the patient was at home: for, on the patient's calling the family's attention to the cat, there was none to be seen. This brother also confirmed the patient's further statement that, during his childhood, he would, instead of going out to play, remain indoors for hours on end to play with the cat, to which species in general he was passionately devoted, amusing himself by dangling before it a piece of string and suchlike. The brother also corroborated that, from his earliest days, the patient, no matter in what manner he would be wakened in the morning, e.g. even by shaking by the shoulder or foot, would

exclaim, "Don't! You're choking me!"

During the latent phase after the receipt of the Cardiazol injection, the patient experienced a choking sensation arising from the fact, as he put it, that he felt as if something resembling strong mint were lodging in his throat. This alarming experience gave place to one in which, upon a wall of cameric blackness, there spun a multitude of lighted Catherine wheels, each emanating "a brilliant golden, glittery light. They were so clear - vivid. A whole mob of Catherine wheels. They were so plain" (i.e. plainly visible). "I felt I could have reached out and touched them". (In his childhood, he had himself set off such fireworks standing sideways to them, eyes screwed up, and applying at full arm's length the lighted match to the fuse.) He watched this phenomenon of the spinning Catherine wheels until he "remembered no more", i.e. lost consciousness due to the onset of the convulsion. He experienced the same compound aura after each of his six injections which constituted his course of treatment, and said that on each occasion he received an injection, after the first one, he actually came to look for the wheels, confidently expecting their appearance.

Now, while it might be conceded that a possible connection existed between the choking sensation, dating from infancy, when he was awakened and the choking sensation arising from the feeling of something resembling strong mint in his throat, there was not at first sight even the remotest object-connection between "a whole mob of Catherine wheels", each emanating "a brilliant golden, glittery light" and his hallucination of a cat darting across a floor. Note, however, the common element of motion.

Without entering into any explanation of association as employed in psychotherapy or even my object in getting him to associate, I asked him to state the first thing that occurred to him when he again mentioned the Catherine wheels. He immediately recollected with some tenseness and excitement an experience that had occurred one evening ten years previously while working the spotlight at a dancing contest. The contest had been in process for some time

> when the carbons of the lamp had touched and he saw, through the quartz windows of the cover, "a brilliant golden, glittery light" exactly resembling the colour of the Catherine wheels in the aura. He was filled with panic which, however, he was able to keep under control. He was undecided whether or not to rush out of the confined space of the small fire-proof room (since childhood he had had a dread of confined spaces) as he found it impossible to readjust the carbons, the external adjusters having become almost red-hot. At this point the patient's associations stopped although his tense emotional condition remained. I accordingly encouraged him further and he continued in the same tense fashion to recall how as he fumbled at the adjusters using his handkerchief as an improvised heat-insulator, he became terrified by a sudden loud crack and noted with horror that "the condenser" (the large lens) had split vertically. He was quite terrified: "I knew if it" (the condenser) "blew up that I was going to blow up with it". (Note here a similarity of the "blow up" to his unreality feelings that he would swell up until he burst). His associations again stopped, but with a continuance of his tense state, and on my enquiring if this reminded him of anything further, he confessed after a moment that, at the time, the condenser with the vertical split had seemed to him like "a monstrous cat's eye". The patient's emotion then subsided and he expressed surprise, by way of comment, that he had not previously seen a connection between the Catherine wheels and the "monstrous cat's eye". He then went on in an ordinary conversational tone to tell me of his love for cats - which information I have already given - and referred to his hallucination of a cat.

I wish to emphasise some points in connection with the foregoing. In the first place, he was unaware of any of my views concerning Cardiazol therapy except my statement, made before treatment was begun, that I was of the opinion the injections I proposed to give would help him to become better despite possible unpleasant effects

associated with such treatment: that he was unaware of my object in asking him to inform me of the things which came into his mind when he thought of Catherine wheels: and that, and most important of all, he of himself and without any suggestion on my part, associated the Catherine wheels to a cat's eye, to cats, and his hallucination of a cat, and expressed surprise that such a connection should exist. I myself had not previously seen how there could be any connection between Catherine wheels and his hallucination, nor, indeed, did I greatly expect to discover any such connection in view of the negative results of similar enquiries from previous patients from whom, however, similar co-operation was not forthcoming for reasons previously referred to - mental inaccessibility due to their mental state.

In the second place, I would draw attention to a further noteworthy point that, following his discovery of the connection between the aura and the hallucination, he was no longer afflicted either with his unreality feeling or his hallucination, both previously continuing despite treatment though in diminished intensity in the former and diminished frequency in the latter. This disappearance of psychotic symptoms is commented upon in

the section dealing with the transference situation.

Mechanism of the production of the convulsion.

With regard to the precise action of Cardiazol upon the central nervous system whereby a convulsion is produced, little is known beyond the realm of speculation. The theory that meets with general acceptance (33) is that a convulsive dose of the drug produces an intense constrictive action upon the cerebral arteries. This theory finds its main support from the discovery (34,35) that the convulsion can be abolished by the inhilation of amyl nitrite. Even assuming an anti-constrictive action of this latter substance upon the cerebral vessels, which some pharmacologists categorically deny (36), other pharmacologists (37), while making no mention of any definite effect upon the cerebral vessels, nevertheless demonstrate that there is, consequent upon the lowering of blood-pressure as a result of peripheral dilatation, an actual amaemia of the cerebrum which would thus theoretically add to the (postulated) constrictive effect of Cardiazol on the vessels of the brain, and lead to no abolition of the convulsion.

A revision of the theory to account for the

abolition of the Cardiazol convulsion by the administration of amyl nitrite would thus appear necessary, and, as a result of observations made, I am of the opinion that a psychological factor demands consideration. For, while the convulsion may thus be abolished by pharmacological measures, it can also be abolished in many cases, who have already convulsed with previous identical or even smaller doses, by engaging the patient during the "latent period" in earnest conversation or by catching and holding his attention, even accidentally, by other means. It would appear that the nurses and attendants who have been engaged for any length of time on Cardiazol therapy are also appreciative without admonition of the same point, for their behaviour at these times is characterised by silence and expectant immobility, and any movement which requires to be performed by them during the latent period is executed in stealth, with always an attentive eye on the patient. On the patient's side, the convulsion can be and often is abolished by his concentrating assiduously either upon some thought, upon some external object or by performing some physical act. Indeed, it is questionable if amyl nitrite in itself prevents the onset of the convulsion and if the actions of the doctor or attendant

in giving the contents of the capsule, or the unwonted sensations of the patient as the result of the administration of the capsule (and the patient's concentrated attention thereon as he considers these sensations) do not contribute more to the staving off of the convulsion than the direct action of the drug itself. Evidence in favour of this latter supposition is the comparative frequency with which patients on subsequent questioning state that one or other of the attendant faces around the bed or some object such as a chair, towel or corner of the bed, stood out with great clarity before they remembered no more. A similar state of affairs is, of course, to be found in some cases of idiopathic epilepsy (38) where, by a great concentration of attention, the convulsion can be abolished for the time being and sometimes for days.

The point of a face or inanimate object standing out with great clarity before the onset of unconsciousness is perhaps worthy of greater elaboration and attempted explanation. It has already been stated that there is a general background of a feeling of impending death, Case 73, for instance, after a sub-convulsive dose stated that she felt that she had died and was being coffined, a somatic reflection of this terrible feeling being evidenced

in the electrocardiographic record taken at the time and which registered a bradycardia of, at one point, 26 beats per minute - see Section III. of this thesis. On close questioning of other patients, however, it is evident that for many of them the feeling "as if I were going to die" is but a simile for an awful event known to be catastrophic but verbally indescribable.

I have often wondered why patients do not faint under these circumstances, showing first the sighing respiration and then unconsciousness with the dull, earthy pallor with absent pulse such as I have observed in faints occurring in patients from whom I was withdrawing venous blood for a Wassermann test. It would seem to follow that, where a faint is of emotional origin, the preceding emotion is not necessarily overwhelming and catastrophic.

It was not until some time after I had been preoccupied with this (among other problems) absence of fainting that I chanced upon a clue during a perusal of the works of Dostoevsky. The solution suggested is, strangely enough, linked with the point previously referred to, namely, how in that awful moment before the onset of "death" the patient subsequently recollects how an object stood out with great clarity.

Dostoevsky, himself an epileptic, was sentenced to death for alleged revolutionary activities and, at the last moment, was reprieved. It was subsequently learned that the sentence of death pronounced on him and his fellow "conspirators" at their trial was a hoax, and it was intended that they should be spared nothing of the ordeal of execution save the execution itself in order to teach them a lesson not to be forgotten - so severe a lesson, indeed, that the frequency and severity of Dostoevsky's fits was increased for the remainder of his life and another fellow "conspirator" became (from the moment he was released from the pole to which he was bound in order to be shot) irrecoverably insane (39).

The ordeal Dostoevsky underwent is directly comparable to the ordeal of the Cardiazol situation before loss of consciousness, an ordeal reflected often throughout all the subsequent written work of Dostoevsky.

> "Petroschevsky and two others, who were considered the most culpable, were already tied to the poles and had their heads covered with a kind of bag, and the soldiers stood ready to fire at the command 'Fire'.
>
> "I thought I might perhaps have five minutes to live, and awful these moments were. I kept staring at a church with a gilt dome which reflected the sunbeams ...
>
> "... we had spent more than twenty minutes standing in our bare shirts in a cold of twenty-two degrees Reamur below freezing point ..... I don't remember to have had the slightest sensation of cold.." (39)

Again (40), "It was just the minute before the execution .... just at the instant when he stepped off the ladder on to the scaffold ....

".... his legs must have become suddenly feeble and helpless, and he felt a choking in his throat - you know the sudden feeling one has in moments of terrible fear, when one does not lose one's wits but is absolutely powerless to move? If some dreadful thing were suddenly to happen; if a house were just about to fall on one; - don't you know how one would long to sit down and shut one's eyes and wait - and wait? ...

".... How strange that criminals seldom swoon at such a moment! On the contrary, the brain is especially active and works incessantly - probably hard, hard, hard - like an engine at full pressure. I imagine that various thoughts must beat loud and fast through his head - all unfinished ones, and strange, funny thoughts very likely! - like this for instance: 'That man is looking at me, and he has a wart on his forehead! and the executioner has burst one of his buttons, and the lowest one is all rusty!' And meanwhile he notices and remembers everything. There is one point that cannot be forgotten, round which everything else dances and turns about: and because of this point he cannot faint, and this lasts until the very final quarter of a second, when the wretched neck is on the block and the victim listens and waits and <u>knows</u> - that's the point, he <u>knows</u> that he is just <u>now</u> about to die ... "

It will be noted that in both cases the victim concentrates his gaze upon an indifferent object in his ordeal and that he cannot faint, the first being reminiscent of the anticathexis in repression - "In addition to withdrawing energy (cathexis) from the painful ideas, the unconscious ego 'goes out of its way' to <u>counter-charge</u> ideas other than those provoking pain (anticathexis)

The process of anticathexis can be best understood by thinking of a child, secretly afraid of what is in one corner of the room, staring fixedly at another corner (a 'not that but this' system)" (42).

This point will be referred to again under the discussion in dealing with methods of mastering anxiety.

After effects of the convulsion.

The physical after-effects of a convulsive dose of Cardiazol are better known, and can be briefly summarised as changes resulting from an exhaustion of the central nervous system, as deduced from interruption of normal nervous functioning - the slow, laboured, stertorous breathing, the hypotonia of the skeletal musculature found in the "limp phase" (when this phase occurs immediately after the termination of the convulsion), the absent or extensor plantar responses, the absent abdominal reflexes, the wide dilatation of the pupils, and sweating, which latter is frequently profuse. The slight rise of temperature occurring during the first and second hour after the termination of the convulsion might also be explained on the same grounds, although an alternative explanation of this rise of temperature might be

the actual muscular work performed during the convulsion.

The exhaustion of the central nervous system can be demonstrated pharmacologically by the administration of the same dose of the drug a short interval after the occurrence of the convulsion when no further convulsion occurs.

Exceptions to the general exhaustion do, however, occur. For instance, the plantar response may remain flexor in type, and, rarely, the pupils, instead of remaining dilated, may be found to have contracted to almost pin-point size. When such a pupillary state obtained, it was noted that sweating was absent.

It can be demonstrated that, with the exception of certain areas of the brain below-mentioned, recovery from this exhaustion and hence return of normal functioning to the exhausted areas is rapid and almost uniform. For instance, perhaps only five minutes after the termination of the convulsion the patient may be observed to get out of bed and be able to avoid, or at least endeavour to avoid, objects such as tables or beds that stand in the line of his ambulatory progression. By so doing, it is thus demonstrated that the control of the reflex neuro-muscular co-ordination mechanism governing

these movements is, or is nearly, re-established and that the visual area of the cortex is fully co-operating in the manoeuvre. By similar methods it can be shown that other centres such as the auditory, sensory and olfactory areas are functioning in a fairly efficient manner and are, or can be, reflexly made use of by the patient.

For obvious reasons, it is difficult to estimate the exact duration of this exhaustion before recovery of function is finally complete, but what seems certain from direct observation is that the exhaustion of the "silent areas" of the brain (i.e. those areas necessary to higher intellectual functioning as distinct from purely reflex activities) is comparatively slow to recover. This temporary impairment of intellectual functioning can be demonstrated by the employment of such simple tests as the serial subtraction of 7 from 100.

The Post-convulsion Behaviour.

Bearing in mind the delay in recovery from exhaustion of these association areas, it becomes all the more remarkable that the immediate post-convulsion behaviour (i.e. the behaviour which is present during the first few minutes succeeding the return to consciousness

assuming that the patient does not pass into a deep sleep, which occurrence is common) is characterised by certain types of behaviour in which there is patently present or can be readily implied a definite and complicated connection actively existing between the various sensory areas, the motor area and the association areas, the connection existing regardless of the external circumstances of the patient. This association may perhaps even exist before ordinary reflex processes are functioning.

Its remarkable nature lies in the fact that, by the law of disintegration of function (44), the phylogenetically older patterns of reaction should be the last to disappear when any profound trauma, which the Cardiazol convulsion certainly is, or other pathological state leads to a profound inhibition of nervous functioning: and these primitive patterns are the first to reappear when the effects of that trauma have passed.

For instance, while Case 160 was unable to connect an auditory stimulus with its visual source (a primitive reflex action), she was nevertheless appreciative of her own stroking her arms and sides with her hands as, after the convulsion, she curled up on her left side and nestled her head with repeated movements into

her pillow. These actions were vividly reminiscent of an infant or child nestling for the comforting protection of a mother's bosom and being petted and stroked by the mother. These actions of the patient were also similarly commented on spontaneously by the nurse assisting in the treatment. The pleasurable, sensual sensation derived by the patient from the stroking movements performed by herself was inferred chiefly from the facial expression of the patient (closed eyes and a continuous beaming smile) and from the utterance of soft sounds intermittently made, again identical with those of an infant or child in the previous position. Such behaviour is termed "primary narcissistic", and the reason for the adoption of this term to describe such behaviour is explained later.

A second type of post-convulsion behaviour was predominantly "oral", and included such activities as determined efforts to retain the mouth-gag between the teeth, often combined with sucking movements in connection with the gag, or, if the gag was removed by the nurse, the still unmistakable attempts at sucking, or sucking sounds made by the lips. In one case, when the gag was removed, the removal was followed by the replacement of the gag

and the continuance of sucking. Other oral reactions, other than frank sucking and biting, include spitting and either the refusing or replacement of artificial dentures when these are offered to the patient after the convulsion.

A third group of activities are "anal" in type and find representation in such actions as fingering the anal region and buttocks, faecal smearing, both of the patient's own body and the bed-clothes. In one patient, frank coprophagic activities were witnessed after each of several convulsions.

A fourth group of activities are concerned with the external genitalia ("phallic"), such as fingering the genitals, clawing at the vulva with grunting and polypnoea, exhibitionism, tugging at the penis and scrotum, beating on the genitals with the hands, masturbation, and the desire and endeavour to micturate even though the bladder be empty.

A fifth group of activities may be called "mixed" as it contains admixtures of the preceding four groups, e.g. primary narcissistic and oral features, oral and anal features, oral and phallic features, and similar combinations.

For some considerable time during these investigations into Cardiazol therapy I was at a loss to understand the nature and meaning of certain actions during the post-convulsion behaviour which could not be accommodated comfortably into the preceding five groups. These actions were accompanied by a considerable degree of force. This force was directed by the patient either against his own person or against the person of a bystander or some inanimate object. Examples of directing the force against their own person were afforded by such actions as savagely plucking an elevated postule from his own face after causing his finger nails to meet under it, or digging the fingers into the arm, biting the arm, or repeatedly knocking the head against the top of the bed. Examples of directing the force externally were forthcoming in such actions as beating the bed-clothes with the hands, kicking out with the legs in the manner of one cycling (how frequently one received knocks from tumbling bed screens as a result of this!) or punching with the hands and arms, disarranging or tearing the bed-clothes off and tumbling them on to the floor, and perhaps rearranging them afterwards in a more orderly fashion as if repenting of the disorder they had thus caused, or

heavily stroking the nurse's arm to be followed by determinedly and repeatedly poking his finger tips into her axilla, then taking her forearm and making it quickly revolve around the circumference of an imaginary circle while saying "Ccch-Ccch-Ccch!" after the fashion of an infant playing at trains.

Such activities I now recognise to be of an "aggressive" nature, and they constitute the sixth and last group of activities of which the immediate post-convulsion behaviour is composed.

The recognition of this sixth group also serves to explain the varying qualities of the activities which may occur in the preceding five groups e.g. why one patient should suck and another bite and spit, or why another patient should masturbate in a quiet manner and another in a subdued fury. The explanation is that this aggressive component may enter into combination with and be expressed by activities of the preceding five groups.

Yet at first sight it might appear as if many of the examples of post-convulsion behaviour cannot be classified into one or more of these six groups. For instance, a woman vehemently clamouring at a locked door to be allowed out: another causing the disappearance of

the bottle of Cardiazol and a gag from the Cardiazol tray; another exhorting a fellow patient to accompany her upstairs, might appear to constitute exceptions to the classification of the post-convulsion behaviour into the six groups as outlined. Their exceptional quality disappears, however, when one bears in mind that the frenzy of the woman to be allowed out through the locked door of the treatment ward is due to the terrifying belief (occurring solely as a post-convulsion phenomenon and laughed at in her "normal" state of mind) that the injection she had been given was one of chloroform to enable me the better to extract her teeth, i.e. oral behaviour; that the cardiazol bottle removed from the tray by the patient was in the shape of an ordinary medicine bottle and the mouth-gag a thick rubber gag of penile shape, both of which articles she put down the lavatory pan, which episode would seem to be an over-determined act on the part of the patient in which an element of anal expulsion plays a part, i.e. anal behaviour; and that the patient who repeatedly exhorted the same fellow patient to accompany her upstairs after each convulsion invariably addressed the patient in affectionate terms as "George", whom she stated to be her

husband, which might have been a misidentification or part of a homosexual phantasy. Similarly frequent visits to lavatory although there cannot be any urine in the bladder is partly phallic and partly aggressive post-convulsion behaviour.

It is difficult to account for the activities exhibited in each of these six groups of post-convulsion behaviour (primary narcissistic, oral, anal, phallic, mixed, aggressive) on purely somatic grounds alone by, for example, postulating a single special "pattern" of behaviour dependent upon a special area of the brain which first recovers from the general exhaustion and, by virtue of its recovery over the still exhausted remainder of the brain substance, is able to exert its influence to the exclusion of the manifestations of other possible patterns. Even granting that this manifest behaviour is the co-ordinated result of the activities of several such patterns, there still remains the question of why such an activity as, for example, masturbation should occur in one patient as his or her post-convulsion behaviour while the post-convulsion behaviour of another patient is characterised by coprophagia, or, in yet another, by the desire to micturate frequently over a period of half an

hour as shown by frequent visits to the lavatory. There is the further question of why, when the ordinary reflex associative processes may still be in abeyance, these six activities should be specially selected from all the associative processes that might occur. That such six activities are associative in nature is shown by, among other things, the accompanying affect, the nature of this affect varying from case to case, e.g. one of undisguised and ruminative pleasure in the case of the patient who indulged in coprophagia, and a determined fury in one of the cases of masturbation.

These two latter considerations would appear to make it necessary to abandon finally the attempt at finding an entirely somatic explanation to explain the six types of behaviour and to enquire instead if such will admit to a psychological explanation.

Finally in connection with this post-convulsion behaviour, two points of importance require to be mentioned. The first of these points is that similar types of behaviour (with the solitary exception of restlessness, which might conceivably be construed as a type of aggression) have not been observed, or, if they have been observed, have escaped recording in print, to occur

during recovery from states of unconsciousness caused other than by a convulsant such as Cardiazol, e.g. by concussion, or after the administration of chloroform or other general anaesthetic to either insane or mentally normal patients. I have, however, seen unmistakable masturbatory activities occur immediately after a grand mal of idiopathic epilepsy. The second point is that under normal circumstances the patient himself is quite oblivious of his own post-convulsion behaviour, either at the time or afterwards when "normal" rapport with his surroundings has been regained. Not only is he oblivious of his own behaviour but he is also apparently oblivious to the behaviour he sees in others. It is quite meaningless to him. For example, on those occasions when one was forced to work with a shortage of staff among a large number of cases at various stages of treatment, it was not uncommon to find a patient who had been convulsed a few minutes previously wandering behind the screen around a bed to witness with schizophrenic detachment the actual cardiazol treatment in another patient. It was very noticeable that the patient could watch the whole procedure in another patient through the tonic and clonic stages to perhaps the cyanosed patient being given

artificial respiration without showing the least sign of appreciation of what was happening as judged by the entire absence of reaction which normally accompanies the witnessing of a convulsion for the first time.

The immediate post-convulsion amnesia.

Intimately bound up with the lack of appreciation of actual objective and subjective happenings in the post-convulsion stage is the phenomena of an amnesia which is invariably found in the cases treated. The presence of this amnesia was recognised from the inception of cardiazol treatment as being retrograde in type and embracing any immediate pre-injection phenomena. The amnesic period may even extend further back to include the happenings of the same day and, in some cases, of the day previously. The opinion has been expressed (45) that the amnesia is motivated psychologically to avoid the recollection of the anxiety associated with the pre-convulsive period, and I (2) have likened it to a fugue in which, as the result of the excessive emotional stimulus of the aura, there result a loss of appreciation of both the patient's actions and his surroundings. Furthermore, again like a fugue, this amnesia can, by ordinary

psychiatric methods in those patients from whom co-operation can be secured, be subsequently filled up to the first few muscular twitches preceding the convulsion.

The duration of this amnesia is from a few minutes to several hours during which time, if left to himself, the amnesia is gradually filled up by the patient himself when, as far as temporal relationships are concerned, "normal" rapport with his surroundings is once more achieved.

In some cases, the filling up of this amnesia and the regaining of normal rapport with the surroundings may be a very painful process from the psychological point of view. For instance, in the amnesic period the patient may have quite forgotten that his mother for whom he had a very deep and affectionate regard had died a short time previously. As normal rapport with his surroundings is regained, he realises that she is dead and he re-experiences in all its intensity the emotional shock consequent upon her death. For him, so to speak, she died a second time.

In connection with the treatment of psychotics, I found in those cases where the amnesia was least with respect to time and the patients' rapport with the

surroundings soonest gained that such patients could usually be depended upon to recover, or at least to show a noticeable improvement mentally, and that amnesia of long duration was of bad prognostic import. This point was later confirmed in connection with Cardiazol treatment of war psychoneurotics when it was found that the amnesia was of much shorter duration than that encountered in psychotics, the majority of them insisting on getting up well within half an hour of the termination of the convulsion and resuming their normal occupations. Yet even here, as in psychotic patients, the duration of the amnesia, short though it was, was again of value as a prognostic sign in comparing the outcome of treatment of one psychoneurotic with another. The theoretical significance of these observations is commented upon later.

The "confusion" met with in the post-convulsion stage is compounded of this amnesia, the inability to appreciate subjective and objective happenings from an objective viewpoint and the inability to render a coherent account of themselves.

Lasting and circumscribed amnesia.

Distinct from the immediate post-convulsion

amnesia as previously described, there is met with in connection with convulsive treatment an amnesia with different characteristics. This amnesia is circumscribed in its manifestations and its occurrence, as was usually the case in the series investigated, may first show during treatment or, less commonly, after treatment has been terminated. Hence it is reasonable to conclude that this circumscribed amnesia can occur independently of the immediate effects of a convulsion. It may disappear with further treatment or it may continue either despite or with further treatment.

It was pointed out (46), when the phenomenon came to be recognised some years after the inception of treatment, how difficult was the decision to ascribe this amnesia to the result of the convulsions or to the mental state which necessitated the employment of the convulsions, and a psychopathological explanation was advanced. Other investigators (47) assert that this amnesia is the result of actual mental deterioration, the deterioration being attributed to actual physical damage to the brain substance occurring during the convulsions of treatment.

The importance of these two opposing viewpoints demands lengthy consideration, and the subject will be

reviewed first from the hostopathological and secondly from the clinical viewpoints.

The recorded histopathological findings in animal experiments with convulsant drugs vary from circumscribed microscopic parenchymatous haemorrhages (48) to negative results (49). It is questionable, however, if these findings are applicable to the human subject as the experiments were performed on rabbits and dogs. Even in experiments conducted on monkeys (50), the changes produced were very slight and resulted from treatment in excess of that normally given to the human subject. Case 33 after his seventeenth injection in a course of treatment, expired at the termination of a status epilepticus: the post-mortem examination showed no microscopic damage to the brain tissue or other abnormality attributable to the convulsions beyond a congestion of the cerebral vessels, the brain itself being slightly oedematous. Unfortunately, a microscopical examination of the brain was omitted. It seems reasonable to infer, however, that the brain changes in those patients who do not meet with such a catastrophic end will be still less. I have been unable to discover literature relating to the microscopic appearances of the brain in human subjects

who have died during Cardiazol treatment.

Examples of the lasting, circumscribed amnesia as met with in three patients will now be given at length, the first case being illustrative of the most common type encountered.

> Case 147 had been for four years in the second attack of her psychosis which required hospitalisation. Many of her acts and phantasies occurring in her first attack were of a most sadistic nature: she, for instance, cut the cat's throat because she was of the opinion that it liked her daughter much better than it did she herself. She was of a definitely "anal character" (51,52), showing the traits of orderliness, parsimoniousness and obstinacy to a pronounced degree. The onset of her second attack was related, she said, to her grocer scrutinising very carefully the number of the bank notes she tendered to him in exchange for her provisions. This led a few days later to an orgy of spending lavishly and indiscriminately, contrasting with the nabitual care and deliberation she had previously taken over her purchases.
>
> Ever since admission, it was her almost daily practice to write in her eminently legible script a lengthy letter on, literally, yards long of toilet paper which she handed to one without comment during the ward visit. These letters, couched in almost Victorian phraseology, made excellent sense. In these letters, she invariably recounted incidents in the life of and the circumstances concerning her previous employers, members of the upper, monied classes, with whom the patient was obviously and strongly identified. The stately yet coy and ladylike manner in which she would often meet and accompany (? conducted, in her phantasies) one around the ward wherein she was a patient was probably indicative of her benevolent tolerance to the medical staff comparable to that which had been shown to her by her previous employers to whom she had rendered years of devoted service: her habit of walking around the hospital grounds walking-stick in hand, although she needed none such, and condescendingly

nodding in the same stately fashion could be similarly construed. Her capacity for identification in other phantasies was well-marked and not at all concealed. Although she was in excellent physical health, she might, for instance, dress up like an aged invalid complete with white bed-cap with flowing tapes and a white shawl of her own design, and, thus attired, would stretch herself on one particular sofa to await inspection on the evening visit: again, she might enact the role of a school-mistress with an improvised mortar-board and a bright-coloured sash slantwise over her chest to act as a gown: again she might enact a christening scene with a piece of ordinary cake as a christening cake and with strained, cold, unmilked, weak tea for wine. Her fellow patients too were employed in her phantasies as shown by her relations to them as deduced from her rigid attachment to and associations with some and a rigid avoidance of others, but the habitual secretiveness of her disposition never permitted a precise elucidation of the role they played in her phantasies. The disappearance of these phantasies and her various identifications brought about by Cardiazol treatment bore, while treatment was nearing its termination, a spontaneous complaint forgetting some of their names - not a generalised forgetting of names but merely of those patients with whom previously she did not associate. If this forgetting had been dependent upon a structural disruption of parts of the cerebrum, then it would be not unreasonable to expect a forgetting of all the names of these patients with whom she had been closely associated for four years.

The forgetting displayed by Case 112, a middle-aged unmarried lady, manifested itself in a different fashion from the first patient like whom, however, she showed a definite though not so marked "anal" streak running through her mania. Also, like the first, she indulged in embroidery but with more of the exuberance of the maniac. (It is a noticeable fact that embroidery is often a favourite method of occupation among women patients in whom anal features tend to be marked.) The indulgence in embroidery exhibited by the second patient, however, amounted to almost an obsessional preoccupation: she would scarcely lay it down to eat or to perform the other natural functions of life. When her mania had become converted

into a mild depression as a result of four injections of Cardiazol, she quite forgot the embroidery upon which she had been so persistently and intently engaged and she made no further reference to it. (The cessation of her embroidering activities was so noticeable a feature that it was brought to my notice as something unusual by the charge nurse.) When the embroidery was given to her without comment, she now displayed a complete indifference to it. Through the remainder of her stay in hospital she refrained from completing the work she had so intently begun.

Case 213, a private soldier aged 22 who suffered from a hysterical paralysis of his left arm, complained on the day following his third and last convulsion that he had mislaid a bullet which he had picked up as a couvenir from in front of the Maginot Line. He had never before spoken to me of this souvenir ("it was too childish") despite daily interviews, each of one hour's duration, from 18.10.40 to 21.11.40. The loss of this souvenir now occasioned him a considerable degree of agitation accompanied by a not inconsiderable degree of wonderment at how the loss had come about, so careful had he always been not to lose it, replacing it carefully whenever he had done reinspecting it.

In discussing the loss with him, it transpired that this bullet epitomised his attitude to the army and his active experiences therein - a reluctant conscript, nights when, filled with expectant dread and in the pitch darkness, he had mounted guard in No-Man's-Land where every rustle of a leaf was interpreted as a harginer of an enemy who would give no quarter: of the subsequent action during the retreat when he and his comrades were in a desperate position on the Somme: of his dispatch (the company runner having been killed in trying to get through) as a substitute runner conveying a message for help to battalion headquarters in a wood at some little distance; of his falling to the ground in an intervening cornfield tormented by days of thirst and hunger and terrified as he lay alone, the barrage and machine-gun fire dinning in his ears, fearing annihilation; calling upon his mother in his loneliness to give him help and, when he at length cautiously looked above the corn tops to see the Germans advancing over the brow of the hill on

> the slope of which the field lay, reciting the Lord's Prayer, believing that all was up with him; of his amnesia which originated at this juncture and terminated by his awakening in bed on 5.6.40 in a psychoneurotic ward of a general hospital to discover that he had a paralysed arm. The bullet symbolised all these things. It also served to reassure him that he could go back to civilian life ("I'm only fit now for civvy street") bearing the scars of war (his paralysed arm) and complete with the visual evidence of his tribulations (the bullet) when these scars would have disappeared, i.e. the bullet was also a reassurance that he had done his bit.
>
> On further enquiry being made as to whether he had forgotten other things in addition to his forgetting where he had laid the bullet, he replied that for a fortnight he had forgotten to write his parents (previously he had done so weekly), was apt to forget the names of fellow patients and was predisposed to misidentify people, e.g. he had approached a civilian during the hospital's half-day in the erroneous belief, as it transpired, that the man was from the same home town.

With the first two cases, circumstances precluded a full investigation, after the amnesia was discovered, into the cerebral functioning of the patients in so far as the higher intellectual functions were concerned. With the third case, however, cerebral functioning was fully investigated and found to be normal in every respect, even to the extent of giving a most penetrating criticism which would have been a credit to a first-rate dramatic critic concerning the performance of a world-famous stage personality who appeared at one of the hospital concerts. It should be noted that in this

patient his hysterical symptom was of only a few months' duration.

The transference situation.

The existence between patient and physician of a transference situation during a course of treatment was implied by the originator of the treatment who later expressed surprise on enquiry into the technique of other investigators that they were neglecting the employment of psychotherapy concomitantly with treatment. They were relying on the convulsions alone to produce any beneficial mental effect. At this point, it may be interpolated that, in my experience, beneficial effects to the point of "recovery" can be produced by the employment of convulsions without psychotherapy. The thesis of a transference situation was greatly elaborated by Schilder (45) who advocated the utilisation of this situation at the termination of treatment to provide the patient with "dynamic insight" into his past illness, i.e. insight to the extent of coming to understand the meaning of symptoms and the unconscious motivation which produced them. By such means, the return of these symptoms is guarded against. This insight differs considerably from that

obtaining in cases where the patient leaves hospital with only the knowledge, the self-realisation, that he has been talking or behaving in an abnormal manner or that he has been the subject of experiences which had no basis in reality. Abse also deals with the transference situation in a penetrating monograph (54). He writes "The physician can exploit his relationship to the patient to the latter's benefit ... and he (the physician) can increase his knowledge of the operative conditions in the patient's life by observation of the pre- and post-convulsive episodes".

From my own observations, I also am convinced of the existence of a definite transference situation, but I am qualified in expressing how far this contributes to a therapeutic end and how far the situation can be exploited to provide the patient with dynamic insight.

Three cases will be quoted in considering the question of transference, whether this relationship, either positive or negative, is established and, if so, to what extent it influences the improvement or recovery of the patient. These cases also contribute to many of the other points raised in this paper and they will thus be quoted fairly fully.

The first case was Case 90, aged 46 years, who had been in the depressed phase of a manic-depressive psychosis from her admission until Cardiazol treatment was begun. A radical removal of her right breast for carcinoma had been performed one year before admission. Before treatment was instituted, I had occasion to incise a boil on the palm of her left hand and, owing to incomplete local anaesthesia, the operation was accompanied by a considerable degree of pain.

The treatment was begun on 13.11.39 with an initial (unintentionally sub-convulsive) dose of 4.5 c.c. which produced so marked an aura that the almost absolute immobility which had previously characterised her posture and the mournful, seared expression of her face were temporarily removed. It was supplanted by a look of terrorised astonishment and rapid and frequent movements of her hands through short range on top of the bed-sheet. When the full effects of the aura had passed off, she immediately got out of bed and, verbal persuasion being of no avail, quickly put on her dressing gown and returned hurriedly to the ward from the side room in which the injection had been given. To all outward appearances, she quickly lapsed into her previous state and would give no reply when she was asked to explain her determined and unusual conduct.

A second, also sub-convulsive, dose of 5.0 c.c. was given on 21.11.39 with the repetition of the same behaviour but, in addition, she made the request that her artificial dentures, taken out lest she should convulse, be given to her so that she might replace them.

Between that date and the ninth injection on 12.12.39 the patient showed but a very slight temporary improvement lasting for about five minutes after each injection, during which brief spells her depression appeared slightly relieved, and during which, although there was no spontaneity of talk, she would often reply to leading questions in her low, monotonous voice with a lessening of her habitual retardation. She refused to describe her sensations beyond a lengthy and agonised "Oh!" when she pondered on the aura in reply to the question, "What do you feel?"

It was noted on the morning of 14.12.39, when she should have received her tenth injection, that she was quite well mentally, being indeed "recovered", and she gave the following account of herself:

Since the last two injections (the 8th.being a sub-convulsive dose of 7.7 c.c. and the 9th. a convulsive dose of 8.7 c.c.) she had "felt a change come over" her and that she "was approaching a climax". This latter she indicated in a histrionic manner by describing two converging lines with her hands. She had lain awake on the night of the thirteenth "trying to puzzle things out" knowing that "a decision would have to be taken one way or another". The climax came after many hours of sleeplessness when she felt something "go snap" inside her head, after which she fell into a brief dreamless sleep from which she awoke recovered from her depression, astonished at the chaotic state of the warring world and profoundly disturbed at the state of her finger-nails ("all bitten") - which had never been so since childhood.

Despite the fact that she was an intelligent woman and could discourse with fluency upon ordinary topics, from the date of her "recovery" until her dismissal from hospital, she was quite unable even with considerable effort to elaborate further upon her Cardiazol experiences. Lastly, she attributed her recovery to the injections which "made her think" and which she frankly confessed she dreaded. The aura she could only describe as "terrible" as she had "nothing (i.e. no experience) like it before", or, as she put it in another way, she became "petrified with fear" every time she saw me come through the ward door, even on days when she knew no injection would be given.

After she had recovered some time, she enquired one day as to the origin of a scar on the palm of her left hand and the slight contracture of one of her fingers - having quite forgotten the incision of the boil a few weeks previously.

At this stage, several points should be noted.

In the first place, the oral features in her case were marked, as they not infrequently are in cases of manic-depressive insanity. The cause (precipitating factor) in the patient's illness was attributed by her to the removal of her carcinomatous breast (suggestive,

from an analytical viewpoint, of oral-sadistic conflicts), the oral-sadistic practice of nail-biting indulged in in her childhood and again in her state of depression, and her ambivalent attitude towards her teeth - for at one period during her illness while she was suffering from a generalised outcrop of boils and before Cardiazol treatment was begun she had declined to wear her dentures, while now, on 21.11.39, she was eager to wear them.

In the second place, she was conscious of a conflict which "was going on inside", but the nature of this conflict was entirely unknown to her, and the end result of which (the climax) she could only describe by a pictorial, airy wave of her hands.

Thirdly, she herself had to make the decision "one way or another" i.e. without outside aid. Indeed, one of the reasons she gave for having to decide for herself was the delusion, held since admission and not admitted to until after her "recovery", that the hospital was a prison, that I was a detective masquerading as a doctor, and was acting under the instructions of the chief detective (the superintendent) for the purpose of discovering the nature of a heinous crime she had committed in the past, a crime she was determined not to

reveal, to which end she had hurried from the side-room (really a prison cell) after each injection lest she should be detained until the secret was dragged out of her. This attitude of hers, however, might be interpreted in the light of a negative transference.

Fourthly, the decision over the conflict was eventually made by the patient herself at the expense of an almost sleepless night.

Fifthly, the conflict was the result of treatment by the injections which "made her think", injections whose effect she so much dreaded that, despite her apparent mental well-being as a result of treatment, she had to be repeatedly reassured in reply to her frequent inquiries that she was due for no further injections. In this connection, it is noteworthy that a mentally normal patient suffering physically is seldom so affected as to be continually referring to treatment which made him well, even though it may have been extremely unpleasant and distasteful.

A sixth point in connection with her case was the relatively rapid breakdown after apparent recovery - she was reported as relapsed about three weeks after her dismissal from hospital.

The second case to be quoted in connection with the question of the transference situation was Case 136. She had previously been a patient in a mental hospital from 4.11.06 to 11.4.08 when she was discharged recovered from what was apparently a schizophrenic illness. She was again a patient on account of mental illness between the period 28.2.15 to June, 1918. Since then she had worked as a domestic and ultimately cook-general until six weeks before her admission on 12.12.31 when she became "hysterical", very difficult to manage, and "laughing and crying and singing".

Between that date and the commencement of Cardiazol treatment on 15.1.40 her history was one of a gradual and steady mental deterioration. Ultimately she was habitually half-naked through tearing off or into ribbons any clothes she was dressed in by the nurses. She squatted all day beside a radiator soiling the floor under her with urine and faeces. At times she was impulsive, e.g. smashing a window and chair and striking a fellow patient on the head with a piece of the latter. Any approach to her, therapeutic or otherwise, was met with a wide animal grin, her large lower canines protruding slightly over her upper lip and edentulous upper jaw. At no time during her course of treatment (17 injections of which 15 produced convulsions) was any psychotherapeutic approach achieved save that she improved to the point of replying to simple questions asked of her. A similar state of affairs prevailed when, after a trial period at home before her ultimate dismissal from hospital on 1.7.40, she reported back to hospital after doing ordinary housework very satisfactorily and appearing happy and contented.

The third case has already been quoted, in the sub-section where the connection between psychotic symptoms and the aura was discussed, where a transference situation was definitely established and where, when his associations led him to see a connection between the aura and his hallucination, the latter disappeared.

Behaviour changes.

Apart from the mental deterioration deduced by some investigators from the lasting memory disorders before mentioned, other investigators (15,55,56,51,52) have deduced the same from behaviour disturbances.

The behaviour disturbances are of fairly frequent occurrence and, from a purely superficial point of view, it would appear that the condition of the patient is indeed worsened, the fact of the "worsening" being, of course, adversely commented upon by the nurses and attendants who look for at least some improvement in every case.

Two such cases will now be briefly reported as illustrative of the above.

> Case 109 was a mentally defective woman showing schizoid traits before admission to hospital and who, before treatment was begun, showed from a purely nursing point of view no unfavourable behaviour save an occasional and short-lived bout of stubbornness which intruded at varying intervals into her habitually quiet, amenable state. She showed an extreme physical resistance to each of the twenty injections which constituted her course of treatment, a week after the termination of which she was observed to be posturing and grimacing in the manner of a schizophrenic, and her behaviour was so distinctly obstreporous in character that she had to be confined to bed for a period during which sedatives had to be liberally administered. Although her mental state of imbecility prevented her from saying more than a few simple words, from a study of her behaviour it was obvious that she was now afflicted with annoying and commanding auditory hallucinations.

> Case 177 was one of a typical dementia praecox who before treatment was begun lay quietly all day in bed in the foetal attitude with the blankets drawn over his head. The only activity to which the attendants took exception was his very frequent masturbation. It was not unnatural that when they saw him "wakening up" as a result of a few injections, becoming obstreporous by hurling about the sparse furniture of his room and making unprovoked physical assaults upon them that they should comment that he was becoming worse as a result of treatment. He, too, now showed evidence that he was afflicted with auditory hallucinations which had altered considerably in their content, as judged by his behaviour, compared with those which were present on admission.

Apart from these two cases, a third case will be quoted which was not adversely commented upon by the attendants.

> Case 185 was that of a mild depression who sat in the ward in a very listless attitude convinced that he would never shake off his depression: he seldom talked spontaneously and was quite unobtrusive on the ward visits. As a result of treatment, however, he became quite forward and began to ask repeatedly as he waylaid me on every opportunity if his heart and blood-pressure "were all right".

Discussion.

It is now proposed to take the various phenomena described in the preceding sub-sections and to demonstrate that a psychological connection can be demonstrated to exist between them - that they are, in fact, but various manifestations of the psycho-dynamics of Cardiazol therapy.

As beneficial effects may be produced in cases

of mental disorder by using convulsants other than Cardiazol such as picrotoxin (31), ammonium chloride (57), electricity (28), it may be concluded that the convulsant agent in itself is unimportant to the point of being negligible in producing results.

Further, as other investigators and myself have shown (1,17), the production of these beneficial results is not dependent even upon the convulsion but that, on the contrary, these results can be secured by the employment of sub-convulsive doses, so that the convulsion itself can be excluded as contributing. In connection with electrical therapy, investigators have found similarly, viz., that the convulsion is not essential to mental improvement or recovery (58).

It therefore remains to discover some factor other than the convulsion which is common to all forms of convulsive treatment. I have had no personal experience of convulsants such as picrotoxin or ammonium chloride, but a persual of the literature relating to these forms of treatment makes it clear that a common factor to all convulsion therapy is the presence of fear. Indeed, all investigators are united in stressing the diminution of fear when these other convulsants are used as compared

with the fear resulting from Cardiazol. Further, the patients who have experienced both methods of treatment have no hesitation in expressing their preference for these convulsive treatments as opposed to that of Cardiazol or closely related substances such as "Azoman" or "Triazol". One of the advantages claimed for electrical convulsive therapy on its inception was the absence of fear, a claim which, however, has since been revised. My own experience of electrical therapy is in accord with the revised opinion: for fear is an associate of that treatment though it is diminished in intensity compared with that associated with Cardiazol.

Even the apparent absence of fear does not in itself invalidate my general statement as to the invariable occurrence of fear as, as it has already been shown, it can be demonstrated in those whom it was thought to be absent.

A further case will be cited in support of this and it is also illustrative of points to which reference will afterwards be made.

> Until his return from active service in France, Case 212 throughout his thirty-nine years of life had been subject to a fairly frequent and recurring nightmare in which he invariably found himself in "the bathroom" (lavatory) ferociously and savagely assaulting an old lady by repeatedly knifing her. (In

his associations to this, he said that the old lady was not like his mother. He called his mother "the old lady"). From this dream, he invariably awoke bathed in perspiration and filled with the most intense and indescribable horror. After his experiences in France in May - June, 1940, this dream gave place to a second recurring dream in which he was either about to be taken prisoner, as had happened in reality, or else he was ferociously assaulting an enemy soldier by repeatedly bayonetting him, this having no basis in actual fact. Accompanying this second dream, there was precisely the same affect with its physical concomitants - the intense and indescribable horror as he lay bathed in perspiration. The third dream had again precisely the same effect as the first two and it occurred a few days after his first injection of Cardiazol when, the snowy weather preventing the execution of the normal hospital routine, he had lain down one afternoon and dreamt that sister and some orderlies had come in upon him to prepare him for a further injection. (Previously he had shown no fear in connection with treatment.) He had started up determined to resist to the uttermost but sister had ordered "Knock the feet from him". As he was struggling, a tall, fair doctor (again the patient's associations led him to deny the first thing he had thought of, for he - the patient - didn't think that he - the doctor - was like me) appeared to give the injection but the patient continued to resist against it. Things in the dream then became jumbled, but he remembered something being sprayed on to his face in order to quieten him to permit of the injection being administered. At this point the patient, filled with the same horror as in his two other dreams, half awoke and (in reality) came rushing downstairs, half-dressed, vociferously protesting that he was for no injection until he became fully aware of his surroundings when he calmed down though still very much shaken.

It is also necessary to this thesis to insist again on the anxiety experienced as the result of the utter helplessness in which the patient finds himself as the result of his experiencing the aura consequent upon

the administration of an injection. Again, it is necessary to stress the fact that, like the fear with which it is intimately associated, the anxiety may seem absent from a case, as in the last one quoted, in which it is nevertheless present.

It appears certain from a study of the literature available that a similar state of affairs obtains in the other convulsant treatments already mentioned - it is, as already stated, a common factor. (Even in insulin therapy, from my own observations, it would be idle to assert that fear does not enter into this treatment judging from the roaring, screaming and restlessness one often meets with as the patients come out of a coma dose.) And, becuase, as the results of my own and the observations of others, the conscious appreciation of this fear and anxiety is not proportional to the mental improvement produced (59), factors other than those of which the patient is conscious require to be taken into account, just as e.g. in anxiety neurosis, the tremor and sweating say, are the end products of a mental situation concerning which the patient is at a loss to explain satisfactorily either to himself or to others.

From my studies, I am of the belief that the

aura is but a reactivation, pharmacologically produced, of the primal psychic situation or situations (Abse's "reactivation of predominant complexes"), either real or phantastic, which predisposed to or precipitated the psychosis or psychoneurosis in infancy. Support for this belief is chiefly forthcoming from the patient's reluctance to describe and associate on the aura, from the relationship that may be demonstrated between the aura and the psychic conflicts of the patient as expressed in his verbal stream of talk, his delusions and hallucinations - as if the description and elaboration of the aura might lead to further associations whereby the unconscious, partially repressed material would be made fully conscious - against which possibility indeed the patient unconsciously produced his symptoms in his "flight into insanity" from a reality which proved too much for him to bear.

It is this anxiety, therefore, that is really stirred up as a result of the administration of Cardiazol. The anxiety so produced would appear to be closely akin to if not identical with primal anxiety and, if this be so, then it would be reasonable to expect that the Cardiazol anxiety should be associated with manifestations of libidinal activity. Now the similarity of the

various types of post-convulsion behaviour to the stages of libidinal development described by Freud (60) will already have been observed. It is difficult to avoid making the assumption that these activities are libidinal activities existing alone or fused with the aggressive instinct. Otherwise these activities lack explanation especially when it is remembered that these complex activities may exist when other simpler possible patterns of reaction are not in evidence - showing that these post-convulsion activities are the result of some powerful psycho-somatic force seeking expression.

And, as I see it, the post-convulsion behaviour is to be regarded as a repetition, a reliving of the attempt to resolve the primal conflict which has been reactivated as the result of the anxiety arising from the aura.

The means whereby this anxiety is disposed of is obviously of great importance for, if disposed of, then the patient will recover his normal state of health.

From my observations, the Cardiazol patient may be unable to dispose of this anxiety (particularly is this so in schizophrenics) in which case the mental condition of the patient does not improve or only slightly improves,

and his attitude to treatment is one of active resistance characterised by unseemly struggles. On the other hand in those patients who improve and "recover", they dispose of it in the first instance by a phobic mechanism, i.e. they displace this anxiety to a concrete situation, viz., the Cardiazol situation.

It follows therefore that such a displacement of anxiety to a specific, concrete situation will have an eminently beneficial effect on the disturbed mental state of the patient. The conflict with which the anxiety is related will cease to be remembered as a causal factor - one of the reasons why the description of the aura is obtained with so much difficulty.

Yet another and immediate defence against the anxiety is the amnesia which follows immediately upon the convulsion, robbing the aura of its unendurable terrifying nature. I have no doubt that the amnesia specifically served this purpose, for I have seen not a few times the result of administering doses which were "within an ace" of convulsing the patient and the agitation and desperation thereby produced were pitiable in the extreme. So great was the agitation produced that in many cases it prevented the repetition of the same dose to convulse,

and one was then forced unwillingly to witness such an unforgettable sight and the awful childlike words of "Oh, mother, I don't want to die!" ringing in one's ears and continuing for an hour or so until the agitation became more controlled. (In this connection, it was noted by other investigators (61) that, from an electroencephalographic point of view, in such circumstances generalised irregular cortical activity persists for some hours, unlike after a convulsive dose when normal rhythm is soon obtained after the convulsion.)

If this displacement of anxiety to the Cardiazol situation be the correct theory to account for the beneficial mental improvement, then the symptoms of the actual recrudescence of the conflict which gave rise to the mental illness should disappear. It is difficult to furnish direct evidence of this since the conflict is largely unconscious. However, by taking individual changes in the mental attitude of the patient, indirect evidence in support of this point is readily forthcoming. If, for instance, it could be shown that strong affectively-toned relationships resulting from the mental illness disappeared as the result of treatment and were replaced by normal ones, it would go far in support of the hypothesis.

Now this changing effective value has already been demonstrated in three cases - the lady who forgot the names of those patients she was irrationally hostile to, the lady who abruptly ceased to be interested in her irrational pursuit of frenzied embroidery, and the private whose neurotic conflicts were symbolised in a bullet he had picked up as a souvenir from in front of the Maginot Line.

It seems remarkable to me that a somatic basis for these three instances of forgetting should have to be postulated, and that one should ascribe to Cardiazol treatment an occurrence (forgetting) that happens frequently to even a normal person in his everyday life, an occurrence which has been proved to be psychologically motivated (62, 63, 58).

Further, it seems unreasonable to discriminate between the forgetting of names and the forgetting of the other matters mentioned above, and to ascribe to the former a causation that one would withhold from the latter.

The assumption of cerebral damage causing the forgetting of names and other matters such as those mentioned can be readily assailed. Even before such an assumption is considered (it is an assumption, as

constant cerebral damage after a convulsion has not been demonstrated), the previous mental state of the patient demands prime consideration in attempting to assess the aetiology of this forgetting. For instance, it is well known how indifferent a depressed patient is towards his environment, so wrapt up is he in the almost ceaseless contemplation of his hateful, worthless, outcast state and his ultimate destiny in hell-fire, or, in case 90 already mentioned, the unspecified heinous crime she had committed. She had no recollection of the painful physical assault made upon her during her depression through my incising a boil on the palm of her hand through an incomplete anaesthesia. If such an event should be forgotten, it is not to be wondered at that the "harmless" forgetting of a name should also transpire (assuming that other things are equal) without having to evoke a somatic causation.

Cerebral damage from the convulsion is inconstant and minimal in amount and one would have to explain the occurrence of forgetting almost on the basis of one memory to little more than one neurone, a relation for which there seems to be no justification in postulating.

For instance, in the realm of cerebral surgery,

while it has been shown that destruction of the brain tissue by tumour (64) or ablation of the frontal lobes (66) may produce mental changes including a general lowering of the intellectual capacities, it has now nevertheless also been shown (67) that a fairly extensive area of the brain (e.g. left frontal lobectomy) and bilateral frontal lobectomy can be ablated without any such intellectual deterioration occurring. Further, in the less radical operation of lobotomy performed by some surgeons for cases of mental illness, no such intellectual deterioration results (68) although the damage done to brain tissue must be considerable. The foregoing destruction or removal of brain tissue is massive, infinitely so compared with the brain damage postulated to result from Cardiazol convulsions.

More analagous to the postulated cerebral damage produced by these convulsions is the state produced in the brain by the demyeliminating process of desseminated sclerosis when thousands of extensive plaques may be scattered throughout the brain substance (65). Yet despite such extensive pathological changes, intellectual deterioration is not described as characteristic of this disease. Case 49, for example, revealed no intellectual

deterioration and the stage of the disease in him was advanced. A still more apposite example is afforded by cases of cerebral concussion and laceration where, among other changes, small punctate haemorrhages occur (69) yet the physical and mental effect of these may pass completely off (70) particularly in young patients.

From the theoretical point of view, the patient's forgetting which constitutes the lasting amnesia is instantly suggestive as being indicative of the reinstitution of repression, which from its previous incompleteness permitted the production of symptoms when the precipitating circumstances caused them to develop. The many varieties which this lasting amnesia may assume are but examples of the ways in which repression may manifest itself - complete disappearance of symptoms (in which case repression has been complete), disappearance of an affectively-toned relationship between a patient and an object (embroidery) or a part-object (the name of a fellow patient). The occurrence of such an amnesia, then, is to be regarded as a favourable sign, viz., indicative of the removal of a psychotic or psychoneurotic trait.

In not a few cases, the actual process of repression can be witnessed. When it occurs in the following

form, it is usually to be observed after three or four injections have been given. Attention is drawn to it by an unwonted euphoria, contentedness and facility on the part of the patient who no longer harps upon the same preoccupations as he did on admission, having indeed quite forgotten them even when they are recalled. Frequently they forget the duration of their sojourn in hospital and, what often proves important from the administrative point of view, are unmindful of their relatives, treating them with a lack of their customary respect and with a certain amount of indifference, this indifference perhaps spreading to outside affairs which previously interested them to the point of absorption. This altered state is uncomplained of by the patients themselves and any adverse comment is supplied by the apprehensive relatives who now entertain doubts as to their wisdom in having sanctioned treatment, doubts which can, however, be dispelled with certainty.

The euphoria which is present in this altered state might be suggestive at first of a manic state, but there is no evidence that the mechanisms employed in the production of the two states are the same. On closer investigation, this state is found to be one which might

be described as "confusion", and is indeed described as such by the attendants and nurses. The confusion results from the summation of several amnesic gaps which causes the patients to be uncertain as to some temporal, spatial and human relationships, this uncertainty being unaccompanied by any degree of insight.

This phenomenon of "mild confusion" when it occurs is of short duration, never, in my experience, of more than two days. When it passes off, some permanent mental change is to be observed in the patient - usually in the "forgetting" of some, perhaps all, his symptoms and psychotically or psychoneurotically determined strong affectively-toned relationships. Those symptoms which do remain are usually dissociated from any conscious effect and are frequently amenable to ordinary therapeutic methods such as persuasion or suggestion in connection with e.g. religious doubts or methods to be employed in conducting their lives in the future. The pnenomenon of mild confusion is usually most observable in patients in whom manic-depressive features are marked but is also of comparatively common occurrence in patients with marked schizophrenic features.

It is convenient at this point to discuss the

behaviour changes which may be met with during treatment since they may follow upon the forementioned state of mild confusion. As previously stated, these behaviour changes have been taken by other investigators as indicative of a worsening of the patient's mental state. Here again, however, I cannot subscribe to this view.

From a purely superficial viewpoint alone it is obvious in the first two of the three cases quoted in this thesis under behaviour changes that there was present as a result of treatment a new sense of reality. They had become (been made) aware of an external world of reality from which previously they were largely excluded, albeit the new awareness of reality provoked in both of them antagonistic feelings towards it, and in one of them the onset of auditory hallucinations and in the other either an alteration in the nature of the hallucinations or a very marked increase in their intensity. I could also quote one case of a colleague (71) in which Cardiazol treatment converted a dementia praecox simplex in a girl with not the slightest evidence of hallucinations into the hebephrenic variety as the result of treatment.

Apart from these cases, the third case quoted under behaviour changes, although showing no worsening of the

mental condition from a nursing viewpoint, would undoubtedly fit into the same category and the relationship to mental improvement is not nearly so obscure. Seldom talking spontaneously, sitting unmoving all day long in a chair and quite unobtrusive on the ward visits, he, however, as the result of treatment, became quite forward and began to ask repeatedly for the assurance that his heart and blood-pressure were all right, i.e. a depressive state had given place to an obsessional one, a well-recognised sign of possible recovery from the former (53).

The formulation of the view (72) that the function of a symptom in mental illness is to serve as a means of retaining contact with reality is, of course, by no means new and has recently been reaffirmed and incorporated into accepted doctrine (43).

The development of such symptoms, therefore, during Cardiazol treatment (even although the symptom makes the behaviour of the patient more difficult from the nursing point of view) is to be construed as a sign of improvement in the mental condition of the patient and not as the reverse.

The extent of the contribution made by psycho-

therapy towards improvement or "recovery" seems a more debatable one. The post-convulsion behaviour can, when one is certain as to its nature, be interrupted with advantage after one or two injections and, using the knowledge of the patient that has been gained by the study of the post-convulsion behaviour resulting from previous injections, psychotherapy can be begun while the patient is in the post-convulsion state. The absence of a normal rapport existing between patient and doctor in this state, however, precludes any set form of therapy. I usually begin by endeavouring to interrupt the post-convulsion behaviour when it is present or arousing the patient from sleep when it is absent by asking the question "Why are you in bed?" The patient, of course, due to the immediate post-convulsion amnesia, has completely forgotten why. The answer given is often very informative and very valuable in indicating the patient's attitude towards his mental state, an attitude which may vary as treatment progresses. An example of such an answer was given by Case 226 who was suffering from a hysterical paralysis of his right arm and hand. Before Cardiazol treatment was begun by the administration of a convulsive dose, he had professed a willingness to get

better, although he admitted that he might have more incentive to do so were he returned to "civvy street". After his first convulsion, however, as he, with the towel I had handed to him, was wiping the froth from his lips and the sweat from his face using his "paralysed" arm, he uttered despairingly in reply to the question as to why he was in bed, "Because I haven't got the strength", and, in reply to the further question "For what?" answered "To get better".

The next step which I have found convenient in an attempt at applying psychotherapy is to let the patient continue his disjointed conversation spontaneously or lead him on by further simple questions if he lapses into silence until he talks unprompted. Interpretation, suggestion and persuasion are used when and where the occasion demands it during the stream of talk. Very often, by such means, conflicts hitherto hidden by the patient come to light, e.g. the masturbation guilt of the agitated melancholic previously referred to in detail was discovered.

It is very difficult, however, to appraise the value of psychotherapy in Cardiazol treatment. I would hesitate very much to say to what extent it contributes

to any improvement, particularly when one bears in mind that results of a kind have been achieved in cases where psychotherapy is inapplicable. For instance, Case 136 was so demented and regressed that she had for years squatted in an animal manner all day beside a radiator, urinating and defaecating indiscriminately, uttering an occasional and weird animal cry to the accompaniment of wild grimaces and teeth showing and defying all re-educative attempts to keep herself clean or to submit socially to ward routine. She was so demented that psychotherapy was out of the question. Even when she had improved under treatment to the extent of keeping herself clean and submitting to and helping in the ward routine by washing and drying dishes in the ward kitchen, any attempt made towards a spychotherapeutic approach was found to be impossible. Yet other instances where psychotherapy was equally precluded was case who suffered from a severe chronic deafness, and, in the case of depression already quoted at length, where she had to make the decision "one way or the other" without any outside influence.

This same state of affairs seemed to occur in the majority of cases treated by me, many of the cases

treated, however, being admittedly of poor material. In such cases, I could not help but be reminded of the similarity of Cardiazol treatment to a "spanking" already referred to at the beginning of the present section of this thesis.

An argument in favour of the beneficial results of psychotherapy will already have been observed in Case 244, when after his associations led him to see a connection between the aura and his hallucination, the latter subsequently disappeared. But, as has already been mentioned, before he so associated and saw the connection, the hallucination was already occurring with diminishing frequency. For this reason, I would hesitate to ascribe its eventual disappearance to after he had so associated and to his abreaction and recollection of the incident ten years previously. It is, however, suggestive, and the criteria whereby the disappearance of the hallucination may ultimately be judged will be forthcoming in his after-history, when if (unlike all other chronic schizophrenics I have treated) a relapse does not occur, the absence of such will be presumptive evidence for the value of psychotherapy in his case.

In attempting to assess the value of psycho-

therapy as a factor in the results obtained, however, it is well to bear in mind the influence for the good that can be brought to bear on these patients by the sister and nurses under whose almost continual care and attention they are. The patients can thus benefit from the precepts, care and tutelage given them. This is a point which I feel has been greatly overlooked, at least judging from the literature, despite the fact that it is a commonplace how very often the sister of a ward figures in many of the patients' phantasies as a "good mother" and, less often, as a Medusa, a "bad mother". I am of the opinion that the influence resulting from the former has perhaps as much as anything to do with the improvement shown in such cases once the initial inaccessibility to any form of approach has been removed by the preliminary injections.

This point demands earnest consideration, for there are cases who respond to such care alone without any Cardiazol treatment. I have been told (73) of the case of an apparently demented woman who lay in bed for years without special attention being paid to her. She, however, unexpectedly responded, eventually to the stage of returning to her family and doing useful housework,

on being allocated as a subject to the ward nurses for them to put into practice the theory of massage as learnt in their lectures.

These facts are stated not because I am in any way attempting to deprecate the value of psychotherapy but merely because I am dubious as to its exact importance in Cardiazol treatment. While I believe that at times it would seem important, nevertheless I do not believe, however much it is desirable to the contrary, that it is possible to afford the patient anything but the most superficial insight into the mental illness for which he is being treated or was treated a short time previously. I have worked in circumstances which precluded even an attempt at superficial psychotherapy and the series of cases did not fare worse than a comparable series of cases in which psychotherapy was employed.

While recognising the ideal of affording the patient "dynamic insight" as advocated by Schilder, I do not believe that with the relatively short stay in hospital of acute cases and the inaccessibility of chronic cases it is possible to enlighten them not only concerning, say, the nature of an auditory hallucination which is something very fundamental, but of the nature

of their own particular auditory hallucinations, the demonstration of the meaning of which would insure against the return of the symptom. Time considerations also weigh heavily against one in this respect as in these cases a lengthy course of analysis would be called for, assuming that the mental state of the patient was such as to permit of it - which unfortunately is often not such in mental hospital patients.

Even granting an improvement with or without psychotherapy as an adjuvant to treatment, the question remains as to why some patients should benefit from Cardiazol therapy and other not. In answering this question, a general statement may first be made to the effect that those patients belonging to the uncomplicated manic-depressive group, particularly in the depressed phase, can be depended upon to react favourably to treatment while those in the schizophrenic group do badly, particularly if depressive features are absent from the schizophrenic picture.

A further consideration of the manner in which these two groups generally behave during treatment provides a clue. I have found in the manic-depressive group that the behaviour of the patients to the actual

injection is, as a whole, one in which active resistance is absent and a co-operation, albeit reluctant, is forthcoming. I am of the opinion that this attitude is in part determined by the unconscious desire of the manic-depressive for punishment and that receiving punishment - the treatment - will have a beneficial effect in itself on the mental state. The behaviour of the schizophrenic group on the other hand, particularly confirmed schizophrenics in whom gross psychotic symptoms of some years' standing are present, is characterised as a general rule by active physical resistance to treatment, the resistance displayed often amounting to an extreme degree.

That is to say, in the one group, the manic-depressive, their anxiety is better controlled than in the second group, the schizophrenic, whose control of anxiety is diminished. This diminution of control is proportional as a rule to the amount of regressive symptoms exhibited by the patient.

It follows, therefore, that the manic-depressive is better able to dispose of his anxiety than is the schizophrenic.

Now it is a commonplace that the more mature, the less psychotic or psychoneurotic, is the individual,

the more is any anxiety he may be subjected to capable of being controlled. It is a logical inference that the schizophrenic through some inherent defect is a much less mature person than the manic-depressive.

These points are borne out from lengthy analyses of these two types of cases. It was discovered (74) that the failure of fusion into an integrated whole of the ego-nuclei in those of the schizophrenic group as well as preventing a consistent view of reality being obtained causes the response of the ego to reality to be inconsistent. Furthermore, the narcissistic regression of the libido in schizophrenics prevents (since whatever free-floating libido there is is attached to objects through the medium of delusions or hallucinations) any proper object relationships to be established between these patients and the world of reality. This defect being a primary irremediable state it is therefore not surprising that Cardiazol therapy should produce no lasting beneficial effect on their mental state since the anxiety they experience as the result of treatment cannot be disposed of as a whole.

In the manic-depressives states on the other hand, a very different state of affairs obtains. In

these states, the id, ego and super-ego structures are clear cut, and consequently the reality sense in these cases is acute, particularly in the periods of apparent mental normality. The recovery of this latter state as a result of treatment is thus more durable since the ego reacts to reality as a whole and not in the "part-reaction", the disintegrated fashion of the schizophrenic.

The varying reactions of other types of insanities, other than epilepsy of which I have had as yet no Cardiazol experience, to Cardiazol therapy can be explained on the above lines, e.g. the fairly good response of paraphrenics in whom introjection (depressive) features are often quite marked, the latter being favourably influenced as the result of treatment, the schizophrenic features thus receding into the background and giving the appearance of apparent mental well-being. Similarly, and contrary to reported results, an improvement is to be expected in cases of paranoia and paranoid schizophrenia especially when one considers the affinity of paranoid ideas to phobias.

The problem may be surveyed from another viewpoint. The development of insanity has been regarded (75) as a gradual process in which the struggle to retain

contact with reality is not at once given up. On the contrary, the afflicted mind would appear to retreat and regress from reality towards the insane state step by step, each backward step being stubbornly contested. In the losing battle, various defences are temporarily assumed before the mind is ultimately forced to fall back upon an underlying insanity. These temporary defences include hysterical symptoms, obsessional symptoms, anxiety symptoms, phobic symptoms, or a paranoid, depressive or manic attitude. The production of such symptoms, indeed, may be sufficient to tide the patient over a period of mental stress and can, or may be, given up for his normal attitude of mind when the conditions of stress are no longer operative. Should the stress remain, however, and prove to be sufficiently strong these intermediate defences (symptoms) are let go off and the mind is forced to regress still further into a psychosis, which may be lasting. Conversely, during the process of "recovery" from the psychosis these intermediate symptoms may again present themselves, showing that a partial victory has been achieved. Once more a reality-sense with strengthening of the ego is achieved.

The gradual process of falling back is well

shown in the process of schizophrenic disintegration where contact after contact with reality is progressively severed and symptom after symptom is produced in an (unconscious) endeavour to arrest the progress of regression, which regression may ultimately be such that the patient may indeed lead a vegetative existence. In other words, the various intermediate processes of staying the progress of the disease have been tried and found to be ineffective.

If the psychodynamics of Cardiazol therapy be as already described, then the effectiveness of the therapy is in producing an intermediate symptom - a phobic anxiety associated with the Cardiazol situation. In cases who "recover", the production of this symptom would seem to provide a sufficient contact with reality to enable the recovering patient to build upon until their normal contact with reality is reachieved. Particularly is this evident in the manic-depressive group of insanities where the regression is effectively stopped at the depressive or the manic stage, and that further regression, while it does occur, is uncommon.

Now it is a commonplace that depressive or manic symptoms are often a feature of schizophrenics

before the ego-disintegration reaches its ultimate and extreme degree. That paranoid, obsessive or obsessive-compulsive and hysterical symptoms are often present in many cases is also recognised. Indeed, it is not uncommon to find in a disintegrating schizophrenic depressive, manic, paranoid and obsessive features co-existing or rapidly alternating with one another from day to day or even from hour to hour. Indeed, such features may occur almost simultaneously in an example of their speech content. In other words, in considering the case of a disintegrated schizophrenic who leads a vegetative existence, these intermediate defences have failed to arrest further disintegration: they are merely temporary and inefficient brakes on the downhill course towards the polymorphous level: they have been tried and found wanting.

The relapses which so frequently occur in my experience after an improvement or even remission are eminently explicable if the foregoing theory of the gradual process of insanity be adopted. All that treatment does is to produce a defence mechanism, a phobic anxiety associated with the Cardiazol situation, which provides the patient with a better reality sense which

is in some cases a foundation on which to build a still further sense of reality. At the same time, it was a stone which previously was able to bear mental stress only for a short time. It is not surprising, therefore, that this phobic defence mechanism should, in its turn, give way and a relapse occur into the psychosis. This has been my almost invariable experience in those cases where the abnormal mental state showed any degree of chronicity.

If one adopts the viewpoint that the symptoms of patients suffering from mental disorders are defences against an underlying primal anxiety which is stirred up by the precipitating factors of the illness, then it is further obvious why Cardiazol treatment should cause the production of a phobic defence mechanism. Before treatment is begun, this anxiety is effectively or, at least, in great part allayed by their symptoms - collectively constituting their mental state. The addition of further primal anxiety due to the experiencing of the aura must therefore be dealt with by defence mechanisms not in use or, alternatively, to reinforce those already in use.

The adoption of such a viewpoint also explains why, when treatment is no longer being given, this

phobic situation is given up - there is no longer any need for it since primal anxiety is no longer being experienced.

Such a view, in its turn, explains why, in those cases who relapse, further improvement should occur with further treatment and why such improvement should in those cases chronically insane give place to further relapse.

Lastly, it explains the intense fear reaction shown by many disintegrated, or almost wholly disintegrated, schizophrenics - their capacity for the production of defences against anxiety outside their extremely regressed mental state is nil. The only course open to such cases is the obvious one of avoiding the circumstances which give rise to further anxiety: hence the unseemly struggles often met with before the injection can be given. Taking this as indicative of their psychic incapacity to deal with anxiety, I now cease treatment in those cases who show such extreme resistance: experience has shown me that in such cases the prognosis is extremely poor.

While thus stressing at length the production of a phobic situation regarding treatment as a very

important factor in procuring an improvement or remission of the mental illness, at the same time I am cognisant that other intermediate mechanisms may play a part in addition. I am of the opinion, however, that the part played by these is small. One occasionally meets paranoid reactions. Case 118, for instance, as well as revealing a paranoid attitude to his fellow patients and the attendants, accused me, among other things, of "using other people's urges and surges" in order to obtain mastery over them: and, gripping me by the shoulder on one occasion, ordered me out of the ward saying that I had no right to be there - all this occurring in a man who, before treatment was begun, employed his livelong day standing in the lavatory and apparently looking out through the window pane, even although this had been blackened out in the course of A.R.P. precautions, a man who would not converse spontaneously and whose monosyllabic replies to questions were frequently accompanied by purposeless smiling.

Similarly, manic reactions are also occasionally demonstrated by a patient under treatment. The same case, for instance, in his third week of treatment, passed into a manic state in which he reported that

wonderful things were happening to him and that people were curing him. After a temporary relapse, an even more manic state became apparent and in which pressure of talk was very conspicuous. This manic attack was, in its turn, succeeded by the paranoid state above mentioned in which he also attempted to interfere with the administration of the treatment to other patients. A depressive reaction was shown by Case 111, a disintegrated schizophrenic, who now asked to be allowed home in order to commit suicide by drowning in a lake.

Again, reference has already been made to protests made by the patients against treatment on the mornings when treatment is to be given in the hope of avoiding it - headaches, sickness, pain in various parts of the body. I am with further experience now convinced of the genuineness of such complaints, which I was not hitherto, but I am equally convinced of their functional nature: accordingly, it is difficult to escape regarding them as conversion (hysterical) symptoms, just as the intense fear and unseemly struggles mentioned a few paragraphs previously are "panic" reactions of a "hysterical" type to a danger which threatens to overwhelm them and against which they have no defence. Plunging through

the ward window heedless of the splintering glass, or attempting to dive through a locked door, are typical panic reactions and are directly comparable to e.g. a panic reaction of a patient of mine, not included in this series, who when exposed to dive-bombing attacks at Fort Gallabat, Abyssinia, panicked and in his panic and mad scramble, he knew not whither, ran out exposing himself to the concentrated fire of his own guns.

The unseemly struggles and panic reactions of some patients under treatment lead to the consideration of the aesthetic aspect of Cardiazol therapy, a consideration that invariably confronts one in witnessing the immediate effects of the therapy for the first time, arousing, as it does, repressed conflicts concerning one's own sadism. I have known, for instance, of a probationer nurse in a general hospital who was compelled to leave the other nurses, myself and the convulsing patient and make her way in a half-fainting condition to the duty-room where she became tremulous and weeping for a considerable time thereafter: and a P.T. company sergeant-major, whose job it was to make men still more manly, who was unable to bear the sight of any more than the first few movements of a convulsion because of the sudden onset of

sickness. In the same connection, I am of the opinion that it was unresolved conflicts over their own sadism that lead earlier investigators into this method of treatment to draw up a list of contra-indications to treatment (e.g. heart disease or arterio-sclerosis, kidney disease, etc.) upon purely theoretical grounds: they would appear to have been restrained by their own sadistic phantasies of death or disability resulting - since subsequent investigations have shown, e.g. section 4 of this thesis, that there are no such contraindications in practice.

The question of arousing repressed conflicts over one's own sadism is an important one: I have arrived at this conclusion by the points previously mentioned as well as ascertaining the opinion of my colleagues and other investigators into this method of treatment that I have met from time to time. Satisfactory resolution of this conflict is achieved by some, and, in others, an interest in convulsive treatment is early stifled by sadistic phantasies of the fatal consequences which might ensue to the patient. This attitude has been excellently described in a work previously quoted from (41): "He had fallen in an epileptic fit. As is well known, these fits

occur instantaneously. The face, especially the eyes become terribly disfigured, convulsions seize the limbs, a terrible cry breaks from the sufferer, a wail from which everything human seems to be blotted out, so that it is impossible to believe that the man who has just fallen is the same who emitted the dreadful cry. It seems more as though some other being, inside the stricken one, had cried. Many people have borne witness to this impression: and many cannot behold an epileptic fit without a feeling of mysterious terror and dread".

Even, however, when one has satisfactorily disposed of one's own sadistic problems concerning treatment (usually by adopting the viewpoint that the treatment, however horrible it may seem and however objectionable it may be to the patient, yet it does do the patient good), one is left with the consideration of whether the needle and attached hypodermic syringe with its contained convulsant solution is anything more than a refinement of some methods of therapy practised in more remote days when dipping in the pool, chains, starving and flogging (76) were accepted methods of restoring to the unfortunate victim a lost sense of reality. The same similarity has struck other investigators (77). Here again the common

element between these methods of treatment and Cardiazol is the presence of fear.

As already stated, I have worked in circumstances where, owing to lack of proper accommodation, new admissions were intermingled with cases undergoing Cardiazol treatment. These admissions have thus been apprised, even before they were interviewed for the first time, of the unpleasantness and terrors which may be attached to treatment. In these circumstances, I have found that in not a few cases their first words to me were to the effect that they felt much better since coming into hospital and that nothing more active was required by them in the way of treatment than a return to their unit where, they were now convinced, they would be perfectly able to function as efficient soldiers. Not a few cases stated specifically that they had never at any time cared for injections - and all this almost before I had time to ask them their name and designation. In other words, the possibility of a treatment which had associated with it dread and anxiety was sufficient in itself to produce a new adjustment to reality. In these cases, I could not help but be reminded of a child who knows it will receive a spanking if it were known it had been guilty of a misdemeanour.

In another case when I reinterviewed a patient who professed to no improvement in the interval, I mentioned in no threatening way that, since this was so, it was time that I began treatment: but I made, however, no specific reference to injections. Thereupon, there was a complete change in his previous attitude of wanting to be quit of the Army. He now asked for a few more days in order that a slight change which, he now said, he had noted in his condition might be allowed to take effect: and then, he said, he would again be fit to do the simple menial tasks previously demanded of him at his unit. I have also known an orderly whose understanding of mental illness was grossly limited by his own neurotic state threaten, until his practice became known, the more intractible of the patients under his care that if their behaviour did not improve they "would get the needle". Once more, the similarity to the threat of a spanking was very noticable.

I do not believe that such facts as these can be justly ignored in attempting to estimate the manner of working of Cardiazol treatment, nor yet do I believe that, in holding such views, it is in any way a reflection on one to employ a scientific refinement, a rationalisation

of the aforementioned methods of treatment in use in less enlightened days.

In expressing these beliefs, however, I am not in any way attempting to deprecate the undoubted value of Cardiazol therapy nor am I attempting to set at naught those good results which have been obtained by others including myself into this method of treatment.

It will have been observed that, if the psychodynamics of Cardiazol therapy be such as I have described, successful treatment would presuppose the continuance of the displacement of the anxiety effected by the patient when the patient is returned from hospital to the environment in which his psychosis or psychoneurosis first manifested itself. Such a state of affairs actually obtains. Like the fear and anxiety associated with treatment, this anxiety is not always gross and obvious in that the somatic concomitants of anxiety are continually manifest. But, as has been previously shown in the section dealing with fear and the aura, these concomitants can, in cases who respond successfully to treatment, be easily re-evoked without any special effort to that end on the part of the physician when e.g. patients return to hospital for an electrocardiographic check-up,

or, again, as in the case of the ticket collector already described. Also, I believe that the changes in blood-pressure sometimes observed after treatment, changes hitherto unexplained on somatic grounds alone, are psychosomatic manifestations of the continuance of this anxiety state. That anxiety states can have the effect of raising the blood-pressure and that psychotherapy is effective in reducing the latter has been demonstrated (78, 79).

Further, if the psycho-dynamics of Cardiazol therapy be such as has been described, then it follows that any improvement that may be forced upon the patient by Cardiazol treatment is at the best a very superficial one. Not only is the primal conflict which originally permitted or made easy the production of the present mental illness still unsatisfactorily resolved, but the unsatisfactory resolution which has been brought about by treatment through the reinstitution of repression is still liable to become unresolved when, after dismissal from hospital, the patient once more encounters mental stresses too great for him to bear. He will once more react to these stresses when the repression has again broken down by the production of a psychosis or

psychoneurosis - the only, and socially unsatisfactory, way out of his difficulties of which he is capable.

The varying degrees to which patients are able to withstand these stresses after dismissal and the varying times before their possible return to hospital are thus not in any way indicative of the comparative effectiveness of Cardiazol treatment in individual cases. They are merely indices of individual powers of repression, the magnitude of the precipitating factors, the extent of fixations, the ego-formations and phantasy-constructions - factors which are ordinarily in the literature relating to Cardiazol seldom taken into account in the estimation of the effectiveness of the therapy in mental disorders. These factors would seem to me of even greater significance than the one usually given, namely, the duration of the mental state, which is itself dependent upon these factors, and would explain the varying results of treatment which are reported.

From the foregoing, it will be correctly concluded that I am sceptical about labelling a patient who leaves hospital and is able to pursue a social existence in an environment to which he was previously accustomed as "cured" or "recovered" as a result of treatment. To

be either implies the removal or radical alteration for the better of a pathological state, and, at the most, I believe the patient is only entitled to be labelled as "remitted". Fundamentally, as stated previously in other words, there is no evidence that the unsatisfactory solution to the original and now unconscious conflict which primarily permitted the present mental breakdown is in any way solved anew in a satisfactory manner or in any way suffers any important alteration. There is no evidence of the appearance of new character traits or reaction-formations which were not demonstrable or could not be implied in the patient before the advent of his mental breakdown. Otherwise, the appearance of such traits would indicate an alteration in the libidinal drives, which would be a profound alteration indeed. On the contrary, all that appears to occur is that repression which from its previous incompleteness permitted the production of symptoms has again become complete with the consequent disappearance of these symptoms.

The question of possible alteration of libido dispositions brings one finally to the consideration of the various alternate hypotheses of a psychological character which have been advanced to explain the beneficial

effects of Cardiazol therapy. I have purposely left the consideration of these hypotheses to the end of this section of the thesis to avoid confusion and so that I might easily refer back to points which, in my opinion, refute them.

The most obvious hypothesis would be to equate the mechanisms of the normal convulsion of idiopathic epilepsy and the convulsion as produced by the administration of Cardiazol, and to impute to the latter the same function as to the former, a method of discharging the sadism aroused by the frustration of an unconscious conflict (80).

Although, in physical comparison, the convulsion of idiopathic epilepsy and that produced by the administration of Cardiazol have many things in common (though even here there are slight but unmistakable differences, such as the rapid fluttering of the eyelids and the anomalous areas of erythema with goose-skin phenomena which are not found in idiopathic epilepsy), from the mental point of view there are marked differences. With Cardiazol, there is invariably a dread of treatment. This state of mind is, as a rule, absent in cases of idiopathic epilepsy, the fit in the latter being

at the most a source of annoyance. Quite commonly, also, in idiopathic epilepsy an aura is absent or, when it is present, is seldom perturbing. I have never met an epileptic who was filled with such apprehension at the aura associated with an impending fit that he was driven into a veritable panic of anxiety. Indeed, the mental state of an epileptic before a fit is usually one of querulousness and cantankerousness directed outwards towards his environment.

Considering these facts and the additional one previously mentioned that epileptics may actually benefit from a course of Cardiazol treatment, there would thus seem to be an additional factor than might be suggested by the theory that the Cardiazol convulsion represents a sadistic discharge whereby the patient is relieved of anxiety. Again, as between Cardiazol and other convulsive treatments, the only thing common to the epileptic treated with Cardiazol and a patient so treated but suffering from another insantiy is the presence of anxiety associated with the aura.

It has been argued that, from the psychological viewpoint, the epileptic during a fit undergoes death and rebirth (81) and that the euphoria often demonstrated

by a Cardiazol patient after a convulsion and before normal rapport with his surroundings is re-established indicates that the patient is experiencing the joys of being born again (24). Certainly the physical state of the patient which is often to be seen just as he is recovering consciousness after the convulsion is remarkably like the terminal phenomena to be seen in a normal labour when the baby is actually being born (extension of the head, arms extended and pressed close to the sides, the first few halting gasps of the still cyanotic being and perhaps urination and defaecation), but the inapplicability of the term "rebirth" to the mental state of the patient is, however, obvious since, more often than not, the regaining of consciousness brings forth phenomena quite alien to the newborn save perhaps the sucking movements of the lips and the possible incontinence.

With regard to the patient's mental state after the convulsion, in the sub-section relating to fear and anxiety in treatment, I have cited various cases where this fear was even then present and was terrifying - "It was the feeling of being absolutely terrified, I wanted to scream but it wouldn't come out". Again, Case 159 felt during the same period that she had no soul

Such cases could be considerably multiplied, and such cases refute to my mind the hypothesis of mental "rebirth" as the factor to be considered in any improvement shown. All patients, on this theory, experience death and rebirth with treatment, yet it remains to be explained why they do not all show recovery. To my mind, the introduction of the term and theory of "rebirth" merely serves to obscure the issue, for it introduces a metaphysical term having little associated scientific exactitude, and it attributes to this undefinable phenomenon of "rebirth" the further phenomenon of euphoria as a consequence of the former. In my experience, euphoria is of very infrequent occurrence as an immediate post-convulsion phenomenon.

Further, from the purely practical point of view, the term "rebirth" is obviously inaccurate. The babies I have seen or have myself delivered did not impress me as being in any way happy or euphoric. Indeed, evidence of such a mental state is not usually forthcoming until they have emerged from the vegetative state at the end of a varying period of months and give indication that they are then possessed of some objective-reality sense. It is difficult indeed to ascribe to

"rebirth" anything but a symbolic meaning, as a symbolic separation from the mother, as a symbolic separation from the objects one previously valued. Even then, there is no evidence forthcoming that such occurrences occur under treatment. As already mentioned in the action dealing with fear and anxiety, there is fairly often an actual verbal appeal on the part of the patient to an absent mother.

From the temporal aspect, I have observed that euphoria during treatment may arise in two different sets of circumstances. It may appear infrequently during the period of immediate post-convulsion amnesia before the patient has had time to re-establish normal rapport with his surroundings and thus before he can be reminded of the conscious repercussions of his psychic conflict: as a consequence he feels elated. Secondly, the euphoria may appear during the period of mild confusion and lasting amnesia of one or two days' duration previously referred to, during which period, as was already demonstrated, repression is being re-instituted, and the euphoria is then merely the result of having been permanently relieved by this repression of these conscious repercussions of his psychic conflicts: again, he feels

elated. For these reasons, I believe it unnecessary to employ a hypothesis to explain facts already and, to my mind, more satisfactorily explained.

The theory of a readjustment to reality made by the patient consequent upon an "assault on the person" (82) has the commendation of being a common sense view of treatment. It has the advantage of sounding considerably more scientific than my own "spanking given to a recalcitrant yet not incorrigible child", but, like it, takes no cognisance of the basic psychological factors at work to explain how this assault on the person may be instrumental in effecting an improvement in a mental state or to explain why some patients so assaulted should improve and remain well, or why others should not improve, or why, if they have improved, should relapse.

Lastly, there remains for consideration the theory implied in Schilder's paper already referred to, namely that there is as a result of treatment a deviation of libidinal trends towards the adult heterosexual level of development.

It is a commonplace that in those afflicted with mental disorder, either psychoneurotic or psychotic, the sexual life lead by the patient differs, often very

markedly, from that lead by a mentally healthy adult. Impotence and frigidity are common with regard to the sexual act itself, and actual coitus is often associated with strong guilt feelings, to such an extent sometimes as to cause coitus to be entirely rejected. Complete indifference to the other sex, homo-sexuality and masturbation are often met with. Rape and bestiality occur. All these activities are indicative of the failure of development of the sexual instinct to the normal adult level.

Now in the stage of post-convulsion confusion it is very noticable that while manifestations of pre-adult libidinal activities are the rule, manifestations of adult libidinal activities are quite absent. Indeed, it is difficult to interpret such behaviour as beating the external genitals, or tugging at the penis and scrotum while expressing frank astonishment that they would not come off, as anything but indicative of an actual renunciation of the adult sexual level. One may therefore with some justification regard the post-convulsion behaviour as evidenced by the patient as indicative of the stage at which his libidinal drives became predominantly fixated, thus preventing his attainment

of the adult genital level, and the occurrence of one or more types of post-convulsion behaviour is merely indicative of a second fixation point occurring during libidinal development (74).

I have met with two apparent exceptions to the above rule in Cases 185 and 186. In these cases, both males and in one of whom it occurred several times, the post-convulsion behaviour after showing oral features passed into that in which, lying on their faces, they went through the motions of one having normal sexual intercourse, and in one of the two cases a seminal emission resulted. Apart from the fact that a seminal emission is of comparatively frequent occurrence after a convulsion, a little less frequent than urinary incontinence, the fact that in both cases mentioned there was no sexual partner causes their behaviour to be relegated immediately to a masturbatory category, even assuming that the masturbatory activities of both patients were accompanied by coitus phantasies - as is not infrequently the case when masturbation occurs quite apart from Cardiazol treatment. Further, in one of these cases, his careful and surreptitious looking around the screens for possible witnesses before abandoning himself completely

to his activity, was indicative of the extent of his guilt feelings associated with his activity. The histories of both cases also supported the fact that the heterosexual level had never been attained - complete indifference to the opposite sex in the one and, in the other, either emission before penetration or ejaculatio praecox.

The foregoing facts in connection with these two foregoing cases would seem to dispose of the theory that the beneficial results that may follow upon Cardiazol therapy are due to deviation to the adult sexual level of previously fixated libidinal drives, as also does the after-history of a few cases who were able to be followed up from that aspect and in whom no radical alteration in the sexual behaviour was noted.

However, as previously indicated, I am not denying that such a deviation may arise from a prolonged analysis of some years' duration when Cardiazol treatment was terminated. But it is impossible to afford such to the ordinary mental hospital patient even assuming that, as is rarely the case, the mental state of the patient was such as to desire and permit of it.

Summary. The various phenomena exhibited by a

patient undergoing Cardiazol therapy are not isolated events to be considered singly. On the contrary, these phenomena are interdependent and a psychological relationship can be demonstrated to exist between them.

Following upon the administration of a large sub-convulsive or convulsive dose of Cardiazol to a psychotic or psychoneurotic patient, there is experienced an aura which is related to the psychogenic factor or factors concerned in the production of the mental illness. The aura experienced is of a terrifying nature and it is productive of intense anxiety on account of the utter helplessness which the patient feels in the face of the aura. The anxiety experienced is akin to or identical with primal anxiety.

In the case of a large sub-convulsive dose, this anxiety gives rise to much agitation on the part of the patient and may last for hours. In the case of a convulsive dose, the anxiety is abruptly terminated by the onset of the convulsion.

Immediately following upon the convulsion, there is a variable period of amnesia. The qualities of this amnesia make it similar to a fugue, and it is psychologically perpetuated, its function being to ablate

the recollection of the aura. The duration of this amnesia can be used as a prognostic sign, the eventual mental recovery being proportional to the shortness of duration of this amnesia.

Immediately following upon the convulsion and during the amnesia there occur certain types of behaviour which are indicative of the libidinal levels achieved by the patient on the way to the adult sexual level of development, signs of the attainment of which latter are absent in these cases.

Following upon the regaining of normal rapport with his surroundings, there develops in the patient a dread of treatment consequent upon what he is able to recollect of the aura and the anxiety associated with it. This anxiety and dread may not manifest itself directly. On the contrary, it may even be denied by the patient only to show during the amnesic period of subsequent convulsions or during sleep and dreams.

Following upon the experiencing of this anxiety, there results a displacement to the Cardiazol situation of the conscious repercussions of the psychic conflict or conflicts which engendered the mental illness of the patient. This displacement of anxiety is similar to the

formation of a phobic situation. The displacement so occurring has, in those patients in whom this phobic situation can be effected, an eminently beneficial effect on the mental state of the patient, thereby enabling him to become unaware of the psychic repercussions of his illness through the reinstitution of repression.

The reinstitution of this latter is evidenced by such things as the lasting amnesia, distinct from the immediate post-convulsion amnesia, in which are forgotten certain things between which and the patient there previously existed a strong, affectively-toned relationship, this relationship occurring as a consequence of his mental illness. The occurrence of such an amnesia is thus to be regarded as indicative of mental improvement.

There may occur during a course of treatment behaviour changes at first sight indicative of a worsening of the patient's mental state, but which prove on enquiry to be indicative of the exact opposite.

The improvement of a patient under treatment is dependent upon his ability to master, by the disposal of the anxiety in the phobic manner described, the anxiety experienced as a result of treatment. In patients such as schizophrenics with a fundamentally poor psychic

development no such ability exists or, if it does exist, is minimal in degree, and thus little or no improvement follows. On the other hand, in patients with a fundamentally good psychic development, such as manic-depressives, the ability to master the anxiety exists, and good improvement or a complete remission of symptoms occurs. The varying responses to treatment of insanities other than schizophrenia and manic-depressive is explained by the preponderance of schizophrenic or manic-depressive features and thus of the ability to master anxiety.

The continuance of the improvement in the patient's mental state is dependent upon the continuance of the phobic anxiety concerning treatment. Post-treatment evidence of the existence of this phobic anxiety is forthcoming when the patient is reconfronted with circumstances previously associated with Cardiazol treatment. It may also be evidenced in the psycho-somatic sphere by such things as excessive sweating or by changes in blood-pressure.

S E C T I O N 3

ANOMALOUS CARDIAC OCCURRENCES

during

PENTAMETHYLENTETRAZOL THERAPY

In this section it is proposed, firstly, to summarise the results of an investigation conducted towards the study of anomalous cardiac occurrences observed and recorded by me in a series of 85 cases who underwent Cardiazol treatment for various types of mental disorder in the Mental Observation Wards of the Southern General Hospital, Glasgow. The investigation was conducted during my tenure therein as House Physician from November, 1938, to April, 1939, and a continuation of these observations on a smaller scale during the tenure of my successor to these wards until August, 1939.

Secondly, it is proposed to suggest an explanation for the occurrence of these anomalous cardiac occurences, hereinafter referred to for the sake of brevity as abnormalities.

The literature available concerning cardiac abnormalities associated with convulsive Cardiazol therapy was, at the time these investigations were begun, small in amount and number. Von Meduna, the originator of the treatment, stated (5) categorically that he found no evidence of cardiac abnormality clinically, electrocardiographically or by X-ray examination following upon Cardiazol convulsions. Subsequently, however, Lubner (83)

described a case of auricular fibrillation, Dick and McAdam described (84) four cases of cardiac abnormality, and Kennedy (85) one. McAdam later and in a separate paper (86) elaborated on three of the foregoing cases described by Dick and himself, and he suggested, as an explanation for the cardiac abnormalities encountered, a simple exhaustion of the heart muscle following upon the convulsion. Almost contemporaneous with the publication of my own paper (1) on the subject of cardiac abnormalities appeared that of Schmitt (87) who described a limited range of abnormalities, did not seem to appreciate their more frequent occurrence than she describes, and who makes no mention of the acute cardiac dilatation which follows upon the termination of the convulsion.

My own attention was first drawn to the occurrence of these abnormalities by Case 52 who presented the features of heart-block (or what appeared to be so) with extreme bradycardia immediately after the occurrence of a convulsion. I took this as a rare occurrence and regarded myself as fortunate in having observed it, judging from the literature available. However, after its discovery, I practised routine auscultation in all cases before, during, and after the convulsion. As a result, I soon

concluded that the occurrence of these bradcardias and other abnormalities were very much more numerous than the literature on the subject had led me to suppose.

I then decided to investigate the cardiological aspect of all cases treated by me with Cardiazol between the forementioned dates.

The transient nature of the phenomena observed caused me to decide that the investigation could be best achieved by electrocardiographic means. A total of 374 electrocardiograms were taken during these investigations.

It was soon obvious from clinical and other aspects that subsidiary observations were necessary to determine:-

(a) whether or not the abnormalities were due to the administration of Cardiazol per se:

(b) whether or not Cardiazol had any effect either directly or indirectly upon the heart:

(c) whether or not the convulsion was due to the administration of Cardiazol per se:

(d) whether or not the convulsion was due to the sudden entrance of fluid into the circulation.

As mentioned in Section 1 of this thesis, "administered" or "administration" with respect to

Cardiazol should be taken as referring, unless otherwise stated, to the intravenous administration of x c.c. of 10% solution of pentamethylentetrazol buffered with disodium hydrogen phosphate given with the greatest possible rapidity through a Wassermann needle of 2.0 mm. bore.

In addition to these four subsidiary investigations, a confirmatory one was found to be necessary. This was x-ray cardiological examination of patients immediately before, immediately after and five minutes after the convulsion: it gave pictorial evidence of the acute cardiac dilatation which was found clinically in patients immediately after the termination of the convulsion.

A summary of the results obtained with respect to the occurrence of abnormalities is shown in the following tables.

Disease	AGE GROUP IN YEARS										
	16-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-66	Total
Schizophrenia,	3	7 (1)	9 (2)	7 (3)	2						28 (5)
Paraphrenia,					2	1 (2)	1 (2)	2			6 (4)
Paranoid state,						1					1
M.D. (D)			(1)	1 (2)		1 (2)	2 (1)	1 (3)			5 (9)
M.D. (M)							(1)				(1)
G.P.I.,									(1)		(1)
Hysteria,	(1)	(1)		1						(1)	1 (3)
Anxiety Neurosis,				(1)							(1)
Neurosis undiag.,								1			1
Psych.Pers.,	(1)			1		(1)					1 (2)
Dissem.sclerosis,					1						1

Table 1.

Patients who received one or more convulsions during their course of treatment: showing age groups and the disease from which they were suffering. The female numbers are shown in brackets after the male numbers which precede them. The ages shown are the ages of the patients at the time treatment was begun: not infrequently, the age shown in the table was not the age of the patient on admission to hospital.

M.D. (D) = the depressed phase of a manic-depressive psychosis and M.D. (M) = the manic phase of a manic-depressive psychosis. G.P.I. = dementia paralytica. Neurosis undiag. = neurosis undiagnosed. Psych.pers. = psychopathic personality in the sense as defined by Henderson (88). Dissem.sclerosis = disseminated sclerosis.

Disease	AGE GROUP IN YEARS									
	16-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-66	Total
Schizophrenia,	1	4 (1)	6	5 (3)	1						17 (4)
Paraphrenia,						(1)	1	1			2 (1)
Paranoid state,						1					1
M.D.(D),			(1)	(2)		1 (1)	1	1 (1)			3 (5)
M.D. (M),											
G.P.I.,											
Hysteria,	(1)			1							1 (1)
Anxiety Neurosis,											
Neurosis undiag.,								1			1
Psych.Pers.,				1							1
Dissem.scler.,					1						1

Table 2.

Patients who received one or more convulsions during their course of treatment and who were submitted to electrocardiographic examination for the purpose of detecting abnormalities following upon the convulsion.

Disease	AGE GROUP IN YEARS									
	16-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-66	Total
Schizophrenia,	1	4 (1)	5	5 (3)	1						16 (4)
Paraphrenia,						(1)	1	1			2 (1)
Paranoid state,						1					1
M.D. (D),			(1)	(2)		1 (1)	1	(1)			2 (5)
M.D. (M),											
G.P.I.,											
Hysteria,	(1)			1							1 (1)
Anxiety Neurosis,											
Neur.undiag.,								1			1
Psych.pers.,				1							1
Dissem.scler.,					1						1

Table 3.

Patients who received one or more convulsions and who were electrocardiographed and whose electrocardiograph showed abnormality.

Disease	AGE GROUP IN YEARS										
	16-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-66	Total
Schizophrenia,	2	2 (1)	6 (1)	2 (3)	2						14 (5)
Paraphrenia,					2	1 (1)	(1)	1			4 (2)
Paranoid State,											
M.D. (D),				(1)		(1)	2	(2)			2 (4)
M.D. (M),							(1)				(1)
G.P.I.,									(1)		(1)
Hysteria,	(1)	(1)		1						(1)	1 (3)
Anxiety Neur.,				(1)							(1)
Neur.undiag.,								1			1
Psych.pers.,											
Dissem.scler.,											

Table 4.

Patients who received one or more convulsions and who revealed abnormality of cardiac rate or rhythm as detected clinically.

Disease	AGE GROUP IN YEARS										
	16-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-66	Total
Schizophrenia,	2	4 (1)	7 (1)	4 (3)	2						19 (5)
Paraphrenia,					2	1 (1)	1 (1)	1			5 (2)
Paranoid state,						1					1
M.D.(D),			(1)	(2)		1 (1)	2	(2)			3 (6)
M.D. (M),							(1)				(1)
G.P.I.,									(1)		(1)
Hysteria,	(1)	(1)		1						(1)	1 (3)
Anxiety Neur.,				(1)							(1)
Neur.undiag.,								1			1
Psych.pers.,				1							1
Dissem.scler.,					1						1

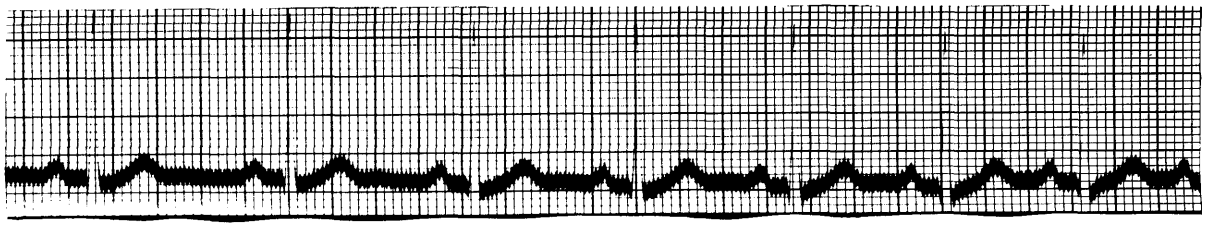
Table 5.

Patients who received one or more convulsions and who revealed abnormality of cardiac rate or thythm clinically or electrocardiographically.

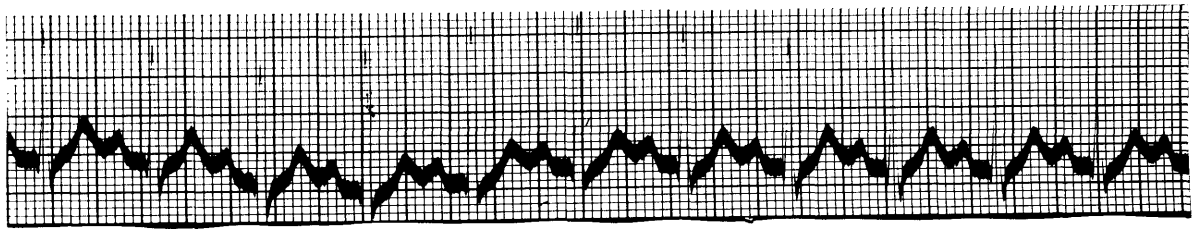
To summarise the salient points of the foregoing five tables in words:- of a total of 85 patients who were treated with Cardiazol therapy, 70 of these patients received as a result of the administration of Cardiazol one or more convulsions during their course of treatment. Of these 70 patients who received one or more convulsions, 51 patients showed abnormality of cardiac rate or rhythm either clinically or electrocardiographically. Of these 51 patients who showed abnormality, 38 were investigated electrocardiographically, and of these 38 who were electrocardiographed 36 showed electrocardiographic evidence of abnormality.

The results of the subsidiary investigations are more conveniently described in the discussion. It is sufficient to say at this point that of the 15 cases who were not convulsed out of the total of 85, only one of these 15 cases showed abnormality either clinically or electrocardiographically following upon the administration of a sub-convulsive dose of Cardiazol.

Electrocardiograms illustrative of the control and subsidiary investigations.

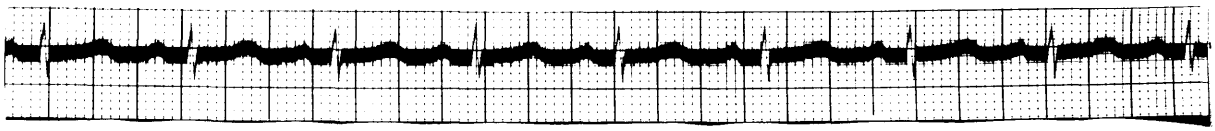


1a.

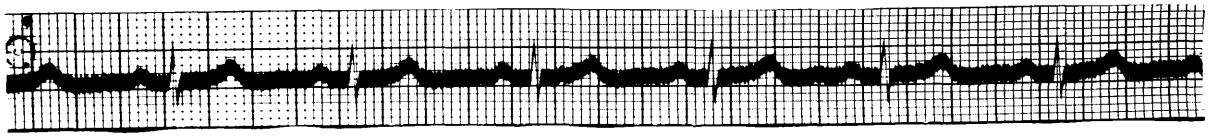


1b.

Fig.1. Control. House-physician, aged 24 years; male, unmarried. Normal mentally and physically. Fig.1(a) taken in the normal manner after he had been lying still for some time. 1(b) taken immediately after the termination of an hour and a half's strenuous exercise. Note the marked difference between the two figures, both Lead 2, particularly the high T and P waves of 1(b) compared with 1(a). The leads 2 were specially chosen for comparison because in them the difference between (a) and (b) was least marked of the five leads used.



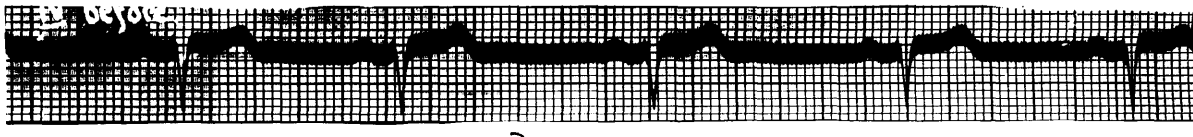
2a.



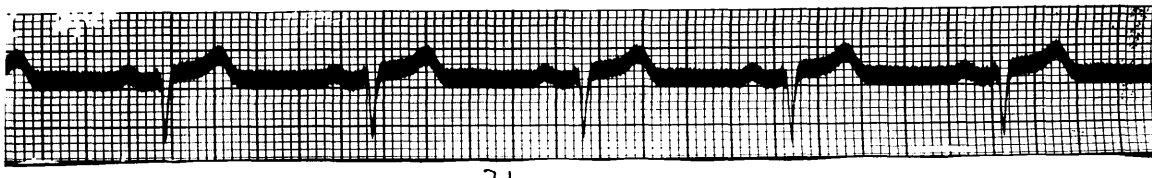
2b.

Fig.2. Case 74. Female, aged 17 years, unmarried. Lead 3 (a) before treatment of any description, (b) after the intravenous injection of 20 c.c. of distilled water in 3 seconds. In interpreting these two electrocardiograms it is necessary to bear in mind that this patient was very excited before receiving the injection which she expected to be

one of Cardiazol and the relief she experienced when "nothing happened" was registered visibly in her features. See the sub-section of Section 2 of this thesis for "Fear and anxiety concerning treatment".

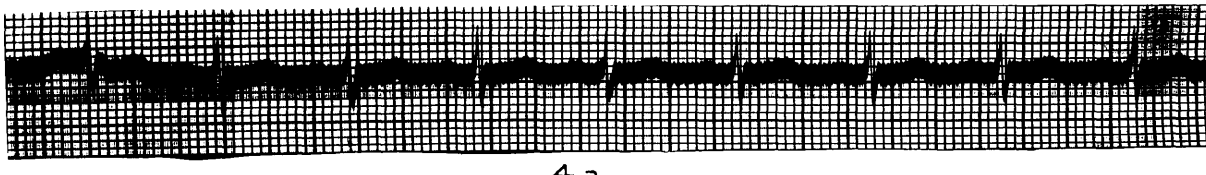


3a.

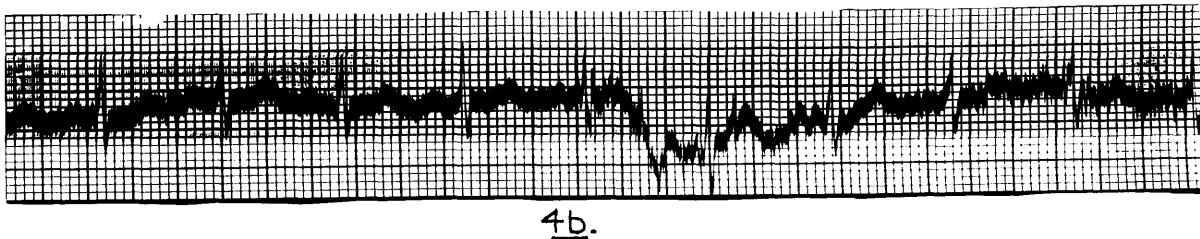


3b.

Fig.3. Control: idiopathic epilepsy. Male, aged 48 years: Married. Lead 4. (a) five minutes before the forty-second major convulsion of a status epilepticus for which he was admitted to hospital. (b) immediately after the forty-second convulsion. Note no essential difference between (a) and (b) save a slight increase in cardiac rate.



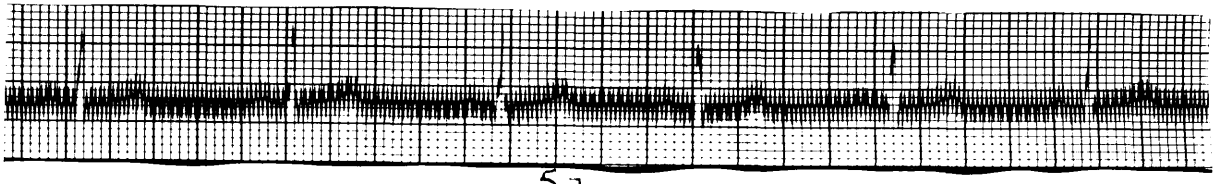
4a.



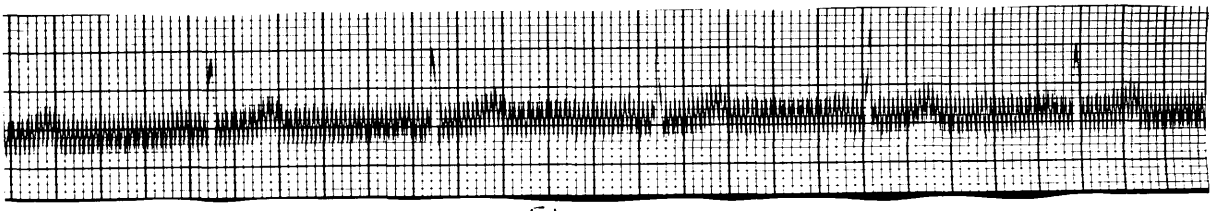
4b.

Fig.4. Case 79. Female, aged 21 years. Married. Lead 2. (a) before treatment of any description (b) after administration of 2.0 c.c. Cardiazol in

less than one second: not productive of a convulsion. Note very slight increase in the rate of Cardiac action.

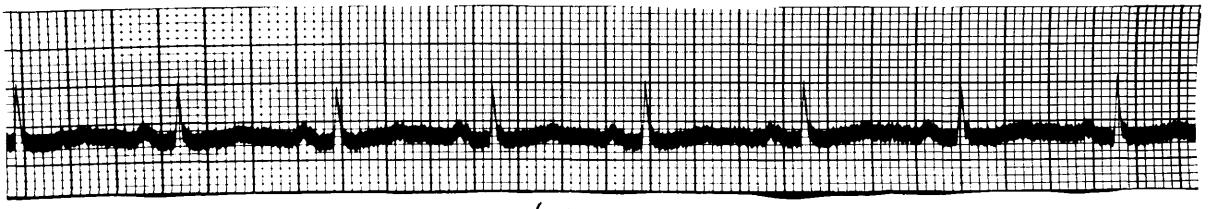


5a.

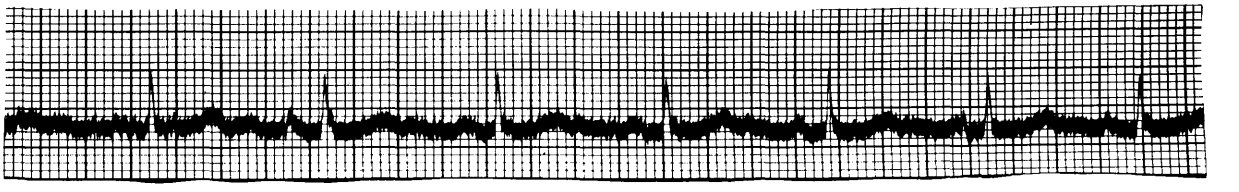


5b.

Fig.5. Case 51. Male, aged 30 years. Married, Lead 1. (a) before treatment of any description, (b) after administration of 2.0 c.c. Cardiazol in less than one second: not productive of a convulsion. Note slight decrease in the rate of cardiac action.

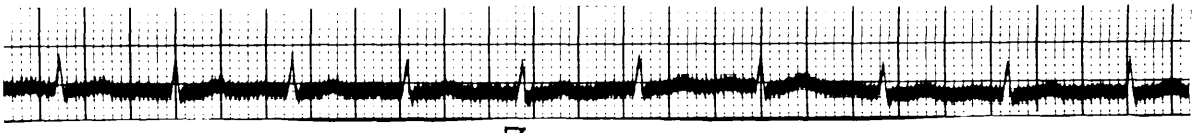


6a.

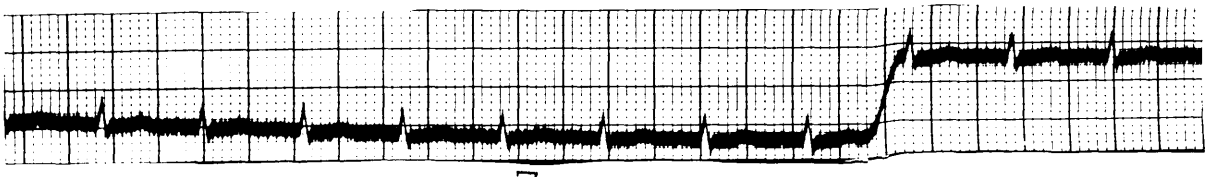


6b.

Fig.6. Case 45. Male. Lead 1 (a) before treatment of any description (b) after administration of 3.0 c.c. in less than 1 second, not productive of a convulsion. Note slight degree of bradycardia produced.

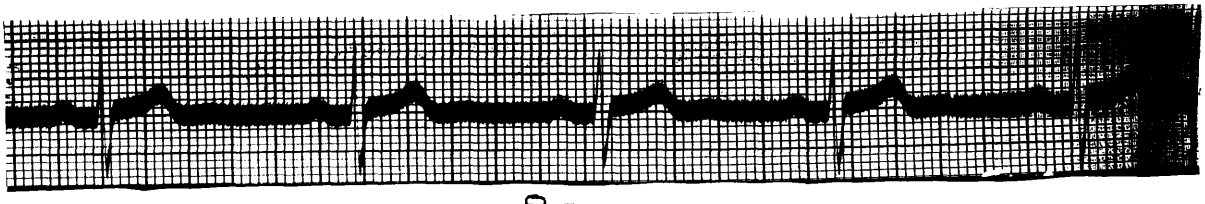


7a.

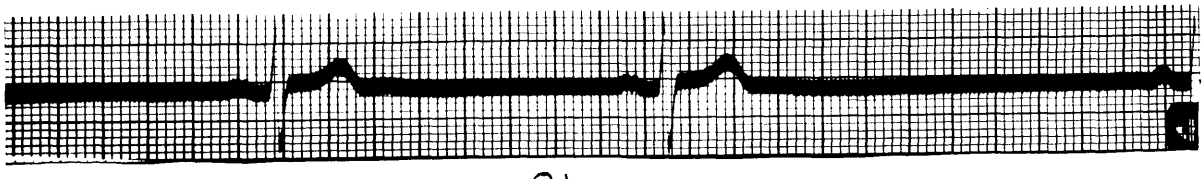


7b.

Fig.7. Case 29. Male, aged 25 years. Unmarried. Lead 2 (a) before (b) after 4.0 c.c. Cardiazol not productive of a convulsion. Note slight degree of increase of cardiac rate in (b).

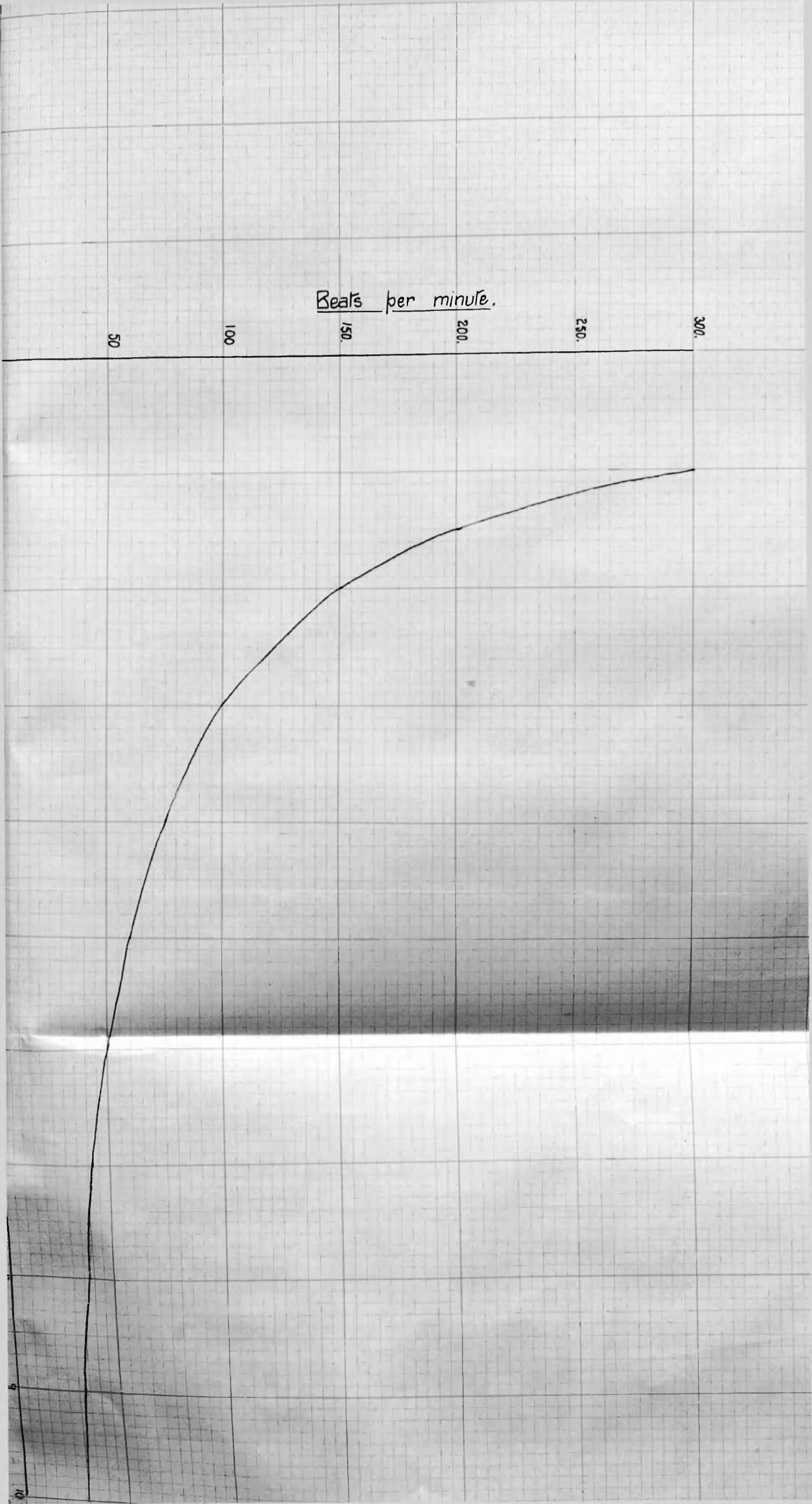


8a.



8b.

Fig.8. Case 73. Female, aged 28 years. Married. Lead 4. (a) before treatment of any description, (b) after administration of 3.0 c.c. Cardiazol in less than 1 second: not productive of a convulsion. Note extreme degree of bradycardia produced with a diphasic P wave, a suggestion of which is present in (a).


Beats per minute.
50
100
150.
200.
250.
300.

Description of the electrocardiographic abnormalities met with as immediate post-convulsion phenomena.

All the abnormalities met with, with one exception to be mentioned later, occurred within five minutes of the termination of the convulsion, particularly in the brief "limp phase" which immediately follows the termination of the convulsion, and, less so, in the period of stertorous breathing with return to consciousness which follows the limp phase. In the case of sub-convulsive doses, the duration of the abnormalities were still more fleeting but they also occurred within five minutes after the administration of Cardiazol.

A description of the convulsion and the various phases and phenomena which constitute it are given in Section 1 of this thesis to which reference should be made. The standards by which the various phenomena encountered were judged to be cardiac abnormalities were those laid down in references (12), (89), (91) and (92).

The evaluation of cardiac rates as encountered electrocardiographically was greatly facilitated by the construction of and reference to the accompanying graph.

For convenience of description, the abnormalities met with were divided into four groups:

(1) Fixed disturbance of rate.

(a) Tachycardias.

(b) Bradycardias.

(2) Irregularities.

(3) Mixed types.

(4) Others, a heterogeneous group.

It should be appreciated at this point that no one of these types of abnormality was peculiar to any type of patient or to any one patient after any one convulsion. Frequently the same electrocardiogram would show tachycardia, bradycardia and irregularity, i.e. it was an example of a mixed type, and it is in this sense that the term "mixed type" is used above.

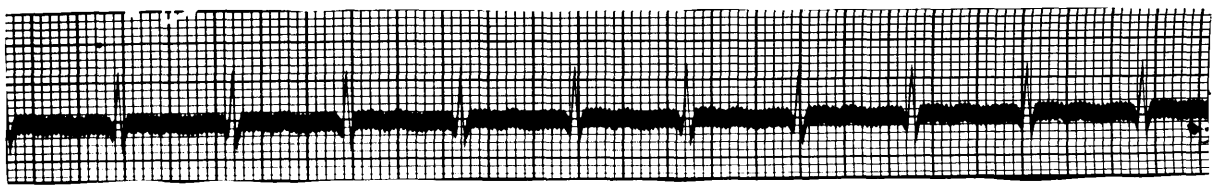
For the same reason, and as will be obvious from a study of the examples given, no exact computation of the numerical incidence of these four types was possible owing to the association of two or more types occurring together. Nevertheless it may be stated that, taken as a whole, examples of groups (2) and (3) preponderated over those of groups (1) and (4).

The following electrocardiograms are representative of the various groups of abnormalities as above described:-

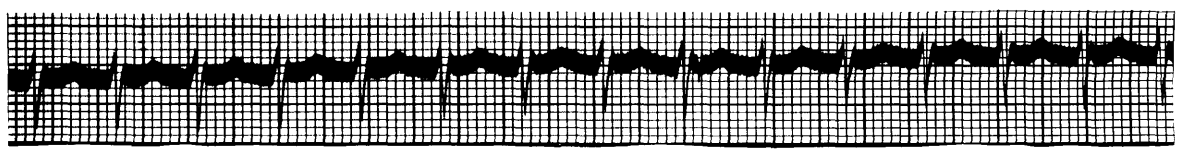
Fixed Disturbances of Rate.

(a) Tachycardia.

Tachycardia (used herein to denote a rate of 150 per minute or over - see reference (89)) may appear immediately after the convulsion, it may follow gradually from a normal rate or its onset may be sudden from a normal rate. When existing alone and apart from any other abnormality the tachycardia was invariably found to be at the rate of 150 per minute save on two occasions, both in the same patient, one of the two examples being given in Fig.9.



9a.

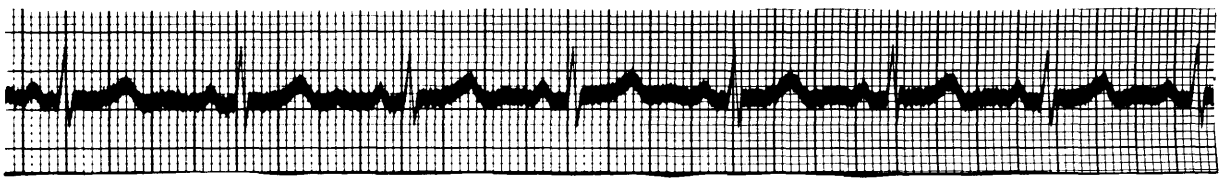


9b.

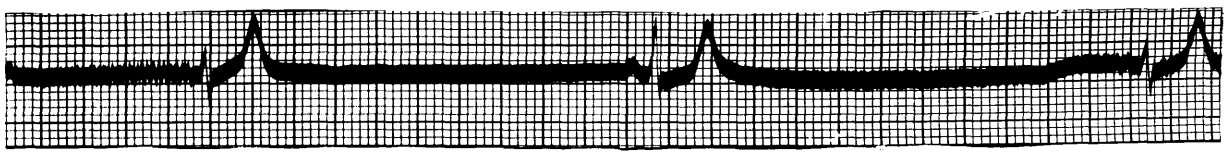
Fig.9. Case 74. Female, aged 17 years. Unmarried. (a) before, (b) after 4.0 c.c. productive of a convulsion. (a) is Lead 1, (b) is Lead 4. Owing to Lead 4 taken before the convulsion being spoiled by tremor it is not available for purpose of comparison. Lead 1 after the convulsion showed tachycardia of exactly 150 per minute.

(b) Bradycardia.

The rate of the bradycardias was found to vary within wide limits; from 25 to 50 per minute. The onset of the bradycardia was usually gradual and its return to normal equally so. It was usually of the sinus type, the stimulus to contraction arising at the sino-auricular node.



10a.

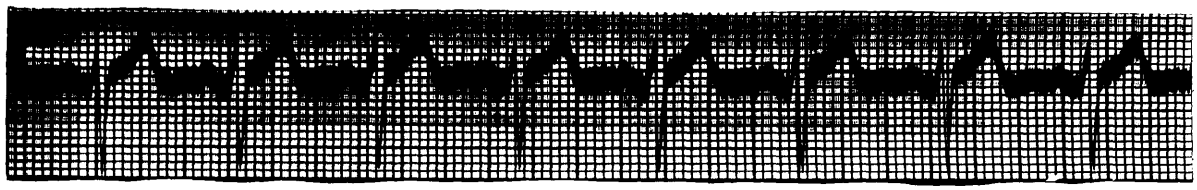


10b.

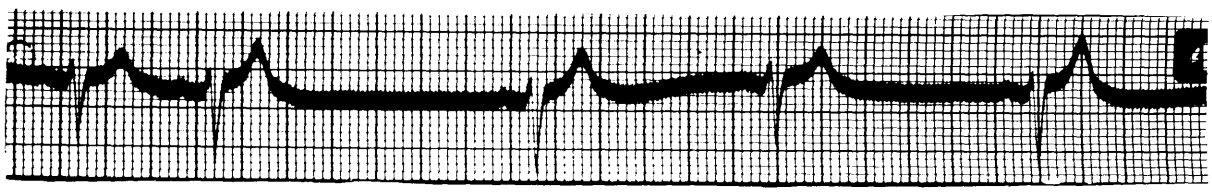
Fig.10. Case 52. Female, aged 43 years. Married. Administration of 5.6 c.c. productive of a convulsion. Lead 2: (a) before the convulsion, (b) after the convulsion. Note the varying amplitude of the R waves and the very high T waves, neither of these phenomena being present before the convulsion.

Irregularities.

Or all the cardiac abnormalities met with after the convulsion, the irregularities were most frequently met with.

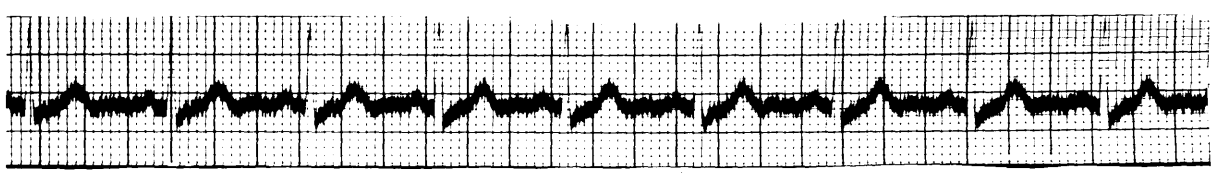


11a.

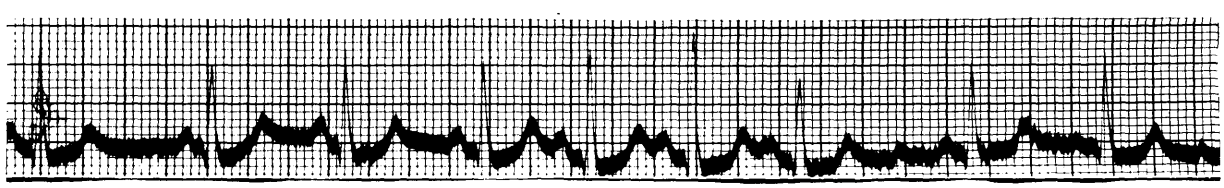


11b.

Fig.11. Case 27. Male, aged 27 years. Unmarried. Lead 4 (a) before, (b) after the convulsion produced by 8.2 c.c. (b) typical sinus irregularity of a slow rate.



12a.

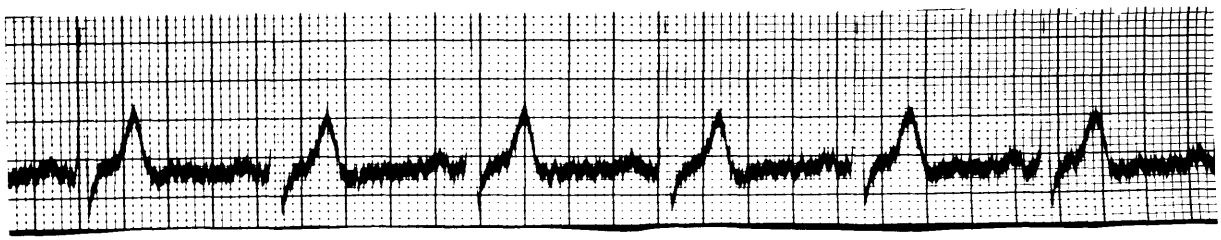


12b.

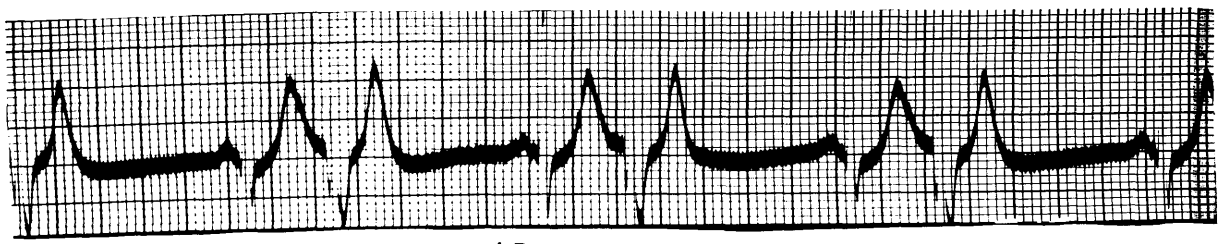
Fig.12. Case 56. Female, aged 30 years. Married. Lead 3. (a) before (b) after a convulsion produced by 8.2 c.c. Cardiazol. Note the fast irregularity of a sinus type shown in (b), the variations in amplitude of the R waves and, towards the end of the record, the occurrence of waves similar to those

obtained in cases of auricular fibrillation as encountered in disease of the heart. Lead 1 showed a slow sinus irregularity of approximately 50 per minute, and Lead 2 a slightly faster irregularity intermediate between the rates of Lead 1 and 3.

When instances of this type of irregularity are encountered immediately after the occurrence of a convulsion and when they are submitted to ordinary clinical examination, the fast irregularly irregular rate and the deficit between the pulse and the cardiac rates that is found makes such cases indistinguishable from cases of auricular fibrillation.

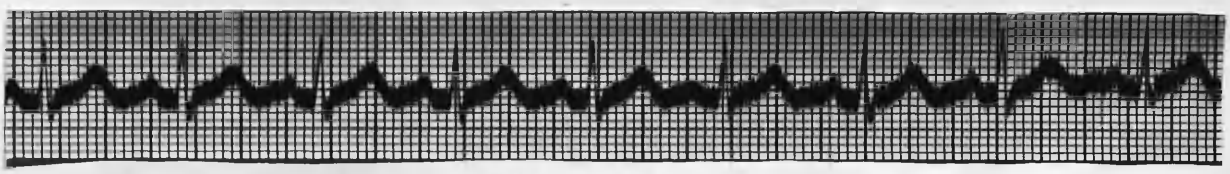


13 a.

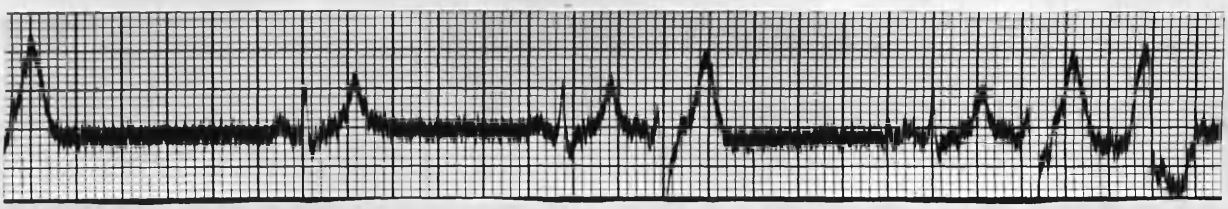


13 b.

Fig.13. Case 67. Female, aged 32, married. Lead 2, (a) before, (b) after a convulsion produced by 9.0 c.c. of Cardiazol and showing coupling of beats. Lead 1 showed a slow sinus irregularity and Lead 3 the irregularity which passes for auricular fibrillation. This case showed cardiac abnormality after each of her preceding 25 convulsions in her course of treatment and, after three of the previous convulsions, there had been coupling of beats.



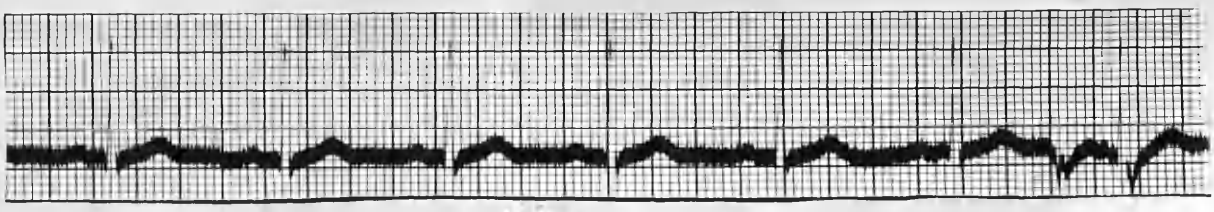
14 a.



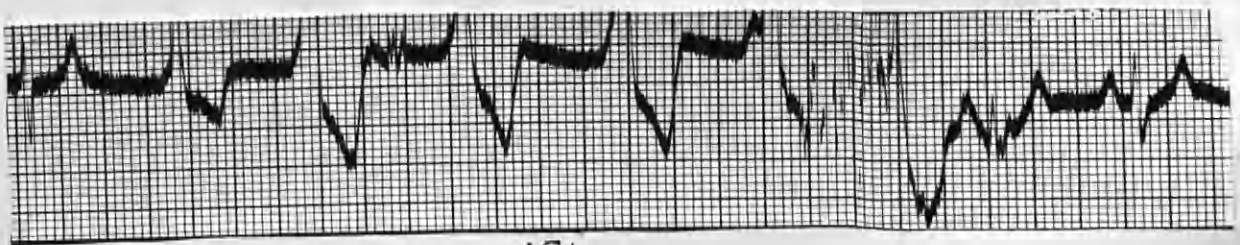
14 b.

Fig.14. Case 27. Male, aged 27 years. Unmarried. Lead 2, (a) before, (b) after a convulsion produced by 50.0 c.c. (5.0 gm.) of Cardiazol administered orally followed in 40 minutes time by the usual intravenous administration of 9.2 c.c. when a convulsion was produced. Note the occurrence of three left ventricular extra systoles the last of which is immediately followed by a right ventricular extrasystole. Lead 1 showed a bradycardia of 40 per minute.

This case is subsequently referred to in the discussion. He had had 11 previous convulsions with abnormality after every convulsion.



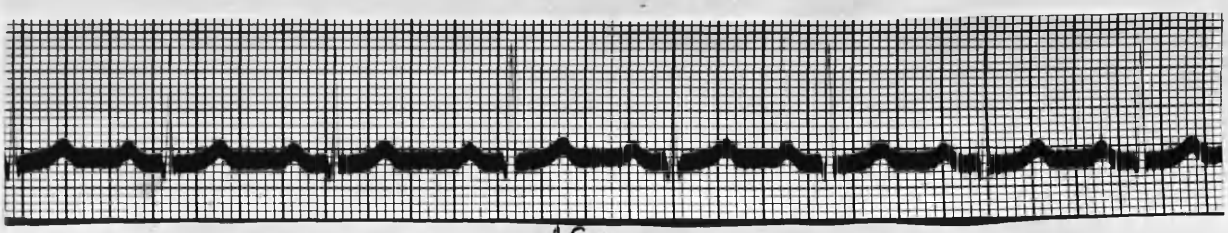
15 a.



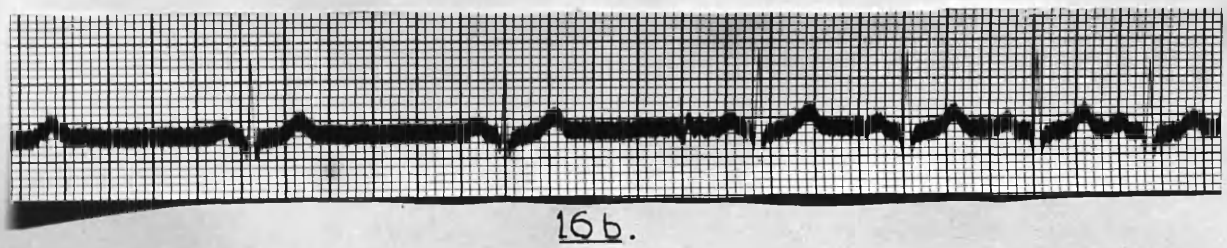
15 b.

Fig.15. Case 23. Male, aged 32 years, unmarried. Lead (a) before, (b) after a convulsion produced by the administration of 10.0 c.c. Cardiazol. Note the shower of right extra-systoles preceded and followed by normal rhythm.

Mixed Types.



16a.



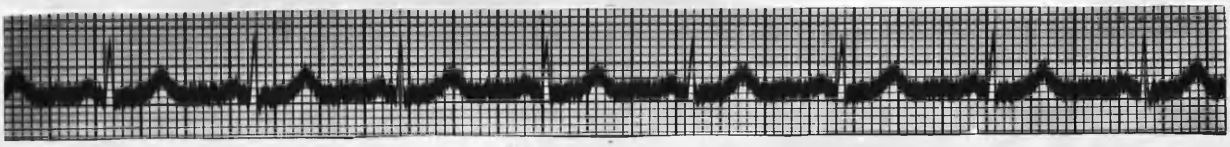
16b.

Fig.16. Case 73. Female, aged 28 years. Married. Lead 2 (a) before, (b) after the convulsion produced by 4.0 c.c. of unneutralised 10% Cardiazol solution. In (b) note the sudden conversion of a moderate degree of bradycardia, also present in Lead 1, into a moderate tachycardia which in Lead 3 attained a rate of 115 per minute.

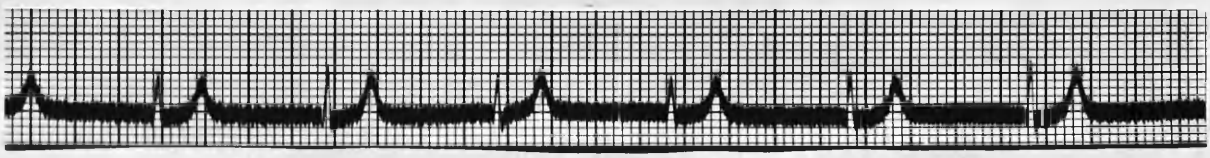
Others.

This heterogeneous group comprised such post-convulsion cardiac phenomena as changes in the shapes and dispositions of the deflections, delay in the appearance of the T wave, splintering of the R wave

(both upstroke and downstroke), change of preponderance e.g. from a left ventricular preponderance to a right ventricular preponderance and vice versa.

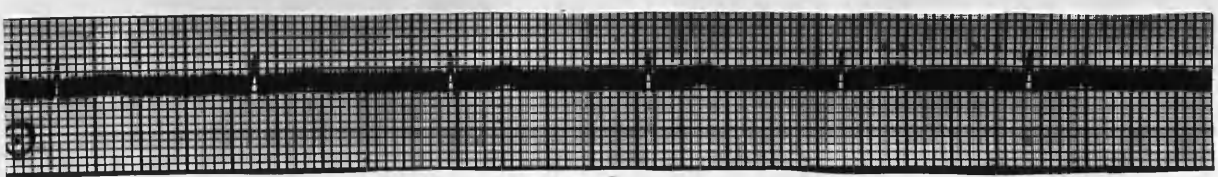


17 a.

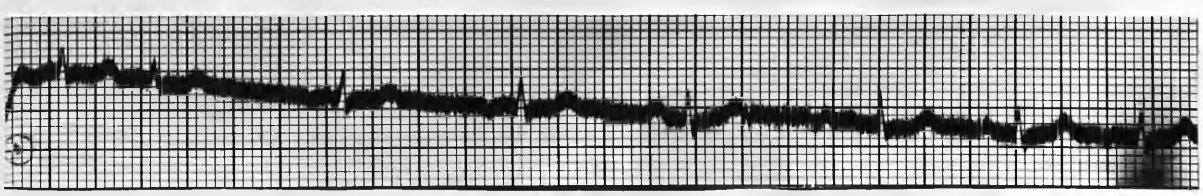


17 b.

Fig.17. Case 67. Female, aged 32 years. Married. Lead 1 (a) before, (b) after a convulsion produced by 10.0 c.c. Cardiazol. (b) suggestive of nodal rhythm with absent P wave. (In all cases treated, this type of rhythm was fairly commonly met with.)



18 a.



18 b.

Fig.18. Case 49. Control. Male, aged 37 years. Married. Lead 3, (a) before treatment of any description, (b) after a convulsion produced by 10.0 c.c. (5.0 c.c. repeated). Note irregularity of rate, also present in Leads 1 and 2, and also the inverted P wave after the convulsion: the reversion to the normal P wave is also seen.

DISCUSSION.

It may be stated generally that, both in cases with normal and abnormal hearts in so far as the latter were encountered in the patients of this investigation (see Section 4 of this thesis), the administration of ordinary "analeptic" doses of Cardiazol produced no effect which is detectable either clinically or electrocardiographically. By an ordinary analeptic dose is meant doses up to 2.0 c.c. of Cardiazol administered intravenously and slowly through a five-bored needle. In that respect, the scepticism expressed by some (11) concerning the reputed analeptic effect of Cardiazol is fully justified. Cardiazol is similarly inefficacious when given by mouth as is subsequently shown.

With regard to 2.0 c.c. doses administered quickly (e.g. in a half to one second or less through a Wassermann needle of 2.0 mm.bore) or to still larger

subconvulsive doses such as 3.0 or 4.0 c.c., it was found that, as is shown in Figs.4, 5, 6, 7 and 8, such doses so administered were productive of no change or a slight acceleration or slowing of the cardiac rate. Further, in all such cases with one exception there was produced as a result of the administration of the subconvulsive dose no irregularity or other cardiac abnormality in the shape or disposition of the P,Q,R,S or T deflections. The exception is that shown in Fig.8 where there was produced as a result of the rapid administration of 3.0 c.c. of Cardiazol an extreme degree of bradycardia which at one point fell to 25 beats per minute; also the same electrocardiogram shows a diphasic P wave.

Before such an electrocardiograph can be interpreted correctly, it is necessary to study closely the manner of action of Cardiazol in so far as it bears a relation to mental disorders.

From the study of the total of 300 patients on which this thesis is based and the administration of 3380 doses, 2307 of which produced convulsions, I am of the opinion that any effect resulting from the administration of Cardiazol is due not to any primary action on

the heart or lungs or to any direct and immediate action on their repsective centres in the medulla oblongata: instead, the primary action is upon the higher centres of the brain. Such an opinion as to the mode of action was based upon the following considerations.

If one discounts as a local action the pain frequently experienced along the course of the vein while the Cardiazol solution is being injected (an observation which leads one to conclude that the veins of the body are acutely sensitive to certain forms of stimuli), then the first reaction to be observed after the administration of the solution are signs indicative that the patient is experiencing the sensation of fear. With no exceptions, such fear is present in every case. Subsequent questioning of the patients reveals that the fear experienced was the result of an aura. This aura and the fear reaction are very fully discussed in Section 2 of this thesis. In other words, the aura is the first of all the reactions of the patient to a dose of Cardiazol. Further, the nature of the aura as was shown in Section 2 of the thesis is such that, in order to explain it satisfactorily, it is necessary to conclude that the higher centres in the brain, either the cerebral

hemispheres themselves or the sub-thalamic area, are being stimulated. It is not until some time after the occurrence of the aura (never less than three seconds as the extreme minimum) that there is to be observed any increase or decrease in the cardiac rate or diminution or deepening of the respiratory excursion or, with convulsive doses, of the occurrence of the convulsion. I have never in the total of 3380 doses administered seen an exception to the above sequence of events, and I believe it to indicate that the primary effect of the Cardiazol is not on the lower neurones, but that, on the contrary, the primary effect is stimulation of the higher centres of the brain with a secondary effect upon the lower centres, which secondary effect gives rise to such phenomena as disturbances of cardiac rate or respiratory excursion.

It is now proposed to take the three phenomena, the aura, the cardiac rate and the respiratory excursion, for separate discussion. Secondly, it is proposed to demonstrate how the three phenomena are or may be correlated.

The aura has already been exhaustively discussed at the beginning of Section 2 of this thesis and reference should be made at this point to the discussion

in that section. It is only necessary to recapitulate and stress again that the fear experienced as a result of the aura following upon a large sub-convulsive dose (3.0 to 4.0 c.c.) or a convulsive dose of Cardiazol is of a most acute and extreme degree: so much so is this the case that the patient may be driven quite desperate, even indeed at the imminence of the Cardiazol injection, and may perform the most frenzied acts to escape from the injection which gives rise to the aura. Examples of such actions have already been cited. Indeed, from the psychological point of view, the fear and anxiety experienced as a result of the aura is the most extreme that it is possible to undergo: such anxiety is called primal anxiety. As previously stated, to describe this fear and anxiety adequately, I cannot do better than to reproduce a passage (32) in which such fear is thus described with keen and exceptionally apposite psychological insight. "La peur ... C'est quelque chose d'effroyable, une sensation atroce, comme une décomposition de l'ame, un spasme affreux de la pensée et du coeur, dont le souvenir seul donne des frissons d'angoisse ... cela a lieu sous certaines circonstances anormales, sous certaines influences mysterieuses en face de risques vagues. La

vrai peur, c'est quelque chose comme use réminiscence des terreurs fantastiques d'autrefois" ...

It is a commonplace that the psychosomatic concomitants of fear fall into two broad groups: that, as an immediate consequence, fear may be reacted to in one of two ways. In the first place, there is the well-known "flight" reaction or "fight" reaction (according to the movements evoked) in which the sympathetic nervous system has predominant control. This reaction is productive of such phenomena, among others, as dilated pupils, increased cardiac action and depth of respiratory excursion. In the second place, there is the less well-known fear which "Paralyses" in which the parasympathetic system has control with the production of such symptoms as bradycardia (the heart temporarily "standing still"), diminished depth of respiratory excursion, a desire to defaecate or an actual involuntary motion of the bowels or bladder. That there is or may be a slowing of the pulse and cardiac rate in people who have been frightened and that people do actually die of fright are matters of common knowledge and have found their way after scientific observation and verification into staid and authoritative text-books of medicine. Sir T.Lewis briefly mentions the subject of

bradycardia as a symptom of a possible reaction to fear (90) and Glaister records a case where a nurse proceeding to the operating table for a trivial operation died of fright (93).

Now, as the rapid administration of Cardiazol to mental patients causes fear, it would be not unreasonable to expect in these cases the phenomena associated with the two types of reaction ("flight" or "paralysis") just mentioned. Such signs are found and, as in normal life, the "flight" reaction with increased cardiac rate and increase in depth of the respiratory excursion numerically preponderates over the "paralysis" reaction with decrease in the cardiac rate and diminution in the depth of the respiratory excursion. I believe this to be the true explanation of these phenomena as they are encountered during Cardiazol treatment of mental disorders. Such an explanation would, in its turn, explain why two entirely different reactions ("flight" and "paralysis") may follow the administration of the same dose of the same drug to different patients, e.g. why in Fig.4 the administration of 2.0 c.c. was followed by a very slight increase and why the administration of the same dose was, as in Fig.5, followed by a decrease in the rate of

cardiac action. Similarly it is explained the differences in response to 3.0 c.c. of Cardiazol as shown in Figs. 6 and 8.

The patient in Fig.8, for instance, after she had received the dose felt (as her aura) that she was being coffined before being killed with the injection, i.e. she believed (she was suffering from depression which would make the holding of such a belief easy) that I had given her the injection with the object of killing her and, impatient at the lack of an immediate result, was coffining her wherein her death would take place. This feeling passed into one wherein she believed herself to be dead. Her resemblance to a corpse was, indeed, a very close one: she was extremely pale, lay motionless, stared fixedly and signs of respiration or other indications of life were not detected visibly as I stood beside the electrocardiogram watching her reaction to the dose. She was an extreme example of the "paralytic" reaction. I have infrequently met similar cases but, unlike hers, the circumstances did not permit of obtaining an electrocardiographic record.

Now further, and paradoxically, when a patient fails to convulse after a large dose of Cardiazol has

been administered, it is desirable from humanitarian as well as from nursing reasons to terminate the patient's mental stress resulting from the aura by giving a convulsive dose forthwith. The patients themselves are appreciative of the same point, and thus is understood the "I'd rather be put away" of Case 138 after she had received a sub-convulsive dose which produced a horrifying aura; she meant by her statement that she had a preference for that dose following the administration of which she remembered no more, i.e. she preferred to have a convulsive dose.

Consequently, the extreme mental distress of the patient whose electrocardiograph is shown in Fig.8 was convulsed with the two further doses of 3.0 c.c. and 4.0 c.c. (10.0 c.c. in all). The electrocardiograph after the convulsion showed no abnormality beyond a slight fluctuation in the cardiac rate ranging from between 50 and 100 beats per minute, i.e. it was an example of type 2 of the abnormalities encountered - the irregularities.

If the extreme bradycardia resulting from the administration of the initial sub-convulsive dose had not been the result of fear as already stated, but if it had been on the contrary a purely somatic consequence of the

administration then it would be not unreasonable to have expected that that administration of further doses totalling 7.0 c.c. in all would have intensified the bradycardia already in existence, just as, to use an analogy, the administration of further digitalis to a heart showing bradycardia as a result of the digitalisation would intensify the effect still further. Such a result, however, did not obtain.

Further, if the sub-convulsive dose of 3.0 c.c. had produced the extreme bradycardia as a purely somatic consequence, then it would be reasonable to expect that the administration of the same dose on a subsequent day would have produced the same result of extreme bradycardia. Yet such did not happen. The repetition two days later of the same dose in the same time produced a cardiac rate which did not drop below fifty per minute as compared with the rate of 65 per minute present before the injection was given. That being so, and if the theory of fear to account for the extreme bradycardia after the very first injection be the correct one, then it would follow that, as the circumstances in which the injection was given were otherwise the same, the fear experienced as a result of the same dose two days later must have been different

in intensity compared with the fear experienced in similar circumstances two days previously. Again, subsequent questioning of the patient showed that this was so: for she stated that the aura experienced on the second day was different as she "was ready for it". In other words, the element of the unexpected had gone and she was thus able to brace herself against a coming ordeal, just as in normal life we do not react to a shock in the same manner when we have warning of its coming approach than we would if the shock came upon us suddenly without warning. This point is referred to in detail in Section 2 of this thesis under the sub-sections dealing with fear and anxiety in treatment and the mechanism of production of the convulsion.

In respect to other causes of bradycardia in the case of Fig.8, such causes as heart-block can be excluded from a study of the electrocardiogram. Similarly the absence of any heart disease before any treatment was begun is also shown, nor were any signs of cardiac disease detected in her initial clinical examination. The existence of a high vagal tone in the patient shown, for example, by a gradual slowing of the cardiac rate from 75 to 60 beats per minute does not vitiate the hypothesis given to explain the extreme bradycardia, as

the stimulus acting on the automatic nervous system causes that part whose action is predominant (the parasympathetic) to manifest itself.

All the foregoing points in the discussion would seem to dispose of points (a) and (b) previously mentioned in connection with the subsidiary investigations, namely, that the cardiac abnormalities encountered were not due to the administration of Cardiazol per se acting directly upon the heart, but that subconvulsive doses administered rapidly may have an indirect effect upon the heart consequent upon the stimulation of the higher centres of the brain (the cerebral hemispheres and subthalamic area) with the production of an aura.

With regard to point (d) i.e., whether or not the convulsion and cardiac abnormalities are due to the sudden entrance of fluid into the circulation, it may be stated that cases were given 20.0 c.c. of distilled water intravenously, the administration occurring under the same circumstances as the administration of Cardiazol, i.e. as rapidly as possible through a Wassermann needle of 2.0 m.m. bore. This dose of distilled water, it will be noted, is, if one takes the average, approximately four times the volume of the initial convulsive dose of

Cardiazol administered to a patient in the initial injection of his course of treatment; yet it was found that in no case who received this volume of water rapidly injected did a convulsion occur or even sub-convulsive phenomena such as muscular twitchings, rapid trembling of the eyelids, the short cough as mentioned in Section 1 of this thesis dealing with the chemistry and pharmacology. Nor were there any signs indicative of the extreme fear shown by the patients without exception after the administration of a large sub-convulsive dose. Such absence of results would seem to dispose effectively of the theory that the convulsion is due to "speed shock" (13).

In two of the cases to whom 20.0 c.c. distilled water were administered, there was produced a slight slowing of the heart rate, of which the electrocardiograms of Fig.2 is an example. To explain this occurrence, I find it again necessary to call attention to psychological factors mentioned in the legend to that figure and in the sub-section of Section 2 of this thesis which deals with fear and anxiety concerning treatment. In that sub-section it was mentioned how patients not yet begun treatment are, by their association with patients

who are, or have been under treatment, apprised of the frightening or terrifying nature of Cardiazol treatment before they actually receive such treatment. Consequently, when they are informed that "injection" treatment is intended they not unnaturally become apprehensive concerning the imminence of such: it is not unnatural for them under these circumstances to display as a psychosomatic phenomenon an increased rate of cardiac action. Further, when they experience no untoward sensation, after the injection (the distilled water) it is not unnatural, since they then believe treatment to be over, to feel relieved and for this relief to have a psychosomatic reflection in a fall to normal of the quickened cardiac rate with perhaps the accompaniment of a sigh - the apnoeic and hyperpnoeic disturbances accompanying emotional states are well known. This I believe to be the explanation of the difference in the two electrocardiograms of Fig.2.

In all cases, the administration of 20.0 c.c. distilled water intravenously was followed within two minutes by the administration of 2.0 c.c. Cardiazol and no convulsion followed in any of the cases or any signs of "speed shock" such as a "nitritoid crisis" (13).

That the cardiac abnormalities were not due to the dihydrogen sodium phosphate used to buffer the Cardiazol in solution, as explained in Section 1 of this thesis, is shown by the fact that the abnormalities still occur if Cardiazol be administered alone in solution. An instance of this is shown in Fig.16.

While the convulsion itself is undoubtedly produced by the administration of Cardiazol, nevertheless the occurrence of the abnormalities after the convulsion produced by other convulsant agents such as "Azoman" or "Triazol" or by electricity would seem to exclude the convulsant agent in itself as the cause of these abnormalities. I have, for instance, an electrocardiogram of an abnormality following upon a convulsion produced by the administration of "Triazol" and other cases of the same happening from the administration of "Triazol" are recorded in the literature (94). Concerning electrically induced convulsions, in using that method of treatment for cases of mental disorder I have met with the same types of abnormalities as I have already described in connection with Cardiazol treatment but unfortunately I had not available an electrocardiograph or X-ray apparatus to obtain a permanent record of the occurrences.

A consideration of all the foregoing facts thus points not to the convulsant agent as directly responsible for the production of the abnormalities but to the actual convulsion itself. In this connection, it is very difficult to evade as an explanation the hypothesis advocated by McAdam (86) which is to the effect that the abnormalities encountered are due to a simple exhaustion of the heart muscle following upon the convulsion.

This hypothesis is, however, unsatisfactory (as McAdam admitted in a discussion I had with him on the subject) for it leaves unexplained the absence of such abnormalities following upon severe exercise: for instance, no such abnormalities are apparent in Fig.1. For that reason, it is necessary to add to McAdam's hypothesis the following proviso, namely, that the abnormalities encountered after a convulsion of convulsant treatment no matter what the convulsing agent may be are due to the exhaustion of an anoxaemic heart muscle: also, as will be apparent from what immediately follows, the still further proviso is need to the effect of an anoxaemic heart muscle unaccustomed to the strain of an epileptic attack.

In the latter connection, I have been unable

to secure for myself or from a study of available literature electrocardiograms taken immediately before and after a single convulsion of idiopathic epilepsy. I was, however, able to take electrocardiograms before and after the 42nd. major convulsion of a status epilepticus occurring in a case of idiopathic epilepsy, where the exhaustion and anoxaemia of the heart muscle must have been not inconsiderable. Yet a study of the electrocardiograms which are shown in Fig.3 shows that save for a very slight difference in rate there is no difference to be noted between the electrocardiogram taken before and that taken after the 42nd.convulsion of the status epilepticus for which the patient was admitted to hospital. It is submitted that in that case the numerous previous attacks extending over a period of twenty years had "accommodated" his heart to any adverse effect of the convulsion. Support for the submission of this accommodation theory (for want of a better term) is to be found in my inability to find any reference to the subject of cardiac abnormalities in the extensive literature concerning idiopathic epilepsy despite the great antiquity of the disease and the study that has been paid to all its aspects throughout the ages. Even so,

it is only fair to mention that I have in another case of status epilepticus of idiopathic epilepsy detected abnormality in the sense previously defined and McAdam has told me that he has met with two such examples, one after the convulsion of a status and the other after a single convulsion of idiopathic epilepsy. In all three cases, however, the onset of the epilepsy had been a short time previously, and in the three cases, unfortunately, electrocardiograms were not obtainable.

Concerning the exhaustion of the anoxaemic heart muscle after a convulsion therapeutically induced by Cardiazol, there is much evidence of this both clinically and electrocardiographically. The cessation of respiration at the onset of the convulsion and its continuance until the termination of the latter, the increasing cyanosis and anoxaemia during the convulsion, the increased cardiac rate (also present in the convulsions of idiopathic epilepsy) during the convulsion, the violence of the muscular movements perhaps sufficient to cause fractures (95) are sufficient reasons for exhaustion in themselves. Clinically, this exhaustion is shown in such things as the appearance of bruits which were not heard before the convulsion - tricuspid bruits

were heard in three cases after the convulsion, mitral bruits in three, reduplicated first sounds at the tricuspid area in five cases; sometimes, and paradoxically, the first sound would disappear altogether at the mitral and tricupsid areas although a pulse was felt at the wrist: the sudden appearance, almost invariably encountered after the convulsion, in the chest of rhonchi and rales is an indication of an exhausted heart incapable of maintaining an efficient circulation, just as it is, say, in decompensated heart disease: the enlargement of the area of cardiac dullness to the left, sometimes to the extent of a half to three quarters of an inch - all these facts betoken clinically an acute exhaustion and anoxaemia of the heart muscle. Instrumentally, the same is demonstrated electrocardiographically by the delayed T waves often found, denoting delay in conduction of the normal impulse, and the high T waves such as are found in other relative anoxaemic states such as after normal exercise as, for example, is shown in Fig.1. Similarly, the instrumental verification of the cardiac enlargements after the convulsion point to the same conclusion of exhaustion and anoxaemia of the heart muscle.

With one exception in which a frank cardiac

dilatation was found clinically, the eight cases submitted to X-ray examination were unselected. A straight X-ray was taken immediately before the convulsion. The patient was then convulsed lying on top of the unexposed second X-ray plate which was, when the necessary few adjustments to the unconscious patient were made, exposed immediately after the last of the clonic movements of the convulsion. The third plate was exposed 4 - 5 minutes after the termination of the convulsion: the choice of such an interval of time was not arbitrary but was determined by the fact that there was clinical evidence in the disappearance of the cardiac abnormalities and rhonchi and rales and electrocardiographic evidence that the hearts of those convulsed with Cardiazol had recovered from their acute exhaustion and dilatation in that period of time - a point that was confirmed by X-ray examination and as is shown in Fig.19. Five of the eight cases who were X-rayed showed enlargement which taken individually might not have been regarded as significant, but taken together with the frank enlargement found in the remaining three of the cases may be regarded as evidence of acute dilatation in every case.

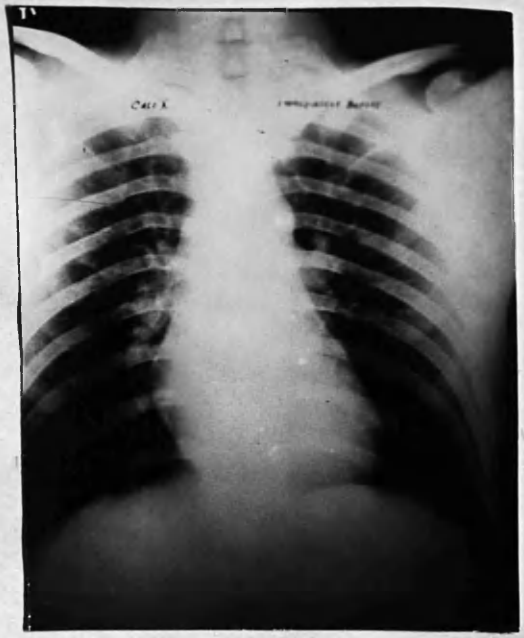


Fig. 19a.

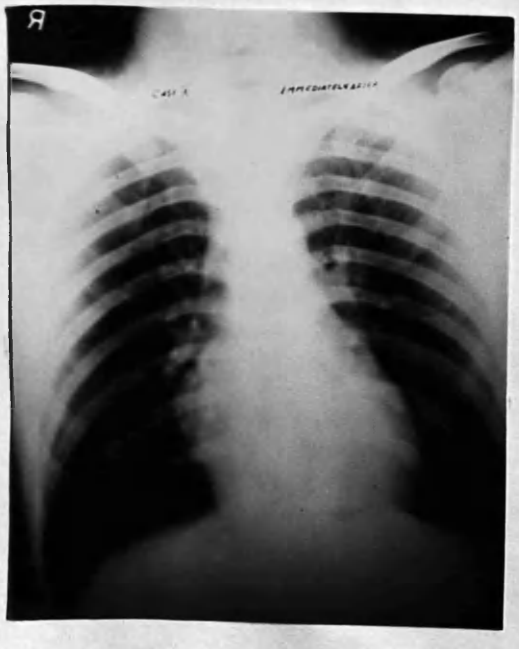


Fig. 19b.

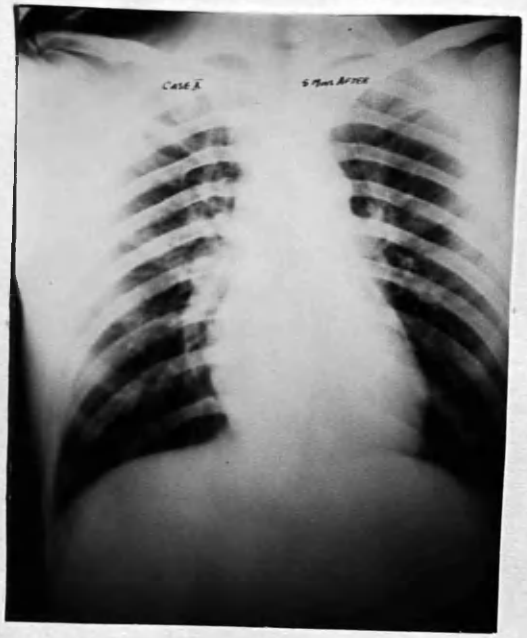


Fig. 19c.

Fig.19. Case 27. Male, aged 27 years. Unmarried. 6.4 c.c. productive of a colvulsion. (a) immediately before convulsion (b) immediately after the convulsion (c) five minutes after the termination of the convulsion. Note the acute cardiac dilatation shown in (b) and recovered from five minutes later in (c). (The case number on the prints shown is wrongly numbered.)

Further evidence of cardiac dilatation consequent upon the convulsion was forthcoming from Case 33 who died in statu epileptico. The post-mortem examination, which is referred to fully in the summary of the case records at the end of this thesis, demonstrated that the right side of the heart was much dilated and that the organs of the trunk, especially the lungs, were acutely congested. A sub-arachnoid haemorrhage of considerable size had occurred into the posterior cranial fossa; a porencephalic cyst, 1 cm. in diameter, was situated in the lateral portion of the left cerebellar hemisphere. Although the sub-arachnoid haemorrhage was undoubtedly a contributory factor in causing death, from a general consideration of the case the opinion was formed that the main factor was a gradual myocardial insufficiency associated with acute dilatation of the right side of the heart.

McAdam in his paper already referred to (86)

quotes cases where the cardiac abnormalities found after the convulsion were of considerable duration. Save in one case of the present series of 85, the duration of the cardiac abnormalities I have described was not found to exceed five minutes, i.e. the time taken for the acutely dilated heart to return to normal. The exception and the circumstances in which it arose will be quoted in some detail as it is illustrative of many points and it is very similar to Case 33 who died.

Case 27 - Cardiazol treatment had been discontinued by a previous house-physician owing to the onset of auricular fibrillation following upon a convulsion and the patient's mental and physical condition had progressively deteriorated during the six months' interval intervening between the termination of his first course of treatment and its re-institution by me. The re-institution produced a (temporary) amelioration in both his mental and physical condition. He showed cardiac abnormality after each of his convulsions, particularly of the "auricular fibrillation" type illustrated in Fig.12.

On the day he would normally have received the 12th.convulsive dose intravenously, he was given instead, as part of a subsidiary investigation into the effects of Cardiazol when administered orally, 50.0 c.c. (5.0 gm.) of Cardiazol solution by mouth at 3 p.m.

From that time his blood pressure of 150/90 mm.Hg. and his electrocardiogram did not alter nor was any physical change detected clinically. As he did not show any signs of convulsing, he was given 9.2 c.c. Cardiazol intravenously at 3.40 p.m. - see Fig.14.

At 4.45 p.m. he took the first of a series of six major convulsions, without intervening lucid

periods, which lasted until 10.40 p.m.

At 1 a.m. of the following morning he was comatose, incontinent to urine and faeces and of a peculiar bluish-grey pallor. He was in a state of profound collapse with a blood-pressure of 90/70 mm. Hg. He had had two haematemesis each of five ounces and coming presumably from the congested stomach such as was found in Case 33 who died in statu epileptico, and, later when I was still present, a third haematemesis of one ounce.

The heart-rate was then regular, though the cardiac sounds themselves were soft in tone, contrasting markedly with the cardiac sounds heard after a solitary cardiazol convulsion when they are of a clear and more determined tone such as is found in a patient excited from any cause, e.g. lying on an operation table awaiting an operation for which no sedative premedication has been given. The cardiac rate was 122 per minute and the area of cardiac dullness was enlarged from $3\frac{1}{2}$ to $4\frac{1}{2}$ inches to the left of the mid-sternal line in the fifth interspace. The temperature was 102°F. Owing to the ceaseless fibrillary and myoclonic movements which the patient exhibited, together with the spasmodic twitchings of the whole trunk and limbs, it was not found possible to take an electrocardiogram.

The persistence of these movements and the time taken for active treatment prevented an electrocardiogram being taken until 5.30 a.m. when no abnormality was revealed save a solitary extrasystole occurring very late at the end of an R wave in Lead 3.

During the course to complete recovery from the status epilepticus (a bronchopheumonia and a slight haemoptysis intervening) no further cardiac abnormality was noted.

The persistence of the cardiac abnormality for seven hours ten minutes after the last convulsion of the status is easily understood - the extreme exhaustion of the patient and the dilatation of the heart which latter was still present at 5.30 a.m. but was returned to normal at 11.30 a.m. at which time

normal electrocardiograms were obtained. The physical condition of the patient did not permit of an X-ray being taken.

With regard to the type of patient who reveals cardiac abnormality, nothing definite can be stated. When all the observations in this series had been made a statistical attempt was made to see if it was possible to correlate the results obtained with such factors as age, sex, stature, state of nutrition, physical health, the dose of cardiazol administered, the duration of the convulsion, the blood-pressure, the depth of cyanosis, the duration of the convulsion, the type of mental disorder from which the patient was suffering. Such a correlation could not be established, however. The young is as likely to show abnormality as the old, the undernourished as the well-nourished, the healthy as the unhealthy, the low blood-pressure as well as the high blood-pressure, and so on. Further, and as previously stated, of the 38 patients who were submitted to electrocardiographic examination for the purpose of obtaining a lasting record of the abnormalities detected clinically, 36 of these patients showed abnormality. In view of the fact that circumstances precluded the taking of an electrocardiogram before and after every convulsion or

even in every patient (at one period seventeen males and twelve females were treated in one afternoon) I do not think it unreasonable to postulate that had the circumstances permitted the taking of an electrocardiogram in every case and after every convulsion then the whole 38 cases would have shown abnormality. That is, had a more rigorous investigation been possible, I believe 100% of cases would have shown cardiac abnormalities as post-convulsion phenomena. In this connection, as a study of Fig.16 (b) will show, that if the record were halved and the moderate bradycardia thus separated from the moderate tachycardia which immediately follows, or had the record not been taken at that particular time then the result would have passed for normal, which, however, would not have been the case. Even as the actual results stand, they serve only to support the hypothesis invoked to explain the occurrence of the abnormalities, namely, that the latter result from an exhaustion and anoxaemia of the heart muscle consequent upon the convulsion, a heart muscle unaccustomed to the strain of an epileptic convulsion.

Finally, with regard to the ultimate effect of the Cardiazol convulsion upon the heart, I do not

think it permissible to generalise from the few cases I have been able to follow up after varying intervals. In these seven cases, however, five of whom were electrocardiographed, no abnormality was demonstrated at any time even after three years' dismissal from hospital and during which time they had been leading normal, active and healthy lives. Other writers (87) report differently, however.

Summary and conclusions.

A total of 85 patients were treated with Cardiazol therapy. 70 of these patients received as the result of the administration of Cardiazol one or more convulsions during their course of treatment. Of these 70 patients who received one or more convulsions, 51 patients showed abnormality of cardiac rate or rhythm, in the sense previously defined, either clinically or electrocardiographically. Of these 51 patients who showed abnormality, 38 were investigated electrocardiographically and of these 38 who were electrocardiographed 36 showed electrocardiographic evidence of abnormality. Bearing in mind that frequently an electrocardiogram showed abnormality where ordinary clinical examination

showed none, it is suggested that, had a more rigorous examination been possible, 100% of cases would in all probability have shown abnormality as a result of the convulsion.

Of the fifteen cases who were treated with sub-convulsive doses, only one of these cases showed cardiac abnormality (Fig.8). Reasons have been advanced to show that this abnormality was not a direct effect of the administration of Cardiazol, but was a secondary, psychosomatic reflection of the administration of Cardiazol.

No relation was found to exist between the physical or psychical characteristics of the patients and the occurrence of the post-convulsion cardiac abnormalities.

It is concluded that:-

(1) Cardiazol administered intravenously in ordinary "analeptic" doses (e.g. up to 2.0 c.c. given slowly) has no effect directly or indirectly upon the heart. It is equally ineffective when given by mouth.

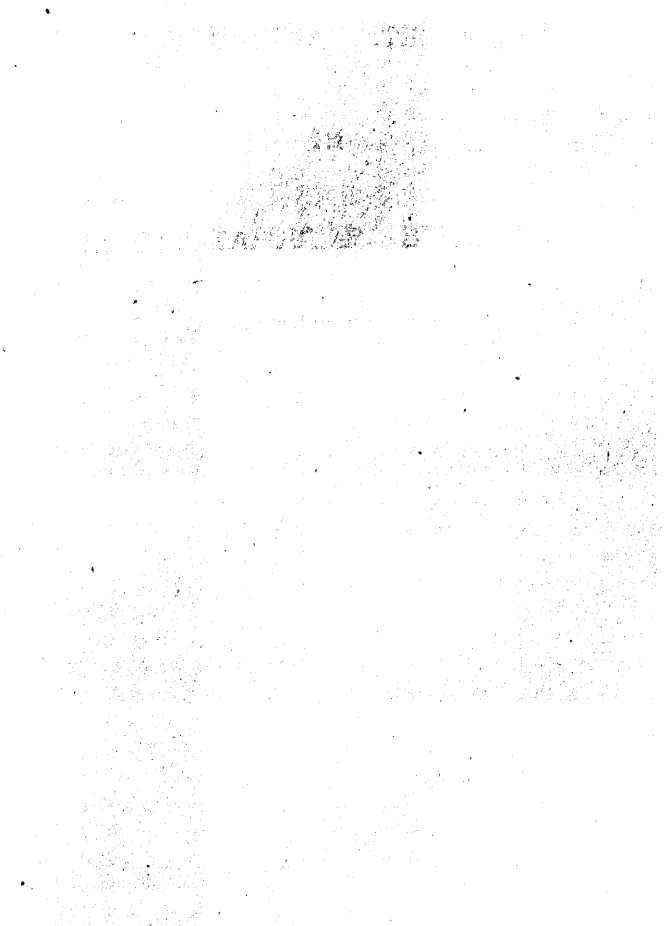
(2) Cardiazol administered with the greatest possible speed through a Wassermann needle of 2.0 m.m.

bore may with ordinary analeptic doses of 2.0 c.c. and larger convulsive doses produce an increase or decrease of the cardiac rate, the increase or decrease being a secondary psychosomatic effect to a primary stimulation of the higher centres of the brain (the cerebrum and sub-thalamic area) and the production of an aura.

(3) Administered in still larger doses, Cardiazol produces convulsions which are not due to the sudden entrance of fluid per se into the circulation. The convulsions so produced are epileptiform in nature and the convulsions are immediately followed for a varying length of time (usually for less than five minutes) by cardiac abnormalities, anomalous cardiac occurrences. These anomalous cardiac occurrences result from an exhaustion and anoxaemia of the heart muscle as a consequence of the convulsion, a heart muscle unaccustomed to the strain of a convulsion and which undergoes a varying degree of acute dilatation. This exhaustion and anoxaemia are soon recovered from and, in a small number of cases investigated towards that end, leave no permanent

damage to the heart.

(4) Paradoxically, the occurrence of these abnormalities after a convulsion should be regarded as normal and is thus no indication for the cessation of treatment.



S E C T I O N 4

CONVULSIVE THERAPY

in

CARDIO-VASCULAR DISORDERS

CONVULSIVE THERAPY in CARDIO-VASCULAR DISORDERS

In this section of the thesis it is intended to demonstrate that cardio-vascular disorders of even a severe degree - provided they are well compensated and whether existing alone or in the presence of advancing years and of diseases of other systems - are not contra-indications to the employment of convulsive therapy.

Before proceeding directly to the above demonstration, however, it is advisable to preface a recounting of the observations on patients which lead to that conclusion by a consideration of several points.

The originator of convulsive Cardiazol treatment gives (96) as absolute contra-indications to the employment of convulsive therapy: (a) organic cardio-vascular disease, whether arterio-sclerotic, hypertensive and inflammatory; (b) acute febrile illness; (c) pregnancy; (d) active tuberculosis; and (e) abnormality of the blood or urinary constituents determined by complete laboratory examinations. Relative contra-indications are given as: (a) exophthalmic goitre; (b) history of severe intracranial injury; (c) sero-

positive syphilis; (d) latent tuberculosis; (e) confinement to be for one year before treatment is undertaken.

Other writers have accepted these as pontifical utterances and have refrained from any action running contrary to the tenets so laid down without stopping to submit such stated contra-indications to a critical examination. Other writers have added to the above list by still further contra-indications such as elderly patients (97) though, when challenged (98) have seen fit to revise (99) their previous statement.

The main objections to the foregoing relative and absolute contra-indications are, first, that they appear to have been compiled on theoretical grounds alone: for instance, in the paper referred to (94) Von Meduna has stated that he had no fatalities and an absence of major catastrophes in connection with Cardiazol treatment in over 3000 cases. Secondly, save for the contra-indication of latent tuberculosis, there is no literature available from other investigators concerning fatalities or catastrophes resulting from the employment of convulsive Cardiazol therapy in these circumstances: as a result of extensive written and

verbal enquiries to investigators who have treated large series of cases I am satisfied that the absence of such literature is not due to a laziness to put their findings in printed form for the benefit of other investigators on the same subject.

Regarding the occurrence of physical abnormalities in patients afflicted with mental disorders, it is true to say that, with the exception of the relatively uncommon forms of mental disease such as the delirium that may accompany acute lobar pneumonia which are consequences to a primary organic abnormality, organic abnormalities in mental patients are uncommon. Therefore, the question of the non-employability of convulsive treatment on account of organic disease or structural abnormality does not arise in the majority of cases.

Those relatively few remaining cases where organic disease or structural abnormality co-exists with, but is otherwise unrelated to, mental disorder demand consideration with a view to convulsive treatment for the following reasons.

From the mental point of view, one's own or the spoken and recorded experience of others teaches that if an attempt be not made to arrest the downward

progress of the disorder, such, for example, as dementia praecox, then the outlook is as a rule very poor. Alternatively, if an attempt be not made to interfere with the natural course of a mental disorder such as manic-depressive insanity then the phase, manic or depressed, presenting of that disorder would be of much longer duration than it would be if convulsive treatment were not instituted. Apart from such facts, there are additional ones which confront every psychiatrist such as the question of finance as a solitary example: the patient may be the sole financial support of the family or alternatively a financial burden by being a patient to the family who can ill afford it, or, again, a patient who is necessary to the welfare of the family such as a mother of several young children: again, in patients in the services in wartime the drag that these patients are, from the viewpoint of military efficiency, on the war-machine, and the demand for all available man-power calls for the rapidest disposal possible from hospital as social recoveries. In all these and similar circumstances, it becomes imperative to consider convulsive treatment, particularly where other methods of treatment have already failed, even although organic disease or

structural disability exists.

For these reasons together with the consideration that the absolute and relative contra-indications were entirely theoretical caused me to convulse, among others, patients who at the time convulsive treatment was begun were displaying such symptoms as albuminuria, glycosuria to the extent of 2½% and acetonuria, two cases who were in an acute asthmatic attack, coryza and bronchitis with a temperature of 101°F., a case of advanced sero-positive syphilis, a case of Henoch's purpura, and several cases, particularly in service patients, who had a few months previously sustained severe head injury with unconsciousness lasting for several days.

In addition to these cases, I have convulsed cases of disease or structural abnormality of the cardio-vascular system, these cases forming the subject of this section of the thesis. Only the relevant details of the six cases quoted are given. The ages stated are the ages when Cardiazol treatment was begun.

CASE 59. Aged 55 years, was sallow-complexioned and undernourished. On admission she showed the typical symptoms of melancholia but the presence of eye signs, absent abdominal reflexes and ankle jerks

together with hyperaesthesia of the soles of the feet caused serological tests to be made and the result to be returned as positive for syphilis. The cerebro-spinal fluid findings were fairly typically paretic and malarial therapy was begun. The latter was stopped on 5.1.39, after the occurrence of four typical malarial rigors, owing to a rectal haemorrhage of 10 ounces, the latter being considered a contra-indication to further malarial therapy for the time being. Two days later she had two moderately severe rectal crises which necessitated the administration of morphia. On 30.1.39 in order to see whether her depression, presumably paretic in origin, could be influenced by other than anti-specific measures she was begun on Cardiazol therapy despite the fact that her arterial walls were sclerotic, both from ordinary clinical and ophthalmoscopic examination, and her heart sounds still weak from the four malarial rigors. Careful attention to the cardiovascular system is rightly demanded in malarial therapy and the stopping of the therapy in any case showing signs of circulatory failure. Altogether, she received nine injections of Cardiazol with the production of eight convulsions. On 25.3.39 she was discharged "much improved" to report to the out-patient department for anti-syphilitic drug treatment in the first instance.

CASE 76. Aged 49 years, was frail, undernourished and of sallow complexion. There was no evidence of cyanosis, oedema, dyspnoea, jaundice or arteriosclerosis. The pulse was regular in rate and rhythm: the blood-pressure was 170/100 mm. Hg. The area of cardiac dullness was enlarged to four and a quarter inches to the left of the mid-sternal line in the fifth interspace. The cardiac sounds were somewhat soft in tone. A harsh systolic bruit at the mitral area was conducted upwards and outwards to the posterior axillary line. ? a soft systolic murmur at the aortic area. There were no signs or history of cardiac decompensation or history of previous cardiac trouble or of illness which might have affected the heart and caused structural deformity. Cardiazol therapy was begun on 26.12.38 with an initial subconvulsive dose of 2.0 c.c. Including her last dose on 30.1.39, she received 15 injections, none exceeding

2.5 c.c. She had only one convulsion, and that on 2.1.39 from her fourth injection of 2.0 c.c., with no immediate untoward result. On the evening of 1.2.39 her breathing became noisy and laboured, her pulse poor in quality and rapid. She was semicomatose. Chest examination showed signs indicative of acute pulmonary oedema which responded eventually to three doses of 1/100 grain of atropine sulphate at four-hourly intervals. The following morning she was conscious. Vomiting was present, was copious in amount, was bilious and was repeated ten times. Jaundice appeared. Her condition deteriorated. Glycosuria and acetonuria appeared, both clearing up with 10 units of insulin thrice daily half an hour before meals. A trace of albuminuria present on admission had not cleared up. The jaundice increased. She died on 4.2.39 after running a pyrexia of unknown origin for a week and with numerous rhonchi in the chest during the last two days.

CASE 81. Aged 65 years, was admitted on 31.1.39 after having been a complete invalid for the previous eight years, confined to bed either at home or in general hospitals in which latter she had been thrice treated by physicians of repute for angina pectoris: there seems to be little doubt, therefore, as to the correctness of the diagnosis. Her admission to mental observation wards was necessitated by the development of mental symptoms. She was a thin, undernourished woman with indifferent heart sounds. A course of Cardiazol therapy was begun on 1.2.39; altogether twenty-one injections were given, two of which produced a major convulsion. She was discharged on 5.4.40 as a social recovery with no signs of invalidism. Three months later she was reported as being on holiday when she walked on the average six miles a day.

CASE 164. Aged 47 years, was thin and of very pale complexion: she had a history of scarlet fever at the age of 19 years. The cardiac dullness was enlarged to four and a half inches to the left of the mid-sternal line in the fifth interspace. A rough double murmur was heard over all four cardiac areas, being most marked

over the mitral and the aortic; and loudly propagated respectively into the left axilla and upwards along the great vessels of the neck which pulsated visibly. From 4.4.40 to 25.5.40 she received twelve injections of Cardiazol, nine of which produced a major convulsion. The effect of two of these convulsions upon the heart was especially studied: the cardiac rate remained regular but the murmurs disappeared for about five minutes after the convulsion when, upon a gradual slowing of the heart to its normal rate, they returned with a temporary prominence at the aortic area compared with the other areas. Mentally, she made a social recovery and was discharged on 31.5.40.

CASE 169. Aged 60 years, had abnormality of the respiratory system in that his chest was markedly emphysematous and asymetrical, the left side being more prominent than the right. Air entry at the right base posteriorly was poor. He had a history of respiratory trouble dating from an indefinite number of years previously: the symptoms and signs were those of chronic bronchitis. The area of cardiac dullness was not delimitable with accuracy owing to emphysema. The cardiac sounds were short and sharp. On admission on 14.7.37 his blood-pressure was 120/80 mm.Hg. and between that date and the beginning of treatment on 27.1.40 the blood-pressure fluctuated considerably and at one time was 98/68 mm.Hg. Between the same dates he had periods in which the cardiac rate became irregular owing to the occurrence of extra-systoles. At the time of beginning treatment his blood-pressure was 150/90 mm.Hg. and his heart rate was irregular owing to the occurrence of extra-systoles. This was confirmed by electrocardiographic examination and, in addition, a degree of myocarditis was reported. Between 27.1.40 and 12.3.40 he received twenty Cardiazol treatments, fifteen of which produced a major convulsion. Immediately after these convulsions, as determined by auscultation, the heart remained regular in rate for approximately two minutes. The pulse during the same interval was very poor in quality. About 22.2.40, that is before treatment was yet terminated, the cardiac rate became permanently regular and the cardiac sounds improved in quality. He was discharged on

1.4.40, his mental condition having improved with treatment, but on his readmission on 26.4.40 for a mental relapse his cardiac condition had also reverted to the condition present before Cardiazol treatment was begun.

CASE 181. Aged 50 years, had had his left leg amputated through the lower third of the femur as a result of enemy action during the war of 1914-18. He was admitted on 21.12.28 as a case of paranoid schizophrenia with alcoholic and depressive episodes. During the first of these latter he attempted suicide in 1924 by shooting himself with a revolver, the bullet being eventually located an inch to the left of the vertebral column. Sir William Macewan operated and found that the bullet track had involved the left ventrivular wall: the pericardial sac was opened to facilitate the stitching of the wound. At the same operation an inch of the sixth rib in the mid-scapular line was resected and on 25.4.40 when Cardiazol treatment was begun this gap had closed to half an inch. Owing to his restless, destructive habits including attacks upon his artificial limb, he had been practically confined to bed for several years before treatment was begun. The treatment consisted of twelve injections each of which produced a major convulsion. Bradycardia of approximately 30 per minute occurred after one convulsion.

The foregoing cases were specially chosen for illustration because they showed a considerable degree of cardio-vascular disorder. Other cases could have been cited who presented less marked though similar abnormalities when treatment was begun. With the exception of Case 76, treatment was terminated not because of any physical state but because of mental improvement.

In none of the cases, not even Case 76, was

there any evidence that treatment had worsened the state of the already abnormal cardiovascular system. Indeed, as a consideration of Cases 81 and 169 will show, evidence to the contrary was forthcoming. Case 81, for instance, after an invalidism lasting for eight years before admission on account of attacks of angina pectoris was discharged and three months after her discharge was reported as being on holiday when she walked on the average six miles a day. Similarly Case 169 showed clinical improvement in that the heart sounds previously irregular and the pulse of good quality during the course of treatment and remained in the improved state until his dismissal: though it is true that on his subsequent readmission on account of a mental relapse the abnormal signs were again present.

Case 76 was especially quoted because it was the first case showing cardio-vascular disorder to be convulsed by me. The convulsion, it must be admitted, was the result of the not infrequent accident of a small dose intended to be subconvulsive in its effects proving to be convulsive. But I had not then sufficient experience and the courage of my own convictions to continue convulsing her on each day of treatment by increasing

the dose. I did, however, continue with the administration of the same doses and once repeated the dose given. I was then labouring under the same personal psychological difficulties concerning the administration of convulsive treatment as beset other investigators similarly engaged, which difficulties, as I have endeavoured to explain in the discussion of Section 2 of this thesis, were the real reason in the first instance for the drawing up of the list of contra-indications despite the fact that no fatalities or major catastrophes had ever resulted from convulsive treatment, nor indeed had patients suffering from the abnormalities stated to be contra-indications ever been convulsed.

Regarding the fatality of Case 76, there is no reason to believe that the solitary Cardiazol convulsion that did occur during her course of treatment in any way directly contributed to her death five weeks later. (Compare Case 164 who received nine convulsions despite the fact that she was suffering from a Cardiac condition which, in its potential seriousness, was comparable with that of Case 76). It is also doubtful if the numerous rhonchi which filled her chest before she died were the result of an acute pulmonary aedema: they were of slow

onset and, unlike the acute pulmonary oedema, did not co-exist with even more abundant rales, nor did the rhonchi clear on the second occasion with the administration of atropine. Their occurrence was in all probability a terminal phenomenon. In any case, acute pulmonary oedema may occur as a result of a convulsion without any evidence of pre-existing heart disease. Her case is quoted fairly fully in the summary of the case records given at the end of this thesis: it is sufficient to say here that the progressively deepening jaundice that she showed pointed to some toxic condition, either affecting or originating in the liver, as the cause of death. Permission for a post-mortem examination was not received.

It might be objected that the presence of albuminuria in her case was in itself a contra-indication to convulsive Cardiazol treatment. I have found, as previously stated, to the contrary, however. I have treated a few cases in which there was no increase in the albuminuria present when treatment was begun, not, however, in itself an indication that no superadded damage was wrought on the kidneys, though it is difficult to see why such added damage should occur. In one case, the albuminuria present at the beginning was absent at the

end of treatment, although it is not suggested that the Cardiazol convulsions caused its disappearance.

With regard to body tissues generally, it is difficult to see in purely theoretical grounds alone why damage of any description should result from the convulsion and thus constitute a possible contra-indication to convulsive treatment. Certainly, from a practical point of view any such contra-indications are non-existent. I have been restrained in only one case, a cardiac case in which compensation was poorly established. From the cardio-vascular point of view it is not apparent why organic disease of this system provided there are no signs of decompensation should contra-indicate the use of convulsive therapy, even though, as in Case 59, the heart be comparatively recently weakened by malarial rigors undergone a short time previously.

It is not easy to conceive of a method that will accurately estimate the increased work that is thrown on the diseased heart during the one to two minutes of the convulsion. At a very outside estimate, however, it should not exceed, say, one hour's heavy exercise as indulged in many times over in the working day by a manual labourer with heart disease but seeking admission to

hospital for a complaint originating in an altogether different system, the cardio-vascular disorder presumably existing for a considerable time before its discovery in hospital. Again, the increased strain thrown on the diseased heart as a result of the convulsion would not exceed the day's work of a nurse, Case 164, with the considerable amount of physical strain entailed and the superimposition of, in her case, a further strain from a hyper-excitable disposition extending over years on a heart presumably diseased from the age of 19 years following her attack of scarlet fever.

There is, however, the essential difference between the additional work imposed on the heart by normal effort and that endured from the Cardiazol convulsion. In the latter the increased work occurs under anoxaemic conditions, for, during the convulsion, the patient either does not breathe or takes at the most one or two short gasps when the clonic stage of the convulsion is nearing its end. That such conditions do undoubtedly affect the heart is shown in Section 3 of this thesis but it was also shown how the affection so resulting is of a temporary nature.

Summary.

Cardio-vascular disorders of even a severe degree provided they are well-compensated, and whether existing alone or in the presence of advancing years and of diseases and abnormalities of other systems, are not contra-indications to the employment of convulsive therapy. Further, electrocardiagraphic examination, as was shown in Case 169, provides no criteria of how well or how badly the patient will stand up to the convulsion.

R E F E R E N C E S

1. Good, R., (1940). Journ.Ment.Sc., 86, 260.

2. Idem, (1940). Ibid, p.491.

3. Idem, (1940). Ibid, 87, 409.

4. Idem, (1941). Brit.Med.Journ. 2, 624.

5. v.Meduna, L., (1936). Gyogyaszat, No.15, p.225.

6. William Oliver of London quoted by Diethelm, O., (1939). Amer.J.Psych., 95, 1165.

7. Weickhardt, A., (1798). Medizinisches praktisches Handbuch.

8. Müller, G., (1930). Allg.Z.Psychiat., 93, 235.

9. Nyiro, J., (1937). Schweiz.Arch.Neurol.Psychiat., 40, 180.

10. Schmidt, K.F., (1935). Munch.med.Wochenschr., No.37, p.1489.

11. Dunlop, D.M., Davidson, L.S.P., McNee, J.W., (1938). "Textbook of Medical Treatment", p.785, London.

12. Price, F.W. and others, (1933). "A Textbook of the Practice of Medicine", p.1631. London.

13. Thomas, W.R., and Wilson, I.G.H., (1938). "Report on Cardiazol Treatment and on the Present Application of Hypoglycaemic Shock Treatment in Schizophrenia". H.M.Stationery Office.

14. Hildebrandt, (1936). Naunyn - Schmiedebergs Archiv., 181, 89.

15. Harris, A., (1938). Journ.Ment.Sci., 84, 735.

16. Gillman, S.W., and Parfit, D.N., (1940). Lancet, 2, 663.

17. v.Meduna, L., (1935). Psych.-Neurol. Wochenschr., No.27.

18. Rosas, F.S.y., Sept., 1938. Rev.de Neuro - Psiquiatria, quoted in the Journ.Ment.Sci., May, 1940.

19. Maurer, S., Wiles, H.O., Marberg, C.M., Skorodin, B., and Fisher, M.L., (1938). Amer.Journ.Psychiat., 94, 1355.

20. Bailey, A.A., Smith, B.F., and Moersch, F.F., (1938). Proc.Mayo.Clin., 13, 679.

21. Katzenelbogen, S., (1938). Amer.Journ.Psychiat. Special number.

22. v.Meduna, L., and Rohny, B., (1939). Lancet, 1, 1324.

23. McKendrick, F.Y., (1938). Personal communication.

24. Silbermann, I., (1940). Internat.Journ.Psycho-anal., 21 (Part 2), 179.

25. Cohen, L.C., (1932). Arch.Neur.& Psych., 42, 579.

26. Kennedy, A., (1937). Journ.Ment.Sci., 83, 42.

27. Cook, L.C., (1938). Proc.Roy.Soc.Med., 31, 567.

28. Cerletti, U., (1939). Arch.Gen.Neurol.Psych. Psicoanal. 19, 266.

29. Shepley, W.H., and MacGregor, J.S., (1939). Brit. Med.Journ., 2, 1269.

30. Fleming, G.W.T.H., Golla, F., and Walter, W.G., (1940). Report of the Sect.of Psych.of Roy.Soc. Med., Jan. 9.

31. Low, A.A., Blaurock, M., Sachs, M., Wade, C., and Ross, E., (1939). Arch.Neurol.Psychiat., Chicago, 41, 747.

32. de Maupassaut, G., (1916). "Contes Choisis, Edition pour la jeunesse", p.96. Paris.

33. Dreszer, R., and Scholz, W., (1938). Z.ges.Neurol. Psychiat., 164, 140.

34. Kost, H., (1938). Psychiat.-Neurol. Bl., 1, 81.

35. Denyssen, J.A.F., and Watterson, D.J., (1938). Journ.Ment.Sci., 84, 1002.

36. Pilcher and Sollmann (1915). Journ.Pharm.and Exp. Therap., 6, 323, quoted by Clark, A.J., (1933) in "Applied Pharmacology", London.

37. Dilling, W.J., (1935). "Materia Medica and Therapeutics", London.

38. Grigor, K.C., (1936). Surgo, 3, 25.

39. Dostoevsky, F. From Preface to "Crime and Punishment", English translation, London, 1941.

40. Idem, "The Idiot", p.59, London, 1940.

41. Ibid, p.224.

42. Glover, E., (1939). "Psycho-analysis", p.41, London.

43. Ibid, p.66.

44. Jackson, J.H., (1932). "Selected Writings", Vol.2, London.

45. Schilder, P., (1939). Journ.Nerv.& Ment.Dis., 89, 133.

46. Weitbrecht, H.J., (1938). Psychiat.-Neurol.Wschr., 40, 481.

47. Tooth, G., and Blackburn, J.M., (1939). Lancet, 2, 17.

48. Reitmann, F., (1938). Psychiat.-Neurol. Wschr., No.5.

49. Stender, A., (1937). Munch.Med.Wschr., 84, 1893.

50. Strecker, E.A., Alpers, B.J., Flaherty, J.A., and Hughes, J., (1939). Arch.Neurol.Psychiat., Chicago, 41, 996.

51. Freud, S., (1933). "Collected Papers", 2, 45-50, London.

52. Abraham, K., (1927). "Selected Papers on Psycho-analysis", p.370-392. London.

53. Ibid, p.423.

54. Abse, D.W., (1940). Journ.Ment.Sci., 86, 95.

55. Nightingale, G.S., (1938). Journ.Ment.Sci., 84, 574.

56. Bain, A.J., (1940). Journ.Ment.Sci., 86, 502.

57. Bertolani, A., (1939). Riv.Sper.Freniat., 62, 761.

58. Berkwitz, N.J., (1940). Arch.Neurol.Psychiat., Chicago, 44, 760.

59. Cook, L.C., (1940). Journ.Ment.Sci., 86, 484.

60. Freud, S., (1925). "Three Contributions to the Theory of Sex". New York and Washington.

61. Cook, L.C., and Grey, Walter W., (1938). Journ. Neurol.Psychiat., 1, 180.

62. Freud, S., (1938). "The Psychopathology of Everyday Life", pp.9-16. London.

63. Freud, S., (1936). "Introductory Lectures in Psycho-analysis", pp.19-63. London.

64. Brain, W.R., (1940). "Diseases of the Nervous System", p.245. London.

65. Ibid, p.489.

66. Penfield, W., and Evans, J., (1935). "Brain", 58, 115, quoted by Brain, W.R., (1940), in "Recent Advances in Neurology", p.119. London.

67. Hebb, D.O., and Penfield, W., (1940). Arch.Neurol. Psychiat., 44, 421.

68. Worchel, P., and Nyerly, J.G., (1941). Journ. Neurophysiol., 4, 62.

69. Walshe, F.M.R., (1940). "Diseases of the Nervous System", p.158, London.

70. Ibid, p.160.

71. Ezriel, H., (1940). Personal communication.

72. Freud, S., (1927). "Collected Papers", 3 and 4, pp.463-464, 43 - 44. London.

73. Dick, A., (1938). Personal communication.

74. Glover, E., (1932). Journ.Ment.Sci., 78, 819.

75. Strecker, E.A., and Ebaugh, F.G., (1935). "Practical Clinical Psychiatry for Students and Practitioners", p.34. Philadelphia.

76. Henderson, D.K., and Gillespie, R.D., (1937). "Textbook of Psychiatry", p.2. London.

77. McCowan, P.K., (1937). Annual Report, Crichton Royal, Dumfries.

78. Miller, E., and others, (1940). "The Neuroses in War", p.75. London.

79. Stokvis, B., (1938). Journ.Ment.Sci., 84, 1081.

80. Freud, S., (1935). "The Ego and the Id", p.57. London.

81. Schilder, P., (1939). J.Nerv.Ment.Dis., 89, 133.

82. Meyer, A., (1939). Journ.Mentl.Sci., 85, 927.

83. Lubner, S.H., (1938). Brit.Med.Journ., 4, 978.

84. Dick, A., and McAdam, W., (1938). Journ.Ment. Sci., 84, 677.

85. Kennedy, A., (1937). Ibid, 83, 609.

86. McAdam, W., (1938). Glas.Med.Journ., 130, 221.

87. Schmitt, D., (1939). Z.ges.Neurol.Psychiat., 166, 108.

88. Henderson, D.K., (1939). "Psychopathic States", p.18, London.

89. Lewis, Sir T., (1939). "Diseases of the Heart", 2nd.edition, London.

90. Ibid, p.98.

91. Grodel, F.M., (1934). "Das Electrokardiogramm". Dresden and Leipzig.

92. Hutchison, R., and Hunter, D., (1934). "Clinical Methods", London.

93. Glaister, J., (1931). "Textbook of Medical Jurisprudence and Toxicology", 5th.Edition, p.799. Edinburgh.

94. Molony, C.B., and Conlon, J.J., (1939). Journ. Ment.Sci., 85, 1047.

95. Good, R., (1939). Brit.Med.Journ., 1, 170.

96. v.Meduna, L., and Friedman, E., (1939). Journ. Amer.Med.Assoc., 112, 501.

97. Gissane, W., Blair, D., and Rank, B.K., (1940). Lancet, 1, 450.

98. Good, R., (1940). Lancet, 1, 575.

99. Gissane, W., and Blair, D., (1940). Lancet, 1, 717.

A C K N O W L E D G M E N T

This thesis would be incomplete if I were ni,,gardly in expressing my appreciation and thanks to the many people who have helped me in their several ways during or throughout the course of my investigations into convulsive therapy, some of the results of which investigations are embodied in the preceding pages.

I am especially indebted to Dr.A.Dick, Superintendent, Hawkhead Mental Hospital, Glasgow, for fostering and stimulating my interest in psychiatry while, as a student, I served as his Resident Clinical Clerk at Stoneyetts Hospital, Chryston, Glasgow, when he was Superintendent of that hospital wherein and during the course of the thorough and kindly teaching I received from him I was introduced to Cardiazol therapy: later as his House-Physician in the Mental Observation Wards of the Southern General Hospital, Glasgow, to which hospital he was Visiting Psychiatrist. Throughout all stages of these investigations I incurred the benefit of his kindly and constructive interest, freely given and deeply appreciated.

Other people who gave me kindly and unstinted help at the Southern General Hospital were Dr.A.D.Briggs, Superintendent, in the way of electrocardiographic and

radiological material: Dr.W.McAdam, Medical Registrar, for many stimulating discussions and for instructing me in the use of the electrocardiograph, without which instruction the third section of this thesis would not have been possible: my friend Dr.Rudolph Trau for instructing me in the recent advances in electrocardiography and for his generous help in the translation of the many papers necessary to all parts of these investigations: Dr.F.E.Reynolds, Pathologist to the City of Glasgow Hospitals, for his help after a regrettable clinical tragedy during these investigations and for permission to quote his post-mortem report in connection therewith: Dr.F.Y.MacKendrick, my predecessor in the Mental Observation Wards, for many useful hints in connection with treatment in handing over the wards to me: Dr.J.Affleck, my successor in the same wards, for granting me full facilities and co-operation to continue my investigations during his tenure of the wards as House Physician: Dr.W.R.Snodgrass, Visiting Physician, Southern General Hospital, Glasgow, for much useful advice, criticism and suggestions on the cardiological aspect of these investigations: Dr.D.Macdonald for offering himself as a control subject and submitting with good-humoured

patience to inconveniences thereby entailed.

I am deeply indebted to Dr.A.MacNiven, Superintendent, Glasgow Royal Mental Hospital, for the opportunity of being allowed to hold the post of Assistant Medical Officer at that hospital and of being allowed for many months the duties of "special treatments", during which time I had abundant and uninterrupted opportunity to pursue investigations into convulsive treatment and for his help and kindly criticism afforded me. I am also indebted similarly to Drs.J.D. Sutherland and H.Ezriel. To Dr.R.G.Lendrum, Western Infirmary, Glasgow, I am grateful for his help in electrocardiographic work during that period.

Lt.-Col.C.D.Bruce, R.A.M.C., Officer Commanding, Carstairs Military Hospital, and Lt.-Col.R.J.Rosie, R.A.M.C., Officer Commanding, Bellsdyke Military Hospital, Larbert, both afforded me help, advice and criticism during the continuation of these investigations on convulsive therapy in service patients.

Lastly, and perhaps most important of all, I am very deeply indebted to the nursing staffs with whom I worked to obtain the raw data which constituted the basis of this thesis. To their sympathetic understanding,

tact and infinite patience the comparatively even course of these investigations was almost entirely due. Particularly is this so in the earlier part of the work whose results are embodied in Section 3 of this thesis. Only those who have dealt with the mentally afflicted in all stages of their illnesses can fully appreciate the very high degree of nursing skill that contributed to the obtaining of these, unblurred, records. My sincere thanks, in this aspect of the investigations, are particularly due to Mr.C.Westwood, late R.A.M.C., chief male nurse, Male Mental Observation Wards: Sister J.E.McKay, Female Mental Observation Wards, and to Sister H. Davidson, X-ray Dept., Southern General Hospital, Glasgow.

C A S E R E C O R D S

The varying lengths of the following case records is explained by the importance in individual cases of points stressed in the thesis.

To avoid needless repetition in these summaries, the following should be assumed. Firstly, in connection with the physical state of the patient, it should be understood that, unless otherwise stated, the physical condition of the patient was normal: the criteria whereby physical normality and abnormality were judged were those as laid down in references (12), (69), (89), (91), (92). Secondly, from the mental aspect, unless otherwise stated, it should be assumed that the mental history of the family was negative with respect to mental illness, the criteria whereby mental normality and abnormality were judged being those as laid down in such standard works as (42), (51), (52), (60), (63), (76), and the psychiatric terms employed through this whole thesis are those as occurring in the same references.

Thirdly, again to avoid unnecessary repetition, "treatment" unless otherwise stated should be taken as referring to Cardiazol treatment: "M" should be taken as referring to a major convulsion, S/C as a dose which has proved sub-convulsive in its effects, E.-G. as

"electrocardiogram" or "Electrocardiogram taken" and "E.-C" as "electrocardiograph". The meaning of other abbreviations is clear. The dates given refer to the actual dates of treatment. R_1 means that the dose administered was repeated once. For example, such an entry as "3.7.40 (6) 8.5 c.c. R_1 M E.-G" means that on that date (the 6th.day of treatment) a total of 8.5 + 8.5 c.c. of Cardiazol was administered, that a major convulsion was produced and that an electrocardiogram was taken. Again "4.6.39 (3) 7.5 R_2 S/C" means that on the third day of treatment a total of 7.5 + 7.5 + 7.5 of Cardiazol was administered and proved to be sub-convulsive in its effects. The ages given are the ages of the patients when treatment was begun.

CASE 1. J.W. Male, aged 33, married.
Admitted 30.8.38, discharged recovered 27.11.39.

He sustained an accident while at work as a railway signalman a year before admission and was treated in the Royal Infirmary, Glasgow, for six weeks as a case of fractured pelvis and remained at home for six months thereafter. On his return to work he was anxious and worried in the execution of his duties but "was all right as long as he was with another man". He went off his sleep at night and became very nervous and excited, expressing the belief (which was untrue) that he had caused train accidents; there was a basis for this belief, however, because he was unable to do his job properly and caused delay in the running of trains. This was particularly evident the day before admission when he was stated to have collapsed at his work.

He was stated to have been in a typical state of catatonic stupor on admission and could not be induced to speak and to have been resistive to his injections of Cardiazol. When I took over his treatment he was still grossly schizophrenic with attitudinisation marked and no mental contact was possible with him. Even on 11.11.38, the day of his 25th.injection, he was still far from well and peremptorarily demanded his "clothes" and discharge - obviously to escape the injection he knew he would receive the same afternoon. When told that no clothes were available except institutional ones, he stated that this was intrue as he had seen another patient wearing them. After this date, however, he showed distinct improvement, becoming free of his delusions and apparent hallucinations and came to take an interest in his appearance and surroundings. Beyond appreciating the fact that he had been ill, he showed no insight into his mental illness immediately passed, and there remained a certain facility and morbid introspection: he professed, however, a return in his confidence but was told on dismissal to apply for a transfer to a job which did not carry his previous responsibilities.

On 2.11.38, he did not convulse until 20 minutes after receiving his injection, by which time he was up and dressed in his hospital clothes.

I met him almost a year after his dismissal from hospital and the meeting is described on p.38 of the thesis.

7.9.38	(1)	4.0 c.c.	M
9	(2)	5.0	"
12	(3)	5.0	S/C
14	(4)	5.0	M
18	(5)	6.0	"
19	(6)	6.0	"
21	(7)	6.0	"
23	(8)	6.4	"
26	(9)	6.6	"
28	(10)	6.8	"
30	(11)	7.0	"
3.10.38	(12)	7.4	"
5	(13)	7.5	"
12	(14)	7.7	"
14	(15)	8.0	"
19	(16)	8.0	"
21	(17)	8.3	"
24	(18)	8.5	"
26	(19)	8.7	"
28	(20)	8.9	"
31	(21)	8.9	"
2.11.38	(22)	9.0	"
4	(23)	9.0	"
7	(24)	9.0	"
11	(25)	9.4	"
14	(26)	10.0	"
16	(27)	9.0	"
18	(28)	9.0	S/C
21	(29)	10.0	M

CASE 2. T.D. Male, aged 24. Single.
Admitted 10.10.38, discharged 17.12.38.

He was admitted with a history of having worked successfully as a chef in England until one year

before admission when he returned home complaining of an entire loss of feeling and had remained idle since. He remained very quiet, often for hours at a time, and shunned company of which previously he had been very fond. A few weeks before admission he had been treated in another hospital for goitre but did not improve with treatment.

On admission on 10.10.38 he was described as being very introverted. He stated that he had no feelings of any description and that he was detached from everyone and everything in the world. For that reason he could not be bothered with company and took no interest in anything. Hallucinations were not admitted to.

Cardiazol treatment produced no change in his mental state. It was obvious that he disliked this treatment but he expressed no unusual objection to it. Somnifaine treatment was begun on 28.11.38 and continued until 10.12.38, after which he professed a return of some of his feelings and the desire (not hitherto expressed) of returning to the outside world and to mix with its inhabitants. This feeling continuing, he was discharged relieved.

I interviewed his mother approximately three months after his dismissal. She had requested an interview to see if he could not be readmitted to hospital. Since his dismissal he had not complained of his lack of feeling as he helped her at home by doing the cooking; he, however, talked incessantly of his Cardiazol treatment and the various sensations he experienced as a result of the injections - to such an extent that she felt her blood running cold several times a day and was disinclined on account of her nervous feelings so engendered to stir unaccompanied beyond the threshold of her house in the late evening. She found herself becoming more and more nervous and could not persuade her son to cease from talking about his Cardiazol experiences.

21.10.38	(1)	4.0 c.c.	M
24	(2)	4.5	"
26	(3)	5.0	"
28	(4)	5.2	"
31	(5)	5.5 R.1	"
2.11.38	(6)	6.5	"

4.11.38	(7)	6.7 c.c.	M
7	(8)	6.9 R.1	"
11	(9)	7.5	"
14	(10)	7.7	"
16	(11)	7.9 R.1	"
18	(12)	8.9 R.1	"
21	(13)	10.0	"
23	(14)	10.0	"
25	(15)	10.0	"

CASE 3. D.MacM. Male, aged 36 years. Married. Readmitted 15.11.38 and discharged home 31.1.39.

On readmission, he was confused, restless and agitated and was unable to give a rational account of himself. He appeared to be hallucinatory.

On his previous admission (4.9.38 to 5.11.38) he was reported as having delusions of persecution and as being confused and disorientated. He was reported as having been in a mental hospital in Canada some years previously and of having had a "nervous breakdown" in 1929-30 when he was nursed at home. Since then he had been working well and hard as an engineer's fitter until shortly before admission when he began to "go off" following a spell of extra-hard work with overtime, until, fourteen days before admission, he became very talkative and could not sleep at nights. He expressed the belief that people were trying to poison him and were watching him in the street and that the police were after him. Hie condition got worse and could not be kept in his house. He threatened his brother but never actually

struck him. "Somnifaine" treatment was begun on 8.9.38 and discontinued on 15.9.39. Cardiazol treatment was begun on 19.9.38 and terminated on 28.10.38. Seventeen convulsions resulted from the seventeen injections during this period. During treatment he gradually became calmer, orientated and lost his delusions and was discharged with a view of going on holiday to Stornoway. He was deficient, however, in any real insight into his condition.

He was readmitted on 15.11.38 with a history of having refused, when he reached home, to go on holiday although his wife had a taxi waiting at the door. However, he "kept fairly well" until the day before admission when he began to complain of pain in the region of the left ear and was praying not to be sent back to hospital. He was found by the police the same evening wandering miles from home and had apparently lost his memory and asked them where the cook was, apparently under the belief that he was aboard ship. His mental state on readmission was the same as that described on his previous admission. Cardiazol treatment was recommenced on 13.1.39 and he improved steadily to the point of social recovery from after the first injection and before his dismissal stated that he felt well and full of confidence - much more so than he did the last occasion. As before, he was lacking in insight into the mental state from which he had just recovered.

After his second injection, there was to be heard a reduplicated first sound at the tricuspid area.

13.1.39	(1)	6.0 R_1 + 7.0 c.c.	M
16	(2)	7.2 + 8.2 c.c.	"
18	(3)	9.0 R_1	"
20	(4)	9.0	"
23	(5)	9.2	"
25	(6)	9.4 R_1	"
27	(7)	10.4	"

CASE 4. J.L. Male, aged 19. Single.
Admitted 12.7.37 and transferred to Lennox Castle for Mental Defectives on 30.1.40.

On 11.11.38 his mental condition was one of subnormal intelligence: in addition he was apathetic, his attention was held with difficulty and he was rambling in his conversation. He appeared disinterested and shunned the company in the ward. He expressed bizarre ideas, e.g. his eyesight had failed suddenly as a result of his being shaved. He did not admit to hearing voices but said that he had heard sounds in his ears, and when asked what kinds of sounds he replied "Just sounds".

There was a history of his being shiftless and employed at various odd jobs, chiefly as a message boy. As he was not very energetic he frequently got dismissed. He was in the habit of staying away from home and wandering about for days. On one of these occasions he was found by the police who had him admitted to hospital. On one occasion, he had attended the Western Infirmary Clinic when he was examined by Mr.Kennedy Frazer who found him to have a low I.Q.

He was begun on Cardiazol treatment on 14.11.38. An endeavour was made to treat him with sub-convulsive doses but showed such an intense fear that this was abandoned. On the afternoon before his third injection was due, he went through a window and climbed with incredible facility on to the roof of the ward, the repetition of which act took half an hour by the attendants using ladders. He said he was afraid of the injections on account of the great feeling of shakiness and sinking immediately after he received them. On continued treatment with convulsive doses, an improvement resulted in his mental condition. He took more interest in his surroundings and the company of his fellow patients and did not appear to be listening to the sounds in his ears as frequently as he previously had done. By 22.4.39, however, his mental state had reverted to the condition it was in before treatment was begun.

14.11.38	(1)	3.0 c.c.	S/C
16	(2)	3.0	"

21.11.38	(3)	4.0 c.c.	M
23	(4)	4.2	"
25	(5)	4.4	"
28	(6)	4.6	"
1.12.38	(7)	5.0	"
3	(8)	5.2 (R.1.)	"
5	(9)	5.4 (R.1.)	"
7	(10)	6.4	"
9	(11)	6.6 (R.1.)	"
12	(12)	7.0 (R.1.)	"
14	(13)	8.0 (R.1.)	"
16	(14)	9.0	"
19	(15)	9.0 (R.1.)	"
21	(16)	9.4	"
23	(17)	9.6 (R.1.)	"
26	(18)	9.6 (R.1.)	"
28	(19)	9.6 (R.1.)	"
30	(20)	9.8	"
2.1.39	(21)	10.0	"
4	(22)	10.2	"

CASE 5. C.S. Male, aged 19. Single.
Admitted 7.5.38 and transferred to Hawkhead Mental Hospital on 14.2.39.

There was a history of a previous admission to the S.G.H. from February, 1938, to 30th.April, 1938, when he was taken out on his mother's request. He kept well until the day before his readmission when he "took a fit of crying" saying "they are going to kill me" and was in great terror and fear of losing his life.

For several weeks before treatment was begun on 11.11.38 he lay curled up on his side in bed, the clothes drawn up over him, in a katatonic stupor: he resented being disturbed from this position and made grimaces of disapproval when the sheets were drawn off his face. He refused to speak. The only time he was heard to speak was at those times immediately preceding

his Cardiazol injections when he would sit up in bed weeping and crying in a loud voice as he did so "Oh, daddy! Oh, mammy!" Treatment produced but a transient improvement in him, in that he was able to feed himself and he was no longer incontinent, but two months after treatment was terminated he had quite reverted to his pristine state which appeared to be that of dementia praecox superimposed on an underlying oligophrenia.

11.11.38	(1)	5.0	c.c.	M	
14	(2)	5.0		"	
16	(3)	5.0	R.1.	"	
18	(4)	5.0		"	tricuspid systolic bruit
21	(5)	5.5		"	
23	(6)	6.5		"	
28	(7)	6.7		"	
3.12.38	(8)	7.0		"	
5	(9)	8.0		S/C	
7	(10)	8.2	R.1	M	
9	(11)	9.0		"	
12	(12)	10.0		"	
14	(13)	10.0		"	
16	(14)	10.0		"	
19	(15)	11.0		"	
21	(16)	11.0		"	

CASE 6. S.W. Male, aged 25 years. Single. Admitted 19.9.38 and transferred to Barnhill Institution on 3.7.39.

On admission he was reported as being a case of dementia praecox: he was retroverted, emotionally apathetic and sustained conversation with difficulty. He was frequently seen to smile foolishly and hedged when he was asked to give a reason for the practice. He did not admit to hearing voices.

There was a history of his having been a patient in the Mental Observation Wards of Dyke Street

Hospital in 1936 for a few weeks and on his discharge therefrom was sent to a Labour Exchange Camp in Bristol. He left there and went to London whence he tramped to Glasgow, arriving home on 15.9.38 in "a very neglected state". His father noticed that he was peculiar in manner, had a vacant smile, smoked continuously and drank tea all day. His people at home were afraid of him though he did not actually offer them violence.

He was begun on Cardiazol treatment on 16.11.38 and treatment was terminated on 2.1 39. He showed an improvement after his first few injections. He appeared to apply himself to simple ward work in a non-mechanical manner and became interested in things outside himself. At first, he had considerable control over himself and, unlike the other patients, did not betray his fear of treatment at the moment of injection although he confessed on an injection-free day that he felt like "a disembodied spirit hovering on the brink of eternity". Soon, however, his equanimity concerning the injections disappeared and towards the end of the course of treatment there was invariably a struggle, in one of which it transpired that he was delusional, asserting with all the vehemence that his terrifying fear gave him that there was a Mr.Thomson, Detective-Sergeant, downstairs with two other detectives to see him and myself so that no more injections would be given.

The termination of treatment found him working well in the wards quite contentedly and voicing no hallucinations, delusions or complaints. He was quite lacking, however, into any insight into his condition which he would not discuss and about which he was very secretive and suspicious whenever reference was made to it.

16.11.38	(1)	3.0 c.c.	S/C
18	(2)	5.0 R.1.	M
21	(3)	6.0	M
23	(4)	6.2	S/C
25	(5)	6.5 R.1.	M
28	(6)	7.0 R.1.	M
1.12.38	(7)	8.0	M
3	(8)	8.2	M
5	(9)	8.4	M
7	(10)	8.6 R.1.	M
9	(11)	9.6 R.1.	M

12.12.38	(12)	10.0 R.1.	M	
14	(13)	11.0 R.3.	M	E.- G.taken.
16	(14)	11.0 R.1.	M	
19	(15)	11.0 R.1.	M	
21	(16)	11.0 R.1.	M	
23	(17)	11.0 R.1.	M	
26	(18)	11.0 R.1.	M	
28	(19)	11.0 R.1.	M	
30	(20)	11.0 R.1.	M	
2.1.39	(21)	11.0	M	

CASE 7. T.S.C. Male, aged 30 years. Married. Admitted 15.11.38, discharged on his own request on 5.12.38.

He was of the pyknic type of Kretschmer. The radial arteries were slightly sclerosed and of irregular wall. B.P. = 126/80 mm.Hg. The cardiac sounds were moderately good in quality. The second sound at the tricuspid and pulmonic area was reduplicated.

He sought admission on account of an attack of depression, to which attacks he had been subject for a considerable number of years and which had occasionally caused him to contemplate suicide. His marital relations (which he did not elaborate on) were stated to be unsatisfactory and unhappy and he was separated from his wife. (He had no visitors during his stay in hospital and an impersonal history was not obtained.)

Concomitantly with his depression, he complained of apathy and indifference towards ordinary every-day affairs, was lacking in confidence and initiative. He complained, in addition, of a "dull feeling" in his head. This latter feeling disappeared after the third Cardiazol injection. His other complaints gradually improved but he was not entirely free of them when he requested his discharge from hospital. This desire was largely attributable to his marked fear of the injections, the

description of this fear, however, he would not elaborate on. As he now stated that there was a return in his confidence and that there was now a complete absence of suicidal impulses, pressure was not brought to bear upon him to remain.

18.11.38	(1)	3.0 c.c.	S/C
18	(2)	5.0	M
21	(3)	5.0 R.1.	"
23	(4)	5.5	"
25	(5)	6.5	"
28	(6)	6.7	"

CASE 8. J.L. Male, aged 28. Single.
Readmitted 7/7/38. Still in hospital (3.1.39).

His chest was so pigeon-shaped in type that the area of cardiac dullness was not determinable on percussion. The heart sounds were distant and of poor quality.

His father died in Hawkhead Mental Hospital, after having been a patient therein for five years. The patient himself appeared to be mentally well until four months before his first admission (8.6.39 to 3.7.39) when his only sister died. Since then he had taken "fits of depression". He took no interest in anything, became dull and apathetic and sat silently for long periods staring into the fire. An attempt to work after some months' unemployment resulted in his employers dispensing with his services after one and a half days when he was told that he was "unsuitable". The same afternoon he was found with a pen-knife in his hand threatening to commit suicide, whereupon he was arrested by the police and brought to hospital.

On his readmission, he showed no suicidal tendencies and gave no trouble to the nursing staff save that he occasionally refused food as a consequence of

obeying the soft voice of a young man telling him what exactly he had to do and the manner of doing it. He occasionally heard other voices. He was apathetic and uninterested in his surroundings. Fairly frequently the lips of his habitually sad features were seen moving as if he were speaking in reply to the voices he heard.

He at first improved under Cardiazol treatment in that he became more alert, appeared to take an interest in his surroundings and no persuasion was required to take his food, but very soon after the termination of treatment, of which he was very afraid, relapsed into the same condition as he was in when treatment was first begun.

27.11.38	(1)	4.5 c.c.	M
29	(2)	4.6	"
1.12.38	(3)	4.8	"
4	(4)	5.2	"
6	(5)	5.6	"
8	(6)	5.8	"
11	(7)	6.0 R.1.	"
13	(8)	6.9	"
15	(9)	7.3	"
18	(10)	7.6	"
20	(11)	7.8	"
22	(12)	8.0	"

CASE 9. E.R. Male, aged 37 years. Married. Admitted 19/11/38 and discharged home on 14/1/39.

All his tendon jerks were markedly increased as were also the abdomincal reflexes. B.P. - 155/80.

About one month before admission, he was reported as "acting strangely" and talked incessantly about his work, which was that of a cinema commissionaire and hall-keeper, and that the daily cleaners were accusing him of working overtime. He went off his sleep as a

consequence and instead of sleeping sat up for long periods calculating all the hours the cleaners had to work. On the morning of admission, instead of going to work he continued far past the habitual tram-stop and came off instead at Charing Cross where a policeman who knew him noticed that he was strange in manner and brought him home. The patient's wife was an epileptic and several years older than himself. His wife stated that an old friend of the patient (to whom the patient had loaned £5) had recently died and that the patient had frequently referred to this friend saying "Wallace knows all about it!"

His behaviour on admission was very uncertain and when his frequent impulsive gettings out of bed and running over to the other side of the ward after staring for a long time at the ceiling or windows were interfered with, he struggled slightly and often appeared as if he would strike the attendants. He voiced delusions freely but denied the presence of hallucinations: his delusions concerned "time" about which he talked at great length and above the modifications he would make in the conventional manner of regarding time and how if all people could be inculcated with the same doctrine they would all become "brothers" and a Utopia would be brought about.

Treatment with prolonged narcosis with Sommifaine producing only a quietening of his impulsiveness, he was begun on Cardiazol treatment and gradually improved to the point of social recovery, but he had little insight into his previous mental state although he was now able to laugh at his "time theories". He was simple and facile and very masochistic in his attitude to people generally.

19.12.38	(1)	4.0 c.c.	S/C	
21	(2)	5.0	M	tricuspid
23	(3)	5.0	"	systolic bruit
28	(4)	5.5 R.1.	"	
30	(5)	6.5 R.1.	"	
2.1.39	(6)	7.0 R.1.	"	

CASE 10. R.G. Male, aged 50 years. Married. Admitted 5.10.38 and discharged home on 8.4.39.

His chest was markedly pigeon-shaped. The extent of respiratory excursion was poor.

A history was given of head injuries and "split tongue" resulting from an accident at the engineering works he was employed in several years before admission. He received first aid at the Victoria Infirmary but was not detained. He had continued work until June, 1938, when he was laid up with stomach symptoms and treated by his doctor as a case of gastritis. His doctor eventually sent him off on a four weeks' holiday as he was becoming depressed and "worrying about his stomach too much". The holiday produced no betterment in his condition and on the morning of his admission to hospital suddenly "became very noisy and would not stay in bed".

On admission, there was a large element of confusion in his mental state and when he talked (which was seldom) he only did so in mutterings when it was learned that he was disorientated and that he was delusional, believing that people were talking about him and his fairly frequent endeavours to get out of bed was in order to "get to them".

He gradually improved to the point of social recovery with Cardiazol treatment and after the sixth dose had progressed sufficiently to give a moderately good account of himself and to state that he did not know of anything that was happening while he was "dazed", i.e., while in his depressive stupor. There was a slight relapse in his mental state which, however, disappeared with further treatment. He lacked insight into his previous mental state, however.

30.12.38	(1)	4.0 c.c.	S/C
2.1.39	(2)	4.0	M
4	(3)	4.2 R.1.	"
6	(4)	5.0 R.1.	"
9	(5)	6.0 R.1.	"
11	(6)	7.0	"
13	(7)	7.2	"
16	(8)	7.4	"

18.1.39	(9)	7.6 c.c.	M
20	(10)	8.0	"
23	(11)	8.2	"
25	(12)	8.4	"
27	(13)	8.6	"
30	(14)	8.8 R.5.	"
1.2.39	(15)	9.8	"
3	(16)	10.0	"
6	(17)	10.2	"
8	(18)	10.4	"
10	(19)	10.6	"
13	(20)	10.8	"
15	(21)	11.0	"
17	(22)	11.0	"
20	(23)	11.0	"
22	(24)	11.0	"
24	(25)	11.0	"
27	(26)	11.0	"
1.3.39	(27)	11.0	"

CASE 11. J.K. Male, aged 36 years. Married and separated 8 years.
Admitted 2.12.38 and discharged home 29.4.39.

There was slight arterio-sclerosis as determined by palpation of the radial arteries. B.P. = 130/90 mm. Hg. An occasional rhonchus was heard all over his chest on auscultation.

There was a history of a head injury one year before admission on account of which he attended the Glasgow Western Infirmary as an out-patient. He was slightly strange in manner after the accident and during the two months before admission "his mind wandered" and he stated that he saw faces in the fire. He "talked of nothing but pigeons and coal" and at times "took turns of dancing and singing" and at these times his eyes were "queer and staring". During the fortnight before admission, he became worse and expressed delusions

e.g. to the effect that he had taken a trip to the Bridge of Weir and had not paid his fare.

A paternal uncle died in Hawkhead Mental Hospital: two other uncles were stated to be "not quite rational". Since parting from his wife (the reasons for this were not stated) eight years previously, the patient himself had been "not quite normal" and drank heavily, frequently "red wine", and when in drink "used to knock his head against the wall".

Throughout the physical examination, his attitude was one of passive resistance. At times, he became taut and would suddenly twist his head to one side as if hearing voices or his eyes would suddenly dart rapidly from spot to spot and then stare fixedly at nothing, as if he were hallucinating. On occasions he would sit up suddenly in a constrained attitude waving his hands and arms as if trying to convey a message to someone unseen or as a response to some injunction from the voices, which, however, he denied hearing. He was indifferent to things happening around him and his pre-occupation with himself extended to his feigning deafness when asked a question to which his replies were irrelevant. At these times, he frequently repeated the words "coal" and "pigeons". His attention was caught and held with difficulty.

He was begun on treatment on 12.12.38 and showed a marked fear of treatment though his resistance was confined to verbal protests. At this date he was allowed up but had to be re-bedded on 7.2.39 after his twenty-fourth injection owing to the appearance of confusion which continued to the end of treatment, after which it passed off. He then progressed to the point of social recovery with, however, no insight into his previous mental state and continued to deny that he had ever hallucinated or been subject to delusional beliefs.

12.12.38	(1)	5.5 c.c. R.1.	M
14	(2)	5.0	"
16	(3)	5.5	"
19	(4)	6.0	"
23	(5)	6.2 R.1.	"
26	(6)	6.4 R.1.	"

28.12.38	(7)	7.0		M	
30	(8)	7.0	R.l.	"	
2.1.39	(9)	7.5	R.l.	"	
4	(10)	8.0	R.l.	"	
6	(11)	9.0	R.l.	"	
9	(12)	10.0	R.l.	"	
11	(13)	11.0		"	
13	(14)	11.0		"	bradycardia.
16	(15)	11.0		"	
18	(16)	11.0		"	
20	(17)	11.0	R.l.	"	
23	(18)	11.0	R.l.	"	
25	(19)	11.0	R.l.	"	
27	(20)	11.0	R.l.	"	
30	(21)	11.0	R.l.	"	
1.2.39	(22)	11.0	R.l.	"	
3	(23)	11.0		"	
6	(24)	11.0		"	
8	(25)	11.0		"	
10	(26)	11.0		"	
13	(27)	11.0		"	
15	(28)	11.0	R.l.	"	
17	(29)	11.0		"	
20	(30)	11.0		"	
22	(31)	11.0		"	
24	(32)	11.0		"	
27	(33)	11.0		"	
1.3.39	(34)	11.0		"	

CASE 12. J.Y. Male, aged 33 years. Single.
Admitted 12/12/38 and discharged home on 4/3/39.

This patient was admitted with a history of having been operated upon three times in childhood for cataract. He had been blind in the right eye for eight years, the sight gradually becoming restored. He had also been subject to infantile convulsions when young and to "turns of strangeness in manner and behaviour"

every four or five years. His mother had died in June, 1938, following a stroke. For the month preceding admission he became "strange in manner", smoked continuously and went off his food. He stated that the police were after him. For days he talked continuously and then lapsed into a complete silence for the two days preceding admission.

When approaching to examine him, he was found lying with his handkerchief over his face: this was, he explained, to catch any saliva which might flow from his mouth, although he was lying in the dorsal decubitus and no evidence of excessive salivation was found. He was a thin under-nourished man who looked almost ten years younger than his stated age. His pupils were unequal, the right being larger than the left (which was excentrically placed and irregular in outline) and reacted brickly to light and through considerable amplitude unlike the left which was sluggish and through smaller amplitude. Strabismus was present due to a left external rectus palsy. There was a trace of glycosuria. B.P. = 140/75 mm.Hg. He was passively resistive during the examination and was very loathe to enter into conversation. He proved to be apathetic, listless and uninterested in his surroundings. He frequently wept and when asked why he did so he shook his head and wept all the more. He appeared to be a case of dementia praecox which was confirmed during Cardiazol treatment when he maintained that the spirit of Mozart inspired his musical studies and that his tenor voice was one of surpassing quality, matching that of Caruso's. When he left hospital, he was going to earn his living as a tenor singer (he had never sung to an audience before and his ordinary job was that of a tea-traveller) and marry a girl of his acquaintance possessed of much money and of a higher social standing.

He improved markedly following treatment, his sister stating that he was better mentally than ever she could remember him, but was lacking in insight into his past mental state and still toyed with the idea of earning his living by operatic singing and was not to be dissuaded.

21.12.38	(1)	5.0 bradycardia.	M
23	(2)	5.0	"

28.12.38	(3)	5.2		
30	(4)	5.4	R.1.	M
4.1.39	(5)	6.0	R.1. bradycardia 40 min.	"
13	(6)	6.2	"	"
16	(7)	6.4	E.G.	"
18	(8)	6.6	R.1. bradycardia.	"
20	(9)	7.6	R.1.	"
23	(10)	7.8		"
25	(11)	8.0		"
27	(12)	8.2		"
30	(13)	8.4	- extremely noisy and	"
1.2.39	(14)	10.0	restless after the con-	"
3	(15)	10.0	vulsion and had a	"
6	(16)	10.2	second convulsion	"
6	(17)	10.4	three hours later.	"
10	(18)	10.4		"
13	(19)	10.6		"
15	(20)	11.0		"
17	(21)	11.0		"
20	(22)	11.0		"
22	(23)	11.0		"
24	(24)	11.0		"

CASE 13. W.M. Male, aged 25 years. Single. Admitted 18.12.38 and discharged home 21.5.39.

Save for a trace of glycosuria, his physical condition was normal. B.P. = 125/80 mm.Hg. By the time treatment was begun on 23.12.38, the glycosuria had increased to 1.5 - 2.0%, together with the appearance of acetone.

There was a history of his having been a brilliant scholar and dux of his school, after leaving which he began his apprenticeship to a C.A. being due to sit his final examinations the year before admission but did not feel equal to them. Instead of studying, he began to take religion more seriously than was his wont, and

read voraciously concerning Roman Catholic doctrines, and, about one month before admission stated that the Catholics were after him, persuading him to change his religion. He went off his sleep, did not eat much, said that he was unworthy and was in Hell for some wicked thing he had done. He expressed at the same time the wish to leave this wicked earth and talked often of suicide.

His father (who was separated from his wife) had been a heavy drinker and had ruined a business of thirty years' standing. The patient's mother was in a home and "suffered from delusions". An elder sister of the patient's had died four years previously after five years at home as an invalid with mental depression.

The patient was circumlocutory and disjointed in his account of himself and recognised that he was emotionally apathetic and indifferent to other people. He stated he had always been introverted and self-critical in a non-constructive manner, had always fought shy of company and was much given to day-dreaming, and he expressed much guilt in connection with his masturbatory and religious practices. He stated that he was the cause of all the trouble in the ward (the admission ward being particularly noisy at that time) and he frequently made springs out of bed in an endeavour to reach the window.

With Cardiazol treatment, his glycosuria and acetenuria disappeared after the 4th.injection, by which time he had become more rational in his talk which, however, was still very much circumlocutory in character and, on one occasion, interspersed with neologisms. About the same time, a tendency was noticed in him to smile without cause (a practice not hitherto indulged in) and to laugh foolishly to himself at times. He was still subject to his impulsive rushing to the window. He gradually improved (in so far as behaviour was concerned) with treatment, to which he had a marked fear which he expressed in a letter, his mental state at the time preventing him from expressing his wishes concisely and verbally.

"Dr.Good (with due deference),

"Sir, If I might encroach on a little of your private time the vibration which followed the jag yesterday

"(Friday) was much deeper and louder" ("Louder" was corrected to "longer") than usual. I fully believe you are a very capable man one way and another before I came to hospital. It appeared to be my circulation when I spoke to you last night and I had a repetition at retiring time. It therefore occurred to me to ask if in view of the circumstances it would not be advisable to discontinue the injections until a future time. To be very sincere, sir", (this latter interpolated) "I am a bit afraid for I had a feeling as if my head was trying to take" ("take" was corrected to "talk") "in one direction and then it went away at a tangent". (Questioned about this point, he said that his mind seemed to be standing still but his head seemed to be travelling at 30 m.p.h.)

"This may have been <u>because I think at the time two people were talking to me</u>.

"This little note is really to entreat you as a doctor and I would really be very grateful for your help.

"If you could really discontinue the injections meantime - perhaps I could collect the other two or three later.

"I don't think I am very far short of the twenty". (This latter sentence was to the effect that, at that time, the usual course of treatment included twenty injections.)

"Yours very" (unfinished).

In view of his mental state, however, it was considered advisable to administer 27 injections during which he continued to improve, still from the viewpoint of behaviour, however, although when he was taken home by his relatives on their request he was quite lacking in any insight into his condition.

23.12.38	(1)	4.0 c.c.	M - irregularity.
26	(2)	4.0	"
28	(3)	4.5	" - irregularity.
30	(4)	4.5 R.1.	"
2.1.39	(5)	5.0	"

4.1.39	(6)	5.2 R.2.	M.
6	(7)	6.2	"
9	(8)	6.4 R.2.	"
11	(9)	7.4	"
13	(10)	7.6	"
16	(11)	7.8	"
18	(12)	8.0	"
20	(13)	8.2	"
23	(14)	8.4	"
25	(15)	8.6	"
27	(16)	8.8	"
30	(17)	9.0	"
1.2.39	(18)	9.2	"
6	(19)	9.4	"
8	(20)	9.6	"
10	(21)	9.6	"
13	(22)	9.8	"
15	(23)	10.0	"
17	(24)	10.2	"
20	(25)	10.4	"
22	(26)	10.6	"
24	(27)	10.6	"

CASE 14. B.C. Male, aged 54. Married. Admitted 26.12.38 and discharged home on 15.4.39.

This patient was admitted with a history of two years previously having fallen a distance of thirty feet while at his work as an engineer and sustaining as a result an injury to his nose, a scalp wound and a fracture of the right tibia. (Scars were present at all these places). He was taken to the Glasgow Western Infirmary and detained therein for eleven weeks. Ever since, he had been drawing compensation for his accident and all the time worried greatly about being unable to return to work. (This was attributed to lack of confidence.) In the few weeks before admission, he became more dissatisfied and difficult to manage at home, although never violent or

offering violence. Sometimes he would sit staring into the fire for long periods and took turns of weeping.

Physically, he was a stocky, well-built man, with an emphysematous chest. His right pupil was oval in shape and larger than the left. Both were regular in outline and gave the normal pupillary reflexes. B.P. = 130/80 mm.Hg.

Mentally, he was restless, confused, talkative and noisy, frequently shouting aloud in account of his unsystematised delusions, e.g. he believed that people had followed him to hospital and were shouting and speaking about him. Occasionally he lapsed into mutism and would not converse except by means of signs.

No signs of improvement resulting from ordinary therapeutic measures, he was begun on a course of Cardiazol treatment, and an improvement showed after his first injection and continuing gradually until the termination of treatment with gradual disappearance of his confusion, disorientation, mutism and delusions. He said he felt fit and anxious to get home, but was lacking in any insight into his previous mental state.

The day following his last injection he complained of severe pain in his left arm (X-ray was negative) and the same evening developed signs of pneumonia which responded to M.& B.693. After defervescence, however, he continued to run at evening temperature for a few days. Until his dismissal he continued to complain of pain, stiffness and uselessness of his left arm and also pain in the left side of the chest which was also negative to X-ray. The arm muscles responded normally to faradic and galvanic stimuli. The symptom was judged to be hysterical in character.

27.1.39	(1)	5.0 c.c.	M	
30	(2)	5.2	"	E. G.
1.2.39	(3)	6.2	"	
3	(4)	6.4	"	tricuspid systolic bruit
6	(5)	6.6 R.1.	"	irregularity.
8	(6)	7.6	"	
10	(7)	7.8	"	

CASE 15. H.McA. Male, aged 33 years. Married. Admitted on 16.1.39 and discharged home on 31.1.39.

He was reported as having been a difficult child and having "got into trouble several times", and on one occasion as a result, was sent to a reformatory. Two years before his admission, he was stated to have been in police hands again, this time for forgery. In addition to these psychopathic traits, the patient himself stated that for eight years before admission he had been subject to attacks of depression and in one attack six years previously had been troubled with suicidal thoughts. These depressive attacks were related to the appearance of patches of dermatitis on his forearms and hands. These patches were present in his admission when he stated he was depressed and in need of a rest. He could scarcely talk of anything else but the patches of dermatitis.

Under Cardiazol treatment he recovered from his depression and simultaneously his dermatitis disappeared. It transpired, however, that he was seeking compensation from his employers for his dermatitis. He went out of hospital against advice.

18.1.39	(1)	2.0 c.c.	S/C	
20	(2)	2.0	"	
23	(3)	2.0	"	
25	(4)	2.0	"	
27	(5)	5.0	M	E. G.
29	(6)	5.0	"	
30	(7)	5.0	"	

CASE 16. R.A. Male, aged 40. Married. Admitted 17.1.39 and discharged home on 4.2.39.

The cardiac sounds of this patient were soft and of indifferent tone. There was a reduplication of the second sound at the pulmonic area. B.P. - 125/80 mm.Hg. Trade of glycosuria.

He was a small, moderately, well-nourished man with a soft, womanish voice in which he expressed delusions regarding other men. These were "against" him and playing all sorts of tricks on him (especially his workmates at the oil-cake factory where he had worked for twenty years) thereby insulting him. He had been of these opinions for many years. He showed considerable reluctance to enter hospital and was very suspicious of me when I told him he would be put into a quiet ward.

One evening six weeks before admission he collapsed while getting ready to go out to work and complained of severe abdominal pain and headache. His doctor diagnosed "colic" and prescribed pills and a bottle which, however, the patient refused to take, stating that the doctor was trying to poison him. On his wife coaxing him to take them, he stated that she and the family of two girls and one boy were against him. He threatened his wife with physical violence (though he never actually struck her) and accused her of marital unfaithfulness. This latter accusation he had first made against her about one year before admission when she began to attend the Church Guild regularly.

He improved with Cardiazol treatment to the point of laughing (albeit in a half-hearted manner) at his previous delusions. He requested his discharge and the very definite impression was received that this request was largely prompted by his fear of treatment, for he did not complain otherwise of the ordinary routine treatment he had received while in hospital and readily admitted to the improvement which Cardiazol itself had produced.

18.1.39	(1)	2.0 c.c.	S/C	
20	(2)	2.0	"	
23	(3)	5.0	M	E.-G. taken.
25	(4)	5.2	"	E.-G.
27	(5)	5.4	"	

CASE 17. J.S. Male, aged 18 years. Single. Admitted 23.1.39 and discharged home on 22.4.39.

He was a tall youth of fresh complexion and his features were those commonly designated "cherubic" with scarlet bowed lips. The first sound at the tricuspid and pulmonic areas was reduplicated. B.P. = 130/80 mm.Hg.

He was reported as having been in delicate health for a considerable number of years after an attack of lobar pneumonia and meningitis when five years old. He was "slow at his studies", and, after leaving school at fourteen, worked as a van-boy delivering bread until he was 16 when his services were dispensed with as he "was no use at his work". He was always of a quiet and reserved disposition. From 16 until his admission, he had done no work until six months previously when he had gone to a labour training camp but returned home a few days later saying that he did not like the place. A change was noticed in his mental condition. He often sang, especially towards evening, and would lie in bed all day, refusing to get up, and answered the voices which he said were speaking to him. At other times, he took a mirror to bed with him and would survey himself in it for long periods. Reprimanded on one occasion for these practices by his father and mother, he made a physical assault on them.

His condition was the same on his admission to hospital and he confessed to hearing voices, usually of an unpleasant nature, telling him "he is through" and "he is finished". He was usually dull and uninterested in his surroundings and had spells of laughing foolishly to himself.

He was begun on treatment of 25/1/39. He stated previously that he had had nothing to do with women at any time but on 2/2/39 when he saw a maid cleaning the corridor outside he began masturbating. About the same date he attacked an attendant who had restrained him from going to the lavatory. Towards the end of treatment, he stated that he could then think more clearly than he previously could. His behaviour at that time was much improved and he occupied himself quietly in the day-hall

and, so pleased were his parents with his improvement, that they took him out of hospital against medical advice.

25.1.39	(1)	5.0		M	
27	(2)	5.2		"	E.-G.
30	(3)	5.4		"	
1.2.39	(4)	5.4	R.1.	"	
3	(5)	6.4		"	
6	(6)	6.6		"	- tachycardia.
8	(7)	6.8	R.2.	"	
10	(8)	7.8	R.1.	"	
13	(9)	8.8		"	
15	(10)	8.8	R.1.	"	
17	(11)	9.8		"	
20	(12)	10.0		"	
22	(13)	10.2	R.1.	"	
24	(14)	10.4		"	
27	(15)	10.6	R.1.	"	- tachycardia.
1.3.39	(16)	10.6		"	
3	(17)	10.6		"	
13	(18)	10.6		"	
15	(19)	10.6		"	
17	(20)	10.6	R.1.	"	
20	(21)	10.6		"	

CASE 18. J.K. Male, aged 20 years. Single. Admitted 10.1.39, left hospital on his own account 27.1.39 - readmitted 1/2/39 and discharged home 4.4.39.

There was a weakness of the right external rectus muscle producing a strabismus. B.P. = 135/80 mm. Hg. Trace glycosuria.

He was admitted with the history of having fallen from scaffolding on which he was working as a labourer towards the end of November, 1938, and was taken to the Glasgow Western Infirmary where two stitches were inserted into the scalp wound which had been

produced. After a few days' recuperation, he went to London to look for work and joined the Army on 12.10.38. Nothing more was heard of him until his father received notification that his son was a patient in Netley Hospital and that he was discharged from the Army on 30.12.38. On his arrival home he "had no control of his nerves", removed his clothes and then put them on again, and he sang and laughed to himself.

He admitted after persistent questioning on admission that the various postures he went into and attitudes he assumed were executed at the behest of a voice which he heard speaking to him. He heard other voices calling him names and condemning him for masturbation and for having had sexual connections with the cat and the bitch which was kept at home. He also suffered from visual hallucinations seeing "statues and things".

Until treatment was begun on 16.1.39 he proved uncertain in his behaviour and on one occasion attempted to throw a chair at the nursing staff whom he frequently cursed using very obscene language. Immediately after his first convulsion he developed a severe bradycardia of forty per min.: this lasted for about half a minute and only the second cardiac sound was heard although the pulse was felt at the wrist. The bradycardia was repeated on three other occasions. Regarding his mental state, the first six injections produced a removal of the katatonic features present on admission and his conduct was not so impulsive while his language was very much restrained. His fear of the injections was very marked and caused him to run away from hospital. He was, however, brought back four days later by his father and, under further treatment, gradually improved to the point of social recovery with, however, complete lack of insight into his condition. Up until the very last, his fear of the injections was very marked and even when assured that treatment was complete, was so nervous when an electrocardiographic check-up was being done, that the records were rendered valueless on account of the tremor from his agitation.

16.1.39	(1)	5.0 c.c.	M	- bradycardia.
18	(2)	5.2 R.1.	"	
20	(3)	6.5 R.4.	"	- bradycardia.

23.1.39	(4)	7.5		M	
25	(5)	7.8		"	
27	(6)	8.0		"	
3.2.39	(7)	8.0		"	
6	(8)	8.2		"	
8	(9)	8.4		"	
10	(10)	8.6	R.1.	"	
13	(11)	9.6		"	
15	(12)	9.8		"	-bradycardia.
17	(13)	10.0		"	
20	(14)	10.2		"	
22	(15)	10.4		"	
24	(16)	10.6		"	
27	(17)	10.8		"	
1.3.39	(18)	10.6		"	
3	(19)	10.8		"	- bradycardia.
13	(20)	10.0		"	- E.-G.
17	(21)	10.2		"	
20	(22)	10.2		"	- E.-G.

CASE 19. C.B. Male, aged 38 years. Single. Admitted 24.1.39 and discharged to Stoneyetts Hospital on 31.10.39.

He was a muscular, well-nourished man of fresh complexion. His radial arteries were slightly sclerosed. B.P. = 145/80 mm.Hg. The cardiac sounds were of indifferent tone and the first sound at the mitral and tricuspid areas were reduplicated.

He was stated to have been a brilliant student at school which he left at the age of sixteen to enter an office in order to study accountancy. Owing to the Great War his final examinations were interrupted and he never since sat them. Slackness of work made him idle and in the months before admission he had applied unsuccessfully for various positions. He became very despondent and began to fight shy of company. He eventually became more and more withdrawn that his admission

to hospital was considered desirable.

On admission, he was dull, listless and uninterested in his surroundings. He usually lay either staring fixedly at the ceiling for long periods or lay unmoving with his head beneath the bed-sheet. He did not admit to suffering from auditory hallucinations although it was extremely probable that he was - often when being spoken to he would suddenly turn his head or his eyes as if hearing something. He had a facial tic in the form of a twitching of his nose. His replies to questions (for he would not speak otherwise) were usually to the point but only after consideration and in his very soft voice.

He was usually very restless after a convulsion, striking out in a blind way at bystanders in the post-convulsion confusion and usually he required restraint to prevent him doing himself and other people possible damage. He was allowed up in the day-hall towards the end of treatment but was still very much an asocial patient and no real change was present in his condition. He was certified and transferred to Stoneyetts Hospital.

27.1.39	(1)	5.0		M	E.-G.
30	(2)	5.2		"	
1.2.39	(3)	5.4		"	
3	(4)	5.6		"	
6	(5)	5.8	R.1.	"	
8	(6)	6.8		"	
10	(7)	7.0	R.1.	"	
13	(8)	8.0	R.1.	"	
15	(9)	9.0		"	slow irregularity.
17	(10)	9.2		"	
20	(11)	9.4		"	
22	(12)	9.6		"	
24	(13)	9.8		"	
27	(14)	9.8		"	
1.3.39	(15)	10.0		"	E.-G.
3	(16)	10.2		"	- slow irregularity and reduplication of second sound at mitral area, with slowing of the pulse before the convulsion.
13	(17)	10.2		"	- bradycardia 50.

15.2.39	(18)	10.4	M
17	(19)	10.6	"
20	(20)	10.6	"

CASE 20. R.L. Male, aged 50 years. Married. Admitted 30.11.38 and discharged home 18.3.39.

This patient was admitted with a history of having heard voices speaking to him for some years previously. He heard them at irregular intervals telling him to go upstairs, to go downstairs. Latterly, he tried to do the opposite to what they told him. He was of the opinion that everyone knew about him and his hearing the voices which were so persistent that he had to come into hospital. These voices were so interfering that he had not worked for several years previously.

He proved to be a quiet, helpful patient in the wards and confessed to some degree of depression as he had been hearing the voices telling him to go and drown himself as he was of no use to anyone. They also cursed him, hurling abusive epithets at him. He improved a little with ordinary routine ward treatment owing to the fact that the voices were not so insistent that he should do away with himself, but his progress became stationary at this stage until during a sub-convulsive course of Cardiazol treatment when he progressed to the point of being entirely free of these auditory hallucinations and of remaining so. The sub-convulsive treatment he received in his clothes in the treatment ward, the arm injected resting on the table. He ultimately came to these injections with some amount of fear but continued despite this for he said he appreciated the fact that they were helping him. He had no insight, however, into his past mental state, treatment merely being symptomatic in its effects.

30.1.39	(1)	2.0 c.c.	S/C
1.2.39	(2)	"	"

3.2.39	(3)	2.0 c.c.	S/C
6	(4)	"	"
8	(5)	"	"
10	(6)	"	"
13	(7)	"	"
15	(8)	"	"
17	(9)	"	"
20	(10)	"	"
22	(11)	"	"
24	(12)	"	"
27	(13)	"	"
1.3.39	(14)	"	"
3	(15)	"	"
13	(16)	"	"

CASE 21. C.S. Male, aged 49 years. Married. Admitted 20.1.39 and discharged home 24.3.39.

B.P. = 130/90 mm.Hg.

The patient was admitted with the history of periodic turns of depression (for which he received hospital treatment) extending over a considerable number of years and that in his present one he believed, without any foundation, that his neighbours were talking about him. He was stated to have always been of a quiet retiring disposition, practically his only interests being his garden and his home.

He proved to be agitated and extremely depressed and constantly reiterated that his mind was gone and that his wife and three of a family would go the same way. He was so possessed with the preoccupation of his hopeless state that no details of his personal life could be elicited from him. He gradually improved to the point of social recovery under Cardiazol treatment but lacked insight into his condition.

30.1.39	(1)	2.0	c.c.	S/C	
1.2.39	(2)	2.0		"	
3	(3)	2.0		"	
6	(4)	2.0		"	
8	(5)	2.0		"	
10	(6)	5.0	R.4.	"	E.-G.
13	(7)	7.0	R.1.	M	
15	(8)	7.0	R.1.	"	
17	(9)	8.2	R.1.	"	
20	(10)	9.2		"	
22	(11)	9.4		"	
24	(12)	9.6		"	
27	(13)	9.8		"	irregularity.
1.3.39	(14)	10.0		"	
3	(15)	10.0		"	
13	(16)	10.0		"	
15	(17)	10.0		"	
17	(18)	10.4		"	

CASE 22. W.G. Male, aged 43 years. Married. Admitted 1.2.39 and discharged home 28.2.39.

He was of the pyknic type of Kretschmer. B.P. = 140/75 mm.Hg. Trace Glycosuria.

He was admitted with a history of having been in the Great War in which he was stated to have developed "shell-shock" and "neurasthenia" from which he had never properly recovered. Until his final discharge by the Army authorities in 1933, he had been at home all the time and was subject to periodic attacks of "headaches, anxiety and nightmares". It was on account of one such acute attack that he was admitted to the observation wards of the Southern General Hospital.

On admission his mental state was one of pronounced depression of the manic-depressive type (with retardation and self-reproaches pronounced) save that he ate and slept well. He also complained of headaches,

ringing in his ears and occasionally he felt that his head was going to burst.

He was begun on Cardiazol treatment five days after admission (6.2.39) treatment being continued until 13.2.39 when it was stopped owing to the occurrence of a phlebitis of the vein in the left arm. The phlebitis had completely resolved two weeks later. During treatment he showed a gradual improvement which was continued until his dismissal: his depression had quite left him and he felt that his confidence, long-lost, had returned.

6.2.39	(1)	5.0 c.c.	M E.-G.
8	(2)	5.2	"
10	(3)	5.4 R.l.	"
13	(4)	6.4	"

CASE 23. M.FitzG. Male, aged 32 years. Single. Admitted 4.2.39 and transferred 18.4.40 to the Licenced Wards, Southern General Hospital.

B.P. = 125/80 mm.Hg.

He was admitted with the history of having been an only and spoiled child and of having been a brilliant scholar at Hutcheson's Boys' School. Since leaving school at the age of sixteen, he had worked in a city office and had led an uneventful life save that he had been in the hands of the police on a few occasions for drunkenness. Following upon the death of his father two years before admission (his father died of carcinoma and, like the patient, was stated to have been a very heavy drinker) he was in the mental observation wards of Stobhill Hospital for two periods of seven weeks being taken home on trial on the last occasion in May, 1938. He had been at home ever since but his state did not improve. On occasions, he broke furniture and dishes in an impulsive manner and also struck his mother several

times. (His mother was described as "nervous and highly strung" and there was said to be "a bad history as regards mental illness on the mother's side", but the exact details of this were not stated.) His general behaviour at home was of sullenness and moroseness and it was when rebuked by his mother for this attitude that he became impulsive, striking her and "breaking up the home".

On admission, he appears to be a case of schizophrenia with schisophrenic depression. He considered life futile, there was nothing worth living for or to absorb one's interest, but his depression was quite free of the self-reproaches that are a feature of the depression of the manic-depressive.

He was begun on Cardiazol treatment two days after admission but was not improved at the termination of a fairly lengthy course. He was then slightly confused and said when spoken to that he was continually brooding on the fear of death. One day at the termination of treatment he snatched the razor of the barber who was shaving him, presumably as an attempt at suicide. He admitted afterwards that he did not know what exactly he was doing but felt very "fed up". A few weeks later, he had improved to the extent of being allowed up in the day-hall but his condition was then as it had been on admission.

6.2.39	(1)	2.0	c.c.	S/C	
8	(2)	5.0		M	E.-G.
10	(3)	5.2		"	
13	(4)	5.4		"	
15	(5)	5.6		"	
17	(6)	5.8		"	
20	(7)	6.0		"	
22	(8)	8.6		"	
24	(9)	6.4		"	
27	(10)	7.4		"	
1.3.39	(11)	8.4		"	
3	(12)	8.4		"	
13	(13)	8.4		"	
15	(14)	8.6		"	
17	(15)	8.8		"	
20	(16)	9.0	R.1.	"	
22	(17)	10.0		"	
24	(18)	10.0		"	

27.3.39	(19)	10.0	M	
29	(20)	10.0	"	
31	(21)	10.0	"	E.-G.
3.4.39	(22)	10.0	"	

CASE 24. T.K. Male, aged 31 years. Single. Admitted 14.2.39 and discharged home on 20.3.39.

B.P. = 120/70 mm.Hg.

There was a history of admission to the mental observation wards, six years previously, and was taken out on his mother's responsibility. His mother was stated to be of a "nervous temperament" and was indulgent to her son. His father had died twelve years previously and was stated to have been delusional, imagining that people were watching him as he travelled in trams. He frequently thrashed his only son, the patient, who "went in mortal fear of him". The patient left school when fourteen years old and secured employment as a clerk in a shipping office where he worked until he was twenty-one, when he was paid off. The reason for this was not stated. Since then he had "not worked much since" and was chiefly at home where he "proved difficult" and on various occasions fell foul of the law for striking a boy and, on one occasion, was fined £1. For the month before admission, he became very unruly, striking his sister and threatening his mother: the police "had to quieten him". He complained of his head being "about to burst" and asserted that an operation would help him. He used to sit silently for hours holding his head.

He appeared on admission to be a case of dementia praecox, though he did not admit to auditory or visual hallucinations. He said he felt a grinding sensation in his head. Ordinarily, he was quiet and restful, lying considering his constant preoccupation to the effect that he could not take a step forward in any direction because, before he could do so, he had to

consider his past: but the consideration of his past had itself to be considered in relation to his present and future: accordingly he was at a continual mental impasse.

A mental improvement followed as the result of ten Cardiazol injections which allowed him to get up and execute ward duties or occupy himself in the day-hall without being restrained by his mental preoccupation, although that was still at the back of his mind. He developed a very marked fear of the injections and, on account of this, successfully persuaded his mother to take him out of hospital. She yielded to his entreaties despite that fact that she herself appreciated her son was not yet well.

15.2.39	(1)	5.0	c.c. R.1.	M	E.-G.
17	(2)	6.0		"	E.-G.
20	(3)	7.0		"	
22	(4)	7.2		"	
24	(5)	7.4	R.1.	"	
27	(6)	8.4	R.1.	"	
1.3.39.	(7)	9.4	R.1	"	
3	(8)	10.4		"	
13	(9)	10.4		"	
15	(10)	10.6		"	

CASE 25. W.G. Male, aged 27 years. Single. Admitted 10.3.39 and discharged home on 11.4.39.

His abdominal and knee reflexes were exaggerated and there was sustained patellar clonus. Otherwise there were not abnormalities in the nervous system. B.P. = 135/85 mm.Hg.

He was admitted with the history of having been a patient in the mental observation wards "several years previously with nervous shock". Since leaving school at the age of fourteen he had worked at intervals as a

labourer in shipyards and at odd jobs. For the two years before admission, he had not worked or sought employment. He grew more introspective, gave up what little company he kept, and became very self-centred. A short time before admission he was described as "dangerous" and struck his father for chiding him on his shiftlessness.

On admission, he appeared to be a case of dementia praecox with a pronounced paranoid element. He denied hallucinating but admitted to having previously suffered from ideas of reference and to have been very suspicious. At the present time he said the "people" (unspecified) were talking about him and was depressed and emotional, weeping easily, as a consequence. He was disinclined to join in the usual ward occupations, preferring his own company and ruminations.

No change was produced in him as a result of Cardiazol treatment and he was taken out of hospital on his parents' responsibility.

15.3.39	(1)	5.0 c.c.	M	E.-G.
17	(2)	5.2	"	
20	(3)	5.2	"	X-rayed.
22	(4)	5.4	"	
24	(5)	5.6	"	
27	(6)	5.8	"	
29	(7)	6.0	"	
31	(8)	6.2	"	
3.4.39	(9)	6.4	"	tachycardia.
5	(10)	6.6	"	
7	(11)	6.8	"	

CASE 26. O.C. Male, aged 32 years. Single.
Admitted 3.3.39 and discharged home 15.4.39.

The first cardiac sound at all areas was slightly prolonged and accentuated. B.P. - 120/70 mm.Hg. He complained of pain in the penis on micturition, but

nothing objective was found to account for it.

There were no gross pre-psychotic or psychoneurotic traits in his previous history. He had no illnesses when young and had worked "fairly steadily" with the Glasgow Corporation (latterly as a lamplighter) after he left school when he was fourteen years old. At home he was quiet, reserved and "always obedient". The family history was negative. He remained well until three weeks before admission and began then to complain of headaches which necessitated his being off work for a week. His panel doctor admitted him under the diagnosis of "neurosis". Nothing was found physically which would run counter to this diagnosis, his headaches being regarded as being of the nature of a conversion symptom.

This symptom disappeared after the third convulsion of his Cardiazol treatment and he was discharged home at the end of a course of seven convulsions.

21.3.39	(1)	5.0 c.c.	M	E.-G.
24	(2)	5.2	"	
27	(3)	5.4	"	Mitral systolic bruit.
29	(4)	5.6	"	E.-G.
31	(5)	6.8	"	E.-G.
3.4.39	(6)	7.0	"	
5	(7)	7.2	"	E.-G.

CASE 27. T.T. Male, aged 27 years. Single. Admitted 19.4.38 and still in hospital.

No particulars concerning his mental state before admission to hospital were forthcoming. B.P. = 130/90 mm. Hg.

He appeared to be a case of dementia praecox of the hebephrenic variety. Beyond replying "yes" or "no" to simple questions he did not talk and the fact that he was hallucinating was judged from his attitudes - such as

the sudden turning of his head as if in reply to a voice he was hearing. He took no interest in things about him: indeed, he seemed to be oblivious of everything as he sat bowed forward on a chair in the day-hall and stared continuously at the floor save to suddenly turn his head as noted above. His skin was muddy and the snaughters hung heedlessly from his nostrils and slowly flowed down his upper lip. He was taken at regular intervals to the adjacent lavatory for otherwise he passed urine and faeces into his trousers without stirring. The degree of his dementia appeared to be profound.

Cardiazol treatment had been discontinued by a previous house-physician owing to the onset of auricular fibrillation after a convulsion and the patient's mental and physical condition had progressively deteriorated over the intervening six months' interval between then and the recommencement of treatment on 3.4.39 and by 22.4.39 a noticeable improvement had resulted in his mental and physical state. His skin assumed a freshness and clearness, he became more bright and alert, was able to look after his appearance and to attend to the calls of nature: under the tuition of another patient he began to study and practice pianoforte playing. After the termination of treatment on 28.4.39 he quite quickly relapsed into the state in which he was when treatment was begun on 3.4.39. His case is referred to more fully in the text of the thesis.

3.4.39	(1)	4.5 c.c. R.1.	M.	irregularity	E.-G.
5	(2)	4.7	"	"	E.-G.
7	(3)	4.9	"	"	E.-G.
10	(4)	5.2	"	"	E.-G.
12	(5)	6.2	"	"	
14	(6)	6.4	"	"	X-ray.
17	(7)	6.6	"	"	E.-G.
19	(8)	6.8	"	"	E.-G.
21	(9)	7.0 R.2.	"	"	E.-G.
24	(10)	8.2	"	"	E.-G.
28	(11)	50.0 c.c.orally +	"	"	E.-G.
		9.2 c.c.intravenously			

(see text of thesis)

CASE 28. J.L. Male, aged 51 years. Single. Admitted 20.3.39 from a model lodging house and discharged on 1.8.39 to a sailors' home.

Physical examination revealed the following abnormalities: an occasional rhonchus was heard on inspiration; the right pupil was slightly larger than the left, and there was a trace of glycosuria. B.P. - 125/75 mm. Hg.

The notes accompanying his admission were scanty: "nothing obtainable" in his previous history and, under the present history, was the statement that his mother had recently died and that following her death he began to drink heavily, as a result of which practice his "mind became unbalanced".

He was a marine engineer to trade and was of a quiet and reserved disposition. He gave no trouble of any description to the nursing staff. His alcoholism appeared to be symptomatic of an underlying manic-depressive psychosis and no withdrawal symptoms were manifest on the cessation of his drinking habit. He ate well and his only complaint beyond his depression was of insomnia which was successfully treated by paraldehyde two drachmas nocte.

Under Cardiazol treatment (which was, save for one convulsion, entirely sub-convulsive in its effect) he became free of his depression and the capacity to sleep without the aid of drugs was restored. He showed slight reluctance to submit to treatment towards the end of his course (as deduced from such things as his hanging back when his turn came) and he reacted to each of the injections (which were given him as he sat on a chair in his ordinary hospital clothes) by clenching both fists and screwing up his eyelids very tightly. He proved throughout his stay in hospital a pleasant patient to deal with and was discharged from hospital as a social recovery. He had, however, no insight into the condition for which he was admitted.

25.3.39	(1)	2.0 c.c.	S/C	E.-G.
27	(2)	2.0	"	E.-G.
29	(3)	"	"	

31.3.39	(4)	2.0 c.c.	S/C
3.4.39	(5)	"	"
5	(6)	"	"
7	(7)	"	"
10	(8)	"	M
12	(9)	"	S/C
14	(10)	"	"
17	(11)	"	"
19	(12)	"	"
21	(13)	"	"
24	(14)	"	"

CASE 29. R.A. Male, aged 25. Single.
Admitted 31.3.39 and transferred to
Hawkhead Mental Hospital on 8.4.40.

The plantar responses were indefinite and the pupils reacted sluggishly to light and on accommodation. B.P. = 122/80 mm. Hg.

He attended a normal school and was stated to have mixed well with the other pupils. He was an apprentice joiner but for the six years before this admission had done no work on account of the worsening of his mental condition. Reported to have been a patient in the Mental Observation Wards of the Southern General Hospital for a period at the end of 1935, he was, between then and his readmission, twice a patient in the Mental Observation Wards of Stobhill Hospital, being finally discharged from there on 28.2.39 after slight improvement. Soon, however, there was a relapse in which he became difficult to manage: he would, for instance, stand idly about his home and would not do what he was told, or else he stayed in bed all day, refusing to get up even to go to the lavatory. Before his readmission he became very noisy and attacked his father against whom he had a grudge.

He proved to be a case of dementia praecox. He sat still and took no interest in his surroundings.

He was dull and uncommunicative and it was not possible to get an account of his history or his present thoughts and feelings. He improved under Cardiazol treatment but soon relapsed after its termination. Attacks on the staff and patients were occasional and on one occasion put his right hand through a pane of glass in the day hall door.

7.4.39	(1)	5.0 c.c.	M	Slight irregularity.
10	(2)	5.2 "	"	
12	(3)	5.6 "	"	E.-G.
14	(4)	5.8 "	"	
17.4.39	(5)	6.0 "	"	X-ray.
19	(6)	6.2 "	"	
21	(7)	6.4 "	"	E.-G.
24	(8)	6.6 "	"	"
8.5.39	(9)	6.0 "	"	
10	(10)	6.0 "	"	
12	(11)	6.0 "	"	
15	(12)	6.0 "	"	

CASE 30. C.McG. Male, aged 25. Single.
Admitted 24.5.39 and transferred to
Hawkhead Mental Hospital on 26.6.39.

The only event of outstanding importance in his early life was stated to be a fall into a pond when three years old and was nearly drowned, and was unconscious for half an hour when he was pulled out: this accident he remembered and constantly referred to it throughout his life. He served his time as a painter but was dismissed because he refused to work overtime. He tramped the country thereafter and worried and brooded about his loss of work. He slept badly and hardly spoke to his people. Ultimately, he refused to speak to anyone.

On admission, he appeared to be a case of dementia praecox. He was well orientated and his memory was good: he spoke only when spoken to. He gave no

indications of being hallucinated and he did not seem to be emotionally upset. He was unbalanced in his attitude to things e.g. while asserting that he had only to ask any decorator for a job to secure one but was unable to explain why, if that was so, he was unable to secure a job.

He improved under Cardiazol treatment in that he became more communicative and able to discuss such things as football. On 21.6.39, he endeavoured to leave the ward by going through the bathroom window and down the fire-escape, but so precipitous was his descent that he sustained a fracture of the right os calcis and was unable to move further.

26.5.39	(1)	5.0 c.c.	M	mitral systolic
31	(2)	5.0 "	"	bruit
5.6.39	(3)	5.0 "	"	
9.6.39	(4)	5.0 "	"	
12	(5)	6.0 "	"	

CASE 31. D.MacC. Male, aged 66. Married. Admitted 12.11.39 and still in hospital.

He was senile in appearance and of pale complexion. The arterial walls were sclerosed and irregular to palpation. The apex beat was not visible nor palpable. The cardiac dullness extended four inches to the left of the mid-sternal line in the fifth interspace. The cardiac sounds generally were of very poor quality. There was a faint systolic bruit (not conducted) at the mitral area. B.P. = 165/60 mm. Hg. His teeth were carious with pyorrhoea alveolaris and moderate gingivitis. The bowels were costive and the area of liver dullness diminished.

He was admitted with a history of having retired from work (clerking) eight years previously. Thereafter a gradual mental deterioration became manifest. He gradually took longer and longer to wash himself until he came to take hours to the performance. He imagined that

people came into the house and left the doors open and eventually became so difficult to manage (all the more so since his wife was a chronic invalid) that he had to be admitted to hospital: he would also insist on speaking to his son for hours at a time (often into the small hours of the morning) to no point whatever and, on his son's endeavours to leave him, would insist that he should remain. There was a history of the patient's having been in the Victoria and Royal Infirmary, Glasgow, for the treatment of rheumatoid arthritis, though there was no evidence of this condition on his admission of 12.11.38.

His continual self-reproaches concerning the unclean state of his hands which, he said, became further conteminated whenever he went to the lavatory to pass urine and his constant preoccupation with these topics made an accurate assessment of his mental state difficult: but his faulty memory for dates and his indifference to the general events happening at the time of admission made it seem probable that the depression from which he was obviously suffering was either symptomatic of or co-existed with a senile dementia, particularly when one bore in mind the condition of his arteries. Apart from the agitation he betrayed in his weak and faltering voice when he spoke, he was quite quiet, staring up at the ceiling, and he had no appreciation whatever of his mental state and did not, for example, even refer to his disruption from home.

In view of his age and physical findings it was then considered inadvisable to submit him to convulsive treatment, and sub-convulsive treatment had no effect on his mental state other than to cause him to show, at the time, fear in connection with the injections.

27.1.39	(1)	2.0 c.c.	S/C
30	(2)	"	"
1.2.39	(3)	"	"
3	(4)	"	"
6	(5)	"	"
8	(6)	"	"
10	(7)	"	"
13	(8)	"	"
15	(9)	"	"
17	(10)	"	"
20	(11)	"	"

22.2.39	(12)	2.0 c.c.	S/C
1.3.39	(13)	"	"

CASE 32. P.G. Male, aged 22. Single. Admitted 24.3.39 and discharged home on his own request on 1.4.39.

He was admitted under the diagnosis of "feeble mindedness and nervous debility". B.P. = 140/90 mm. Hg. - ? due to excitement.

Information from relatives was scanty, but he was stated to have been bright at school, after leaving which he had been employed for only one week as a labourer in a shipyard. The reason for his dismissal or leaving was not stated. For the eighteen months before his admission, he was stated to have "been in the house a good deal", refusing to go out and pre-occupying himself by reading books on "nerves". He was abnormally shy of strangers.

He appeared to be a case of dementia praecox of the hebephrenic variety. He was not then hallucinating, but, a short time previously, had heard voices talking to him, as he was when seen at the out-patient dispensary a month previously when admission was then advised but declined. It was difficult to estimate whether or not there was an underlying oligophrenia (so severely did he seem to be inhibited) but simple tests wrongly performed, such as the serial subtraction of 7 from 100, suggested that there was. He did not converse spontaneously and only spoke "yes" or "no" in reply to any questions put to him.

Sub-convulsive Cardiazol treatment produced no improvement in his condition, though it was not continued long enough to be judged a fair trial. He was taken out of hospital by a brother.

26.3.39	(1)	2.0 c.c.	S/C.
28	(2)	"	"
30	(3)	"	"
1.4.39	(4)	"	" E.-G.

CASE 33. J.B. Male, aged 32. Single.
Admitted 24.12.38, died 2.2.39.

He was a moderately well-nourished man, of moderate stature and of sallow complexion. He revealed no abnormalities in any of the systems on ordinary clinical examination. B.P. = 108/80 mm. Hg. The findings in the nervous system were as follows: pupils circular, equal and regular in outline and reacted directly and consensually to light and on accommodation. The biceps, triceps, supinator, knee and ankle jerks were present and were neither diminished nor exaggerated. The abdominal reflexes were present and the plantar responses were flexor. There was no evidence of tremor, spasticity, paresis or muscular inco-ordination.

Two years before admission he was a patient in the Mental Observation Wards of Stobhill Hospital for a period of twelve months and again from May to July, 1938. He was the eldest child of a family of four and his birth was normal. There was nothing outstanding in his earlier life save that he was reported as being very domineering, "trying to be the boss" at home. He never engaged in any work and had no special hobbies or pursuits. Further facts concerning him were not forthcoming save that on his last dismissal from Stobhill he went, for reasons unstated, into lodgings for a month before returning to live at home with his father, his mother having died from cardiac disease. "No one could please him": he quarrelled with his father and struck the other members of the family on various occasions. He complained of "dizzy turns", especially at the week-ends, never went out and groaned at night, complaining then of pain in the stomach. He stated he "would do himself in" though he never

actually attempted suicide.

He appeared to be a case of demential praecox. He was well orientated to time, place, and person, and was able to give a good account of himself although he was apathetic, dull and indifferent to all that was going on around him. Although speaking when spoken to, he did not speak spontaneously, and told how he had not heard voices but that he had a hissing sound in his ears, saying this as if he knew the hissing sound would be judged imaginary and equivalent to a voice. His talk was quite rational but there is an inclination to wander from the point. In behaviour, he was dull, listless and gave no trouble to the nursing staff. He ate and slept well.

An improvement in his mental state began to show after the third injection of Cardiazol: he showed signs of being interested in his immediate environment and was less disposed to smile foolishly for no apparent reason, and his habit of moving his lips as if speaking also became less noticeable. Towards the end of treatment, he was allowed up to the day hall where he shyly joined in the activities of the other patients.

Regarding the immediate results of treatment, there was nothing abnormal to be observed about any of the convulsions save that on 17.2.39 he had a series of minor muscular spasms (after the convulsion) which lasted for about five hours despite Morph.gr.$\frac{1}{4}$ and Hyosc.gr.$\frac{1}{100}$.

Nothing abnormal was noted about the last convulsion or about the post-convulsion state save that two hours after the convulsion he took a further convulsion, and this was followed at intervals until his death two hours later by a further nine convulsions. Morphine gr.$\frac{1}{4}$ and Hyoscine gr.$\frac{1}{100}$ was administered after the first convulsion of the status epilepticus.

A copy of the post-mortem report by Dr.R.E. Reynolds, Pathologist to the City of Glasgow Hospitals is as follows: "General Appearances. The body was that of a fairly well developed and well-nourished man.

"Body Cavities. A few fibrous adhesions were present in each of the pleural cavities. Numerous fine

fibrous adhesions passed between the surface of the liver and the contiguous portions of the diaphragm and neighbouring viscera. None of the body cavities contained an excess of fluid.

"Cranium and Contents. The skull cap was of average thickness. The dura mater was not unduly adherent to it or to the underlying leptomeninges. The cerebrospinal fluid was in excess but it was clear. No flattening of the cerebral convolutions was apparent. In the posterior cranial fossa and in the upper part of the cervical canal was a considerable quantity of fluid blood. The extravasation had occurred into the leptomeningeal spaces. On the left side of the cerebellum near the junction of the upper and lower surfaces was a rounded cyst 1 c.m. in diameter. At the dissection the haemorrhage had not obviously occurred in relation to the cyst. On the under-surface of the cerebellum a small "pressure cone" had been formed. The blood vessels on the surface of the brain were congested. The cerebral substance was firm and rather oedematous but no localised lesions were found in it.

"Respiratory System. The mucous membrane lining the air passages, and the substance of both lungs, were congested.

"Circulatory System. The heart was distinctly globular in shape owing to dilatation of the chambers of the right side. The heart muscle was of the usual colour and no excess of fibrous tissue had been developed in it. The tricuspid orifice was dilated. One small thickened yellowish patch was found on the anterior cusp of the mitral valve but the other valvular cusps showed no local or general thickening. The aorta presented no degenerative changes.

"Urinary System. The kidneys were of average size; they were rather pale in colour. Their capsules stripped easily leaving a smooth surface. No fibrosis of the renal substance had occurred. The ureters were not dilated; the lining of the urinary bladder was not inflamed. The prostate gland was not enlarged or unduly firm

"Spleen. The spleen was half as large again as

the average. It was soft and friable.

"Other organs. The liver, pancreas, odrenal glands and to a certain extent the stomach and intestines showed general congestion but no localised lesions were found in any of these organs.

"Commentary. The condition of the organs of the trunk was compatible with death having been due to status epilepticus. The general congestion of the organs and especially of the lungs is in keeping with the clinical observation that the patient died of gradual failure of the cardiac action. A contributory cause of the convulsions and probably a factor in the actual causation of death was the haemorrhage into the leptomeninges of the posterior cranial fossa. I do not think it would be reasonable to dissociate this occurrence from the effects of the administration of the drug. The haemorrhage occurred from a pial blood vessel or from one on the immediate surface of the cerebellum. In this connection the small cyst on the surface of the cerebellum may be of importance although at the time of conducting the autopsy there was nothing obvious to associate the cyst with the haemorrhage. It must be remembered that the larger cysts which occur in this organ are very frequently related to an angioma. If this obtained in the present instance it would be easy to understand such a condition giving rise to the haemorrhage into the leptomeningeal spaces either as a direct result of the administration of Cardiazol or indirectly as a result of the convulsions produced by this administration."

13.1.39	(1)	5.0 c.c.		M	
16	(2)	5.2 "		"	
18	(3)	5.4 "		"	
20	(4)	5.6 "		"	Tachycardia.
23	(5)	5.8 "		"	
25	(6)	6.0 "		"	
27	(7)	6.2 "		"	
30	(8)	6.4 "		"	
1.2.39	(9)	6.6 "	R.1.	"	
3	(10)	7.6 "		"	
6	(11)	7.8 "		"	
8	(12)	8.0 "		"	
10	(13)	8.2 "		"	

13.2.39	(14)	8.4	c.c.	M	
15	(15)	8.6	"	"	
17	(16)	8.8	"	"	Marked Tachycardia.
20	(17)	9.0	"	"	
22	(18)	9.2	" R.1.	"	E.-G.

CASE 34. J.McG. Male, aged 62. Married. Admitted 23.8.37 and transferred to the Licenced Wards, Southern General Hospital, on 12.2.40.

Nothing abnormal was noted in his physical state. B.P. not determined.

"For some time" before admission, he was stated to have been very depressed, and imagined that he had done wrong to his family and had sinned against God. Nothing was offered to account for his present state - he had always been a good husband and father and his only worry was concerning his eyes (one of which had recently been operated upon - nature of operation unknown) and he began to worry, if this would not debar him from working.

It was stated in his record on admission that he was very depressed and worried unduly about e.g. when his bowels did not move for two days, stating at these times that they had not moved for a week. He was lacking in any insight into his condition. This mental state was still present when Cardiazol treatment was begun on 16.12.38, and, in addition, he had then become indifferent to all around him, seldom bothering to talk and occasionally refusing his food. Sub-convulsive treatment had no effect on his mental state.

16.12.38	(1)	2.0 c.c.	S/C
21	(2)	"	"
23	(3)	"	"
28	(4)	"	"
30	(5)	3.0	"

6.1.39	(6)	3.0 c.c.	S/C
23	(7)	"	"
25	(8)	"	"
27	(9)	"	"

CASE 35. J.M. Male, aged 20. Single. Admitted on 24.4.39 from Orkney Street Police Office and discharged home on 29.7.39.

Physically normal. B.P. not recorded.

Nothing of outstanding importance was noted in his previous history. After leaving school, he worked as a labourer and had been unemployed for the two and a half years preceding admission. A fortnight before admission, he went up to a Labour Training Camp in Argyllshire but stayed there only a week when he was sent home for reasons unstated. Instead of going home, he went to an uncle whom he informed that he (the patient) had plenty of money, a statement which was untrue. He was also "behaving strangely", staying indoors and refusing to go out. He stated he was hearing voices and was at times "noisy and outrageous". Previously he had got on well with people.

On admission he was confused, hallucinating, irrational in his speech, excessive, disjointed and rambling in his talk and emotionally unstable, readily breaking into tears. He appeared to be a case of schizophrenia.

Cardiazol treatment produced little change in his condition. He was eventually allowed up towards the end of treatment but by 12.6.39 had to be put back to bed because of his restlessness and excitability. He sometimes carried on a conversation with a person invisible. Back in bed, he, for the most part, lay contentedly. He determinedly resisted the continuation

of treatment owing to his fear of the injections. Treatment was accordingly stopped. Gradually, after treatment was terminated, an improvement in his mental state began to show and eventually he was discharged home with, however, no insight into his condition.

3.5.39	(1)	5.0 c.c.	M
5	(2)	"	"
8	(3)	"	"
10	(4)	"	"
12	(5)	"	"
15	(6)	" R.1.	S/C
17	(7)	6.0 c.c.	M

CASE 36. A.MacL. Male. Aged 30. Married. Admitted on 18.11.38 and discharged 13.12.38.

He looked from about five to ten years old rather than his stated age. The second sound at the pulmonic area was reduplicated. B.P. = 120/75 mm. Hg.

Previously employed as a labourer in a shipyard, he had, eighteen months before admission, sustained an injury to his head and had three stitches inserted into the resulting wound at the Glasgow Western Infirmary.

Always of a fairly cheery disposition, in June, 1938, he became quiet and depressed, went off his food and did not sleep well. Between then and his admission to Hospital he had only worked for a period of four weeks: he said he was unable to work as he felt dull, "headachy and was unable to concentrate". For the same reason, he had given up reading, a habit to which he was previously much given.

On admission, the affect of the patient was one of depression with, however, no retardation in his speech and apparently little in his thinking powers. His depression seemed to be schizophrenic in type as it was

free of self-reproaches and was characterised by a sense of futility. He was also subject to compelling ideas which engrossed the whole of his waking attention and made him miserable as a consequence of his contemplation. Such an idea was the question of homosexuality with which he had become acquainted through the perusal of a book. He stated his present state dated from the birth of his first and only daughter three months previously. He also heard voices talking to him but was unable to distinguish what it was they were saying to him.

He did not reveal the latter fact until during treatment to which he reacted well, felt "definitely fit", full of confidence and able to meet his troubles in a healthy manner. He had, however, no insight into his past mental state. I saw this patient a year later at the out-patient dispensary of the Western Infirmary, Glasgow, and he had then reverted to the state he had been in on his admission to the Southern General Hospital. He then refused further Cardiazol treatment: his fear of such treatment was very obvious.

1.12.38	(1)	5.0 c.c.	R.1	M.
3	(2)	6.0	R.1	"
5	(3)	6.5	R.1	"
7	(4)	6.7		"
9	(5)	7.5	R.1	"

CASE 37. I.B. Male, aged 22 years. Single. Admitted 21.3.39 and transferred on 15.4.39 to Hawkhead Mental Hospital.

Physically he was normal but, owing to his mental state, was unco-operative during the examination. B.P. = 150/80 mm.Hg. - ? due to excitement.

There were no outstanding features reported in connection with his earlier life, but after leaving school he had been in several jobs (chiefly motor

driving and barbering) which he only held for a short time. When he was 19 years old he wanted to enter a Sea College in London but his father refused and gave him a thrashing on account of his persistency. He did, however, go to sea and secured the A.B.Certificate, only writing home occasionally. When he did return home a month before admission, he was described as "strange", frequently admiring his own body in the mirror - he was a well nourished, muscular man of excellent physique. On one occasion, he refused to go to bed and went out to sleep in a model but returned shortly after midnight when he wanted to burn everything black, saying that this colour was evil and that God was speaking to him.

He appeared to be a case of dementia praecox in which katatonic features were prominent: he was persuaded to lie down with difficulty, preferring to sit up in bed and would indulge in jerky posturings and would hold his attitudes for several minutes: he frequently gave the Nazi salute exclaiming "Heil, Hitler!" (He was of the Jewish religion but never mixed with Jewish people or partook of Jewish customs.) Mental approach to the patient was difficult, though he did confess his conduct was inspired by his abhorrence of the sights of wrongs done to other people. He maintained he was inspired by God who had shown him the truth. He denied suffering from auditory hallucinations but admitted that the day previously he had seen a white-draped ghost emerge from a white mist and similarly recede.

He improved considerably under Cardiazol treatment but the fear of this treatment which he showed was extreme. Indeed, to such an extent that on one occasion, dressed only in his shirt and trousers and holding his jacket before his face as a shield, he plunged through the ward window and, having sustained a few cuts on his wrists, raced out of the hospital and was eventually brought back by the mobile police who rescued him from amidst a crowd hostile to them. The patient stated that he was terrified of the injections because he felt at these times he was "being roasted alive in a white-hot furnace". It was considered advisable to have him certified.

24.3.39	(1)	5.0 c.c.	M.
27	(2)	5.2	" E.-G.

29.3.39	(3)	5.4 R.1	M	
31	(4)	5.6 c.c.	"	X-rayed.
3.4.39	(5)	5.8 c.c.	"	
5	(6)	6.8 c.c.	"	
7	(7)	7.0 c.c.	"	
10	(8)	7.2 R.3	"	
12	(9)	8.4 c.c.	"	

CASE 38. J.S. Male, aged 20. Single.
Admitted 30.1.39 and transferred to Hawkhead Mental Hospital on 7.3.39.

The B.P. was not recorded.

He had previously been in the Southern General Mental Observation Wards and in Hawkhead Mental Hospital (dates unknown).

Described as bright at school until he was aged 14, he failed to make much progress thereafter and left school two years later, working as a clerk for a short period and then, despite parental opposition, joined the R.A.F. as a wireless operator but was discharged from this service a year later as "inefficient". He brooded very much over this. At home, he gradually became more and more solitary, refusing to go out and preferring to sit alone at home in his room with the blinds drawn, believing that there was something wrong with his eyes. He wanted to clear off abroad as he believed his parents were against him.

He voiced the same opinion on admission and included his four brothers and three sisters. No one, he said, understood him. Reserved and secretive, he divulged no further information, until during treatment which he said merely confirmed his view that people were against him, the Cardiazol being administered as a punishment. His paranoid attitude also was evidenced in wrongfully accusing an attendant of having stolen his

cigarettes. He frightened several patients by telling them I would let none of them be discharged. He also entered into a serious conspiracy with a fellow patient to draw their night shirts up between their legs and so, disguised as harriers, would be able to make good their escape from hospital. It was considered advisable to have him certified.

3.2.39	(1)	2.0 c.c.	S/C	
6	(2)	2.0 c.c.	"	
8	(3)	2.0 c.c.	"	E.-G.
10	(4)	2.0 c.c.	"	
13	(5)	5.0 R.1	M	
15	(6)	6.0 R.1	"	
17	(7)	7.0 c.c.	"	
20	(8)	7.4 c.c.	"	
22	(9)	7.4 c.c.	"	
24	(10)	7.6 c.c.	"	
27	(11)	7.8 c.c.	"	E.-G.
1.3.39	(12)	8.0 c.c.	"	
3	(13)	8.2 c.c.	"	

CASE 39. N.R. Male, aged 29. Single.
Admitted 16.12.39 from Barnhill Institution and returned there on 21.2.39.

He was a thin, under-nourished man of sallow complexion. The first sound at the tricuspid area was reduplicated. B.P. = 118/60 mm. Hg. There was a strabismus due to a palsy of the right external rectus.

Concerning this latter he was very sensitive and said that the reason for his transfer from Barnhill (no notes accompanied his admission) was because he felt himself "going mental" as he heard voices adversely discussing him as a result of which he became depressed: his depression caused him to weep which he excused by saying there was a fullness behind his eyes which caused them to water. What exactly the voices were saying about

him or what it was "people" were referring to him, he refrained from saying. He lay quietly in bed with his eyes closed and took no interest in his surroundings. His indifference to things was demonstrated by his being unable to state at mid-day what he had had for breakfast the same morning.

Under Cardiazol treatment he improved to the point of social recovery, losing all his hallucinations, delusions of persecution and ideas of reference. He came, without any suggestion being made to him, to laugh at these, began to interest himself in his environment but had no real insight into his condition. His improvement began to show while still on sub-convulsive doses: a change to convulsive doses was thought advisable owing to the extreme fear he developed from the aura experienced from sub-convulsive doses alone.

6.1.39	(1)	2.0 c.c.	S/C	E.-G.
9	(2)	"	"	
11	(3)	"	"	
13	(4)	"	"	
16	(5)	"	"	
18	(6)	"	"	
20	(7)	"	"	
23	(8)	"	"	
25	(9)	2.0 c.c.	"	
27	(10)	5.0 c.c.	M	
30	(11)	5.2 c.c.	"	
1.2.39	(12)	5.4 c.c.	"	
3	(13)	5.6 c.c.	"	

CASE 40. H.D. Male, aged 46. Married.
Admitted 21.11.38. Discharged home 24.12.38.

He was under-nourished with arteries slightly sclerosed. The first sound at the mitral and tricuspid area was accentuated. B.P. - 144/90 mm. Hg. At the apex of the right lung posteriorly the respiratory murmur

was bronchial and, at the same area, there was bronchophony and pectoriloquy. The ankle jerks were diminished compared with the other tendon jerks. There was no tremor, paresis, spasticity or inco-ordination.

When his parents died in Australia when he was seven years old and he was crossing on the boat to the U.K. he fell down a hold, was struck on the head and thereby rendered unconscious for two days. He was brought up by an aunt. Shortly before admission, he underwent a herniotomy in the Victoria Infirmary, Glasgow, the operation being quite successful, but after coming home he could not sleep and complained of headaches. He became depressed and began to express the belief that he "would go off his head": he also stated he had another hernia and continually talked about the Victoria Infirmary and of a man who had died while he was a patient therein. The day before admission he was wandering in another part of the town, stating that he did not wish to return home before dusk. He was a good husband and father.

His mental condition on admission was predominantly one of depression with hypochondriacal traits in addition, particularly in connection with his bowels which were costive. He was a pleasant patient to deal with and was quite co-operative in any examination made. He stuck to his beliefs in connection with his hernia with tenacity.

Under Cardiazol treatment he gradually improved to the point of social recovery with loss of his depression and delusional beliefs and began to take an interest in life. He was, however, deficient in any insight into his past condition.

5.12.38	(1)	5.0 c.c. R.3	M	
7	(2)	6.5 c.c.	"	
9	(3)	7.0 c.c.	"	mitral systolic bruit
12	(4)	7.0 c.c. R.1	"	
14	(5)	8.0 c.c. R.1	"	
16	(6)	9.0 c.c.	"	
19	(7)	9.0 c.c. R.1	"	

CASE 41. J.S. Male, aged 28. Single.
Admitted 14.2.39, discharged home 21.6.39.

His chest-shape was pigeon and rachity in type. B.P. = 125/85 mm. Hg. On admission there was a trace of glycosuria which on 15.2.39 had increased to 1.2% after which it diminished and eventually disappeared on 18.2.39 when a transient acetonuria was noted.

His mother was stated to be of a nervous temperament and his father to be a drunkard. An uncle on his father's side had died in an asylum aged 20 years. The patient himself two years before admission had been a patient in Hawkhead Mental Hospital and also in the Mental Observation Wards, Southern General Hospital, on various occasions and once in the Mental Observation Wards, Stobhill Hospital (exact dates unknown). Since his dismissal from Hawkhead, he maintained his improvement for a month when he relapsed into his reserved and uncommunicative state, eventually speaking to no one.

This latter was also present on admission and no information was elicited: he smiled when spoken to and his habitual quietness and indifference to his environment was only relieved occasionally by his laughing to himself. He was judged to be a case of dementia praecox, the degree of dementia precluding any thorough examination of his mental state.

Under Cardiazol treatment he improved both physically and mentally: his sallow, acniform and sebaceous complexion cleared (an infected wen was on one occasion excised from behind his right ear during the unconsciousness of a major convulsion) and he began to take an interest in his surroundings and was allowed up to the day-hall. Although shyly joining in the activities there, he remained inaccessible from the mental point of view and had no insight of any description into his condition. He was discharged home as "improved".

20.2.39	(1)	5.0 c.c.	M	E.-G.
22	(2)	5.2 c.c. R.1	"	
24	(3)	5.4 c.c. R.1	"	
27	(4)	6.4 c.c.	"	
1.3.39	(5)	6.6 c.c.	"	

13.3.39	(6)	6.8 c.c. R.1	M	
15	(7)	7.8 c.c.	"	bradycardia
17	(8)	8.0 c.c.	"	
20	(9)	8.2 c.c.	"	
22	(10)	8.4 c.c.	"	X-ray
24	(11)	8.6 c.c.	"	
27	(12)	8.8 c.c.	"	
29	(13)	9.0 c.c.	"	X-ray
31	(14)	9.2 c.c.	"	
3.4.39	(15)	9.4 c.c.	"	E.-G.
5	(16)	9.6 c.c.	"	E.-G. irregularity.
7	(17)	9.8 c.c.	"	E.-G.
10	(18)	10.0 c.c.	"	E.-G.

CASE 42. D.L. Male, aged 23. Single.
Admitted 13.1.39, discharged home on evacuating cases on 31.8.39.

He was a tall, well-nourished man tending to obesity: he was off the "pituitary type". B.P. = 120/70 mm. Hg.

There were no points of outstanding note in connection with his early history save that he was always solitary as he preferred his own company. Since the age of 16, he had worked as a brass moulder which trade he gave up five weeks before admission at which time he became strange in manner: he would read his Bible aloud for hours and could not be persuaded to stir out of doors.

He appeared to be a typical case of dementia praecox, was very introverted, taking no interest in anyone but himself about whom he was self-analytical in a non-constructive way. He said he always preferred to be alone, having no interest in anybody. He wore a rosary with a pendant cross around his neck and lay with his eyes closed to keep wicked thoughts from entering his head. He repeatedly made the sign of the cross and his lips were continually moving in silent prayer to counteract the voices he heard which were continually urging him

to kill someone.

He improved under Cardiazol treatment, crossing himself and praying very much less, began to take a superficial interest in his surroundings and to read newspapers. His improvement was maintained after the termination of treatment but he could not be termed a social recovery. In the day-hall he began to play the piano and, for speed, diligence and interest, surpassed all the other patients who were engaged on rug-making as a therapeutic measure.

16.1.39	(1)	5.0 c.c.		M	
18	(2)	5.2	R.2	"	
20	(3)	6.2	R.1	"	tachycardia E.G.
23	(4)	7.2	R.1	"	dislocated jaw.
25	(5)	8.2		"	
27	(6)	8.4	R.1	"	
30	(7)	9.6		"	
1.2.39	(8)	9.8		"	
3	(9)	10.0		"	
6	(10)	10.2		"	irregularity.
8	(11)	10.4		"	
10	(12)	10.6		"	
13	(13)	10.8		"	
17	(14)	11.0		"	irregularity.
20	(15)	11.0		"	
22	(16)	11.0		"	irregularity.
24	(17)	11.0		"	slow bradycardia
27	(18)	11.0		"	
1.3.39	(19)	11.0		"	marked irregularity.
3	(20)	11.0		"	irregularity.
13	(21)	11.0		"	

CASE 43. W.N. Male, aged 52. Married.
Admitted 7.12.38, discharged home 3.3.39.

He was a moderately obese, flabby man: his whole contour was suggestive of effeminancy. No testicular abnormality was detected. His heart sounds were soft and of poor tone. B.P. = 135/80 mm. Hg.

He was stated to have had rheumatic fever three times before the age of 21. Four years before admission he was in Jordanburn for two months, and in May and August, 1938, was a patient in the Glasgow Royal Mental Hospital, on the first occasion for two and on the second occasion for four weeks. He complained of depression, lack of confidence and fear of traffic before admission. For some years before admission he did not work and was dependent for his livelihood on his wife who was forced to resume her old occupation as school-teacher; he assumed her place at home by doing the housework. There had never been any marital intercourse: he seemed to be quite devoid of any sexual desire.

On admission he proved to be effeminate in outlook and lacking in initiative: he had no remorse or regrets at having his wife out working for him and found nothing demeaning in his daily pre-occupations with the housework. He made no reference to his impotence and lack of sexual desire and gave little indication that he considered the life he had hitherto pursued as other than quite normal. He was slightly hypochondriacal and complained of pain down his right side, beginning under the ribs: nothing objective was found to account for this. He had no insight into his condition and did not appreciate that he was in need of treatment.

In view of his previous rheumatic history, he was begun on sub-convulsive doses of Cardiazol though electrocardiographic examination revealed nothing abnormal. The day following his last injection, there developed a phlebitis of the superficial veins of the lower and inner right thigh and then a history was given of a similar previous affection of the other leg: lead and opium lotion was prescribed together with rest in bed. The following day the veins had thrombosed. On 12.1.39 he developed a right-sided dry pleurisy with temperature which responded

to the administration of M. & B. 693, which, however, was discontinued owing to the onset of vomiting and general malaise. On 30.1.39 when he was allowed up for the first time since the onset of phlebitis his lower leg and foot were slightly oedematous. Cardiazol had produced no change in his mental condition. His effeminate attitude and self-pity and lack of any desire to change his faulty mental attitude became more evident the longer his stay in hospital.

12.12.38	(1)	2.0 c.c.		S/C	
14	(2)	"		"	E.-G.
16	(3)	"		"	
19	(4)	"		"	
21	(5)	"		"	
23	(6)	"		"	
28	(7)	3.0 c.c.		"	
30	(8)	4.0	R.3	M	marked bradycardia
2.1.39	(9)	5.0 c.c.		S/C	E.-G.
4	(10)	5.5		"	

CASE 44. J.M. Male, aged 53 years.
Admitted 20.3.39, discharged 28.3.39.

B.P. = 148/80 mm. Hg. Cardiac dullness enlarged to percussion, four inches to the left of the midsternal line in the fifth interspace. Cardiac sounds pure but somewhat muffled: there was a thick chest wall. Respiratory murmur vesicular with slight generalised prolongation of expiratory phase and diminution of intensity at the left apex posteriorly when the vocal resonance was diminished. His pupils were small and the right slightly larger than the left. The abdominal and plantar responses were not elicited. There was a trace of acetonuria. His general build was of the pyknic type of Kretschmer.

He appeared to be in the depressed phase of a manic-depressive psychosis with depression, inability to

concentrate, retardation, insomnia and indifferent appetite. Normally, he was a cheery extroverted man but during his stay in Hospital was morbidly preoccupied with the serological reaction of his blood and was greatly perturbed when a specimen of this was taken for the Wassermann Reaction. He gave a history of a syphilitic infection twenty-one years previously for which he received anti-syphilitic treatment after which the W.R. was reported negative only to appear positive one year later. A further course of treatment again produced a negative result. Four years later the patient married and his W.R. had since remained negative. He had an only daughter aged fifteen years who was quite healthy and had always been so. In 1928, he had a "nervous breakdown" the details of which were not forthcoming but, as on his admission on 20.3.39, had morbid apprehensions concerning his W.R. being positive despite the contrary assurances of several doctors. After a brief holiday he returned to work only to relapse three years later when he had a similar attack. For the eight years previous to admission he worked industriously and conscientiously at his profession as an engineer until a few weeks before admission when he was reported as having become very depressed with a return of his old mental symptoms concerning his positive W.R.

His seven brothers and one sister were reported as being of a "nervous" temperament and by their over-solicitousness did not help any in the treatment of the patient during his brief stay in hospital by commenting to him on his lack of improvement. He was discharged on his own request, interrupting sub-convulsive treatment on 24.3.39 (when an E.-G. was taken) and 27.3.39 with 2.0 and 3.0 c.c. Cardiazol with no detectable improvement resulting.

CASE 45. J.G. Male, aged 36 years.
Admitted 27.4.39, discharged 29.4.39.

He was typically of the pyknic type of Kretschmer. B.P. = 140/80 mm. Hg. The cardiac dullness extended three and three quarter inches to the left of the mid-sternal line in the fifth interspace. The second sound was slightly accentuated at all areas. He was a typical case of depression with very pronounced morbid fears chiefly in connection with death and the fatal consequences of attacking his wife. His appetite was indifferent and his sleep was poor. He had never been in hospital before but had had a previous attack two years before admission which, however, he was able to "work off" without treatment after a short spell at home away from his work as an insurance agent. On his father's death (from bronchitis and asthma) three months before admission, the patient became depressed and disinterested in everything, sitting in the house and refusing to go out. He began to express a fear of death and was always talking about going to die. Insomnia appeared at the same time. He was never actually violent at any time but on one occasion he asked his wife to leave the house as he was afraid he was going to harm her.

He left hospital two days later after a sub-convulsive dose of 2.0 c.c. of Cardiazol, when an E.-G. was taken. He was convinced treatment would not help him as he was beyond hope.

CASE 46. A.C.McL. Male, aged 48 years.
Admitted on 7.9.38 and transferred Hartwood Mental Hospital on 5.4.39.

He was of thin build. The left knee showed spindle-shaped enlargement, white and free from pain or tenderness. The movement of flexion was slightly limited and fluctuation and patellar tap were present.

Mentally, he was manaic. His replies to questions were relevant but he gave different answers to the same questions at different times. He wandered about the ward pulling off his dressings (on his knee) and on being reprimanded promised to stay in bed, only to get up again in a few minutes time. He twice relieved himself at the main avenue doorway dressed in his bed attire. His complaint of stomach upset responded to dieting and, when this state of affairs obtained, stated that he felt quite fit to start a hardware business when he was dismissed. He had no money to do so and no experience in that line, his occupation being a lawyer's clerk. He also intended to marry the girl he had been courting for sixteen years.

Always of a quiet and reserved disposition, and never mixing with company, save when young when he was a keen mason, he was noticed becoming strange in manner after his mother's death in August, 1938. He talked of marrying a girl he was engaged to eighteen years previously, saying that he intended marrying her and to stay in a house in Springburn (where his masonic lodge was) as it stood high up. He meant to take up masonic work again and to become prominent in his craft.

He was given a sub-convulsive dose of Cardiazol (3.0 c.c.) on 16.11.38 with no untoward effect and a convulsive dose of 5.0 c.c. on 18.11.38. Afterwards he became very pale, with a slow pulse of poor quality and there was a slight clammy sweat. He complained of fullness and discomfort in the epigastrium. His B.P. of 130/80 mm. Hg. did not fall. An electrocardiogram taken at the time revealed no abnormality beyond a slight elevation of the T wave with the line immediately preceding this above the iso-electric line. At the time of his treatment, I had not reached the conclusion that the cardiac abnormality which he showed was no contra-indication to further treatment, which was accordingly stopped especially in view of his distressed appearance.

CASE 47. W.S. Male, aged 30 years. Married. Admitted 13.6.39. Transferred to Hawkhead Mental Hospital on 7.11.39.

The mental state of this patient on admission appeared to be one of dementia praecox and he lay all day curled up in bed, his head beneath the sheets, quite indifferent to his immediate surroundings. It was not found possible to secure his attention sufficiently to obtain a satisfactory account of his illness, past or present. Physically, he had a right epididymitis with considerable pain and discomfort. A prostatic smear revealed extra- and intra-cellular diplococci identical with the gonococcus. For this, he has a course of M & B 693 treatment.

In a history obtained from the wife, she stated that he had been moody and unsettled for the four years previous to admission and was subject to laughing fits for no apparent reason. At one period he was away from home for six months and during this time nothing was known of him nor was anything subsequently discovered. For the few months before admission he stayed indoors and a month before his admission struck his wife without cause.

Cardiazol and Azoman treatment produced no signs of mental improvement. He occasionally expressed delusions, e.g. he was captain of a ship, and was very suspicious concerning people generally.

10.7.39	(1)	3.0 c.c.	Cardiazol	M.	
12	(2)	5.0 c.c.	"	"	
14	(3)	5.2 c.c.	"	"	E.-G.
17	(4)	5.4 c.c.	"	"	
19	(5)	5.6 c.c.			
28	(6)	4.0 + 6.0 c.c.	"	"	E.-G.
2.8.39	(7)	4.0 c.c.	"	S/C	E.-G. - Parald
23.10.39	(8)	2.0 c.c.	Azoman	M	(10 mins.) previously.
25.10.39	(9)	2.0 c.c.	"	"	(15 mins.)

CASE 48. M.McL. Male, aged 44 years. Married. Admitted 31.3.39 and discharged 31.8.39.

He was a markedly obese man of fresh complexion. B.P. = 125.80 mm. Hg. The cardiac dullness was not determined owing to the obesity, but the sounds were good in quality. The pupils were equal, regular in outline and small, but dilated to a great extent with atropine. The left ankle jerk was absent, the speech slurring in quality and there was slight ptosis of the eyelids. The C.S.F. W.R. was negative and all readings of the colloidal gold reaction were 0.

On his previous admission (15.4.36 - 4.8.36) he was reported as being depressed, emotional and delusional. He was treated with Somnifaine narcosis and was discharged home. Since then, however, he had done no work and believed everyone was against him. On occasions he wandered from home, sometimes till 1 a.m. and refused to state where he had been. In January, 1939, he became very irritable, quarrelling with his neighbours and imagined the police ambulance to be following him.

Since his re-admission, he was dull, indifferent to his surroundings and depressed, but did not give the appearance of being the depression of a manic-depressive. At times he was confused when he would mutter to himself and at other times appeared to be hallucinated when he was restless, noisy and shouted out. Normally he was very much disinclined to talk. He ate and slept well.

21.7.39	(1)	3.0 c.c.	Azoman M	(twice - 19 8 29 mins)
24	(2)	2.0	" S/C	
2.8.39	(3)	3.5	" M	(6 mins. - dis.jaw)
7	(4)	3.5	" "	(2 ")
9	(5)	3.5	" "	(15 ")
11	(6)	3.5	" "	(14 ") mitral systolic bruit.
14	(7)	3.5	" "	(15 ")
16	(8)	3.5	" "	(15 ")

CASE 49. A.G. Male, aged 37 years. Married. Control. Advanced disseminated sclerosis. Admitted 3.4.39. Died 4.7.39.

His speech was not affected. The knee and ankle jerks were exaggerated as compared with the arm jerks. The plantar responses were reported as being flexor. The abdominal reflexes were absent. Ankle clonus was present and there was urinary incontinence. The gait was staggering. B.P. = 110/70 mm. Hg. The heart sounds were of poor quality.

Nineteen years before admission he was treated in the Glasgow Royal Infirmary for the same disease, twelve years previously with protein shock in Stobhill Hospital and four years previously in Oakbank Hospital. Of two brothers and four sisters, one brother had died from the same disease.

Mentally, the patient was quite normal save that he did not appreciate the seriousness of his condition, but his mental state could not be described as euphoric.

For four weeks previous to admission had had incontinence of urine and fifficulty in walking. He had also been clumsy in his handling of objects and was unable to write his own name. He was reported as having had diplopia "some time ago".

From 3.5.39 to 26.5.39 he was given protein shock therapy with no improvement in his physical condition. On 12.6.39 he received 10.0 c.c. Cardiazol (5.0 c.c. repeated once) and convulsed and passed into a status epilepticus with six further convulsions which responded to morph.sulph. gr.$\frac{1}{4}$ and hyoscine hydrobromide gr.1/100 intravenously together with 6 drms. paraldehyde per rectum and one pint of intravenous hypertonic glucose saline. He was quite conscious and talking quite rationally the same evening. An E.-G. was taken before and after the first convulsion. Otherwise the convulsion had no effect on his physical state.

Three days later a bed-sore developed on his sacral area. This proved unamenable to ordinary measures

and he gradually became weaker and toxic looking, ultimately expiring on 4.7.39.

CASE 50. T.C. Male, aged 19. Single.
Readmitted to skins ward 30.9.38 and transferred to Gartloch Mental Hospital on 7.3.39.

He was first admitted to the skins ward from 30.3.38 to 7.5.38 with a skin condition (brownish pigmentation around the neck and patchy lichenification on the front and side of the neck, the outer aspects of the arms and legs showing a similar condition) which alternated with attacks of asthma - Besnier's syndrome. The same condition was present on his readmission and was clearing up when his first mental symptom showed on 22.11.38 and was reported as saying that deprecatory remarks were being passed about him by members of the nursing staff, a statement which was untrue and had not the slightest grounds in actual fact. He was transferred to the mental observation wards the following day when it was elicited that he had for some weeks past been tormented by voices speaking to him and calling him such names as "bastard". He proved to be a typical case of the paranoid variety of dementia praecox on which a course of Somnifaine therapy from 31.12.38 to 14.1.39 had no effect, nor a subsequent course of Cardiazol beginning the day following.

19.12.38	(1)(1) 3.0 c.c.	S/C
21	(2)(2) 5.0 R.3 + 6.5	M
23	(3) 6.0 + 7.0 + 7.5 + 8.8 c.c."	
26	(4)) unsuccessful on	-
28	(5)) account of the struggle he put up.	-
30	(6) 10.0 c.c. R.3	M

CASE 51. W.P. Male, aged 30. Married.
Skin out-patient.

He was suffering from a chronic eczematous condition of his face but in addition he presented the features of an anxiety neurosis. After his first and only injection of Cardiazol his skin condition cleared up and had not recurred two months later.

5.6.39 (1) 2.0 c.c. S/C.

CASE 52. M.Y. Female, aged 43. Married.
Admitted 7.9.38, discharged home 10.12.38.

She was an obese woman of moderate height. B.P. not recorded.

There was nothing relevant in her earlier history. Married three years before admission (there were no children), she remained in good health, physically and mentally, until a fortnight before admission when she complained of inability to sleep and wanted to get up at nights and wander about. She imagined she was suffering from cancer and cardiac disease: the asserting of these beliefs was accompanied by a marked degree of depression.

The same mental state was present on admission with the same delusional beliefs, but in addition she was very aggressive both to the nursing staff and to the other patients, to both of whom she was also very interfering. There was considerable arrogance in her attitude which, although she did not specifically say so, seemed to have a bearing on her scripture readings: when not aggressive and interfering she sat apart for long periods apparently intently studying her Gaelic Bible. She appeared to be a case of agitated melancholia.

At first she showed no response to Cardiazol treatment (to which at first she was very resistive) but

ultimately improved to the point of social recovery though her fear of treatment was still present though very much better controlled. She proved to be a pleasant woman and very helpful in the wards. She had no insight into her condition newly passed nor was she able to suggest any possible psychogenic factors concerned in the production of her illness.

23.11.38	(1)	4.0 c.c.	M	Marked bradycardia.
25	(2)	4.4	"	"
28	(3)	5.0	"	"
30	(4)	5.4	"	"
2.12.38	(5)	5.6	"	E.-G.
4	(6)	5.8	"	E.-G.

CASE 53. E.W.S. Female, aged 40. Married. Admitted 10.9.38, transferred to Stoneyetts Mental Hospital on 10.1.39.

Physically she revealed no abnormalities. B.P. not recorded.

She was stated to have always been eccentric in her ways and quarrelsome with her own people and, on account of this trait, left home before she was married and lived in lodgings. After the birth of her younger daughter eight years previously she underwent a major operation (nature unknown) in the Samaritan Hospital. For the two years preceding admission she was becoming increasingly more difficult to live with, continually quarrelling with her husband whom she said was against her as were also her next door neighbours with whom she also quarrelled. On account of her informing against him, her husband was charged with the illegal possession of an old revolver.

On admission she was quiet, answered questions well, and showed no evidence of disorientation. At times she was apathetic. She readily spoke of her delusions of

persecution in connection with her neighbours and her husband, and was slightly depressed when she thus thought. Her lack of insight was shown by her professing to be quite well and fit to be at home.

At first she showed an improvement under Cardiazol therapy in that she did not voice her delusions with the same readiness or conviction, but by 8.12.38 she had reverted to her mental state that was present on admission, and, in addition, became argumentative, interfering and violent without cause to the other patients. She showed carelessness in her habits and dress and, in view of the chronicity of her mental state, her present behaviour and no immediate prospects of recovery, it was considered advisable to certify her.

16.11.38	(1)	4.0 c.c.	M	
18	(2)	4.0	S/C	
21	(3)	4.0	M	
23	(4)	5.0 R.1	"	
25	(5)	5.5 + 6.0	"	
28	(6)	7.0	"	
30	(7)	7.4 c.c.	"	
2.12.38	(8)	7.6	"	
5	(9)	7.8	"	Irregularity E.-G.
7	(10)	8.0	"	
9	(11)	8.8	"	
12	(12)	9.0	"	
14	(13)	9.2	"	
16	(14)	9.6	"	Bradycardia.
19	(15)	9.6 R.1	"	
21	(16)	9.8	"	
23	(17)	10.0	"	
26	(18)	10.0	"	
28	(19)	10.2 R.1	"	
30	(20)	10.5	"	
2.1.39	(21)	11.0	"	

CASE 54. E.S.C. Female, aged 44. Married.
Admitted 20.10.38, discharged home 17.1.39.

No physical abnormalities were noted. The B.P. was not recorded.

She had enjoyed excellent health, both physical and mental, all her life, was always of a quiet disposition, enjoyed and had reared six healthy children during her 16 years of married life. Her mother was stated to have been a patient in Woodilee Mental Hospital but the date and period was unknown. On 15.10.38 the patient without warning became "restless and difficult" and made accusations of marital infidelity against her husband which, a sister of the patient stated, were untrue. She refused to stay in bed and wanted to go out of the house naked. She refused to take food and would take only tea and water. Her menstrual periods had recently been irregular and less heavy.

On admission, she maintained that her husband was unfaithful to her and by questioning there seemed to be no grounds for this belief. She also stated that the neighbours had been talking about her: there did not seem to be any grounds for this belief either. A degree of depression was also present but it was a consequence of her delusions and was free of self-reproaches.

To Cardiazol treatment the patient showed violent resistance on account of extreme fear which she showed in connection with the injections which had to be stopped for that reason. Under treatment she became more truculent and aggressive and was continually clamouring to be allowed home. She often smiled foolishly to herself and was very impulsive in her actions. On the cessation of treatment, however, a gradual and steady improvement in her mental condition began to show until her husband stated that she was "now her old self again". She was, however, quite lacking in any insight into her condition but was allowed home as a social recovery.

18.11.38	(1)	4.0	M
21	(2)	4.0	"
23	(3)	4.2 + 4.5	"
25	(4)	6.0 + 6.5	"

28.11.38	(5)	7.0	M
30	(6)	7.5 c.c.	M
2.12.38	(7)	7.8	"
5	(8)	8.0	"
7	(9)	8.0	"

CASE 55. H.J. Female, aged 43. Single.
Admitted 24.10.38, discharged home 10.12.38.

She was a pale, small, under-nourished woman. There was a soft systolic murmur at the mitral area: the murmur was not conducted. B.P. was not recorded. There was marked pyorrhoea alveolaris with moderate gingivitis.

She was an illegitimate child and was brought up by her grandparents. For the 15 years preceding admission she was a concubine to a married man. In July, 1937, she was admitted to the Mental Observation Wards of Stobhill Hospital and was a patient therein for six months: the nature of her mental illness on that occasion was unknown. All her life the patient had been subject to spells of elation during which she was excessively loquacious, witty and hilarious.

On admission she was extremely depressed with even considerable retardation when replying "yes" or "no" to a question which was all she could be induced to talk and sometimes she did not reply at all. In the Ward, she sat unmoving with bowed head and took no interest in her surroundings. Very sparing in her movements, any she did make were restrained and of very limited range.

Under Cardiazol treatment she improved to the point of social recovery. She proved to be a pleasant lady of a kindly, sociable type, taking an active interest in the ward and helped willingly both patients and nursing staff in the wards. Through the offices of a friend she secured employment at her old job of domestic servant and was discharged looking forward to the resumption of employment.

21.11.38	(1)	4.0 o.c.	M
23	(2)	4.2	"
25	(3)	4.5	"
28	(4)	4.8	"
30	(5)	5.0	"
2.12.38	(6)	5.2	"
5	(7)	5.4	"

CASE 56. D.MacA. Female, aged 30. Married. Admitted 25.6.38, discharged home 1.1.39.

She was a tall, thin woman with a small head, the latter feature being accentuated by her shaven skull, the hair having been removed for a severe infestation with pediculi capitis, and there was an eczematous condition of that marginal area of skin contiguous with the hair. Otherwise, no physical abnormalities were noted. The B.P. was not recorded.

She was stated to have had a severe head injury when eleven years old and for a number of years thereafter suffered from a foul-smelling nasal discharge. In March, 1937, she was found by her husband with a razor in her hand apparently about to commit suicide. Because of this, she was admitted to the Mental Observation Wards of Stobhill Hospital and was a patient therein for seven months at the end of which time she was taken out on her husband's responsibility: her condition was probably unchanged as it was stated that the holiday she was then taken away on produced no improvement. Between then and her admission to the Southern General Hospital the same mental state prevailed and in addition she began to imagine, without any cause for doing so, that her husband was "going with other women" and that she heard people talking about her. She became neglectful of her only child, a daughter aged 7, and her husband had to perform such acts as washing his daughter and preparing her for school in the mornings.

On admission she was reticent and suspicious and continually asked to be allowed home. When left alone she was quite dull and uninterested in her surroundings and sat quietly in a mild katatonic state, doing nothing of her own volition, though obeying with no reluctance simple orders. Her wrong answers given to questions involving simple addition and subtraction confirmed her husband's statement of her mental backwardness as shown by her inability to count the change when she went shopping: although no accurate assessment of the degree of her mental deficiency was made, it was obvious from the simple tests made that this was of a severe degree. She was excessively vain about her appearance (a point also mentioned by her husband) and was very sensitive concerning her shaven skull: despite this trait, however, she persisted in picking at the eczematous condition of her skin (thereby making her appearance worse) even although the affected area was bandaged. It seemed that her secretiveness and suspiciousness prevented her from discussing her husband or what people were saying about her.

Under Cardiazol treatment the mild katatonic features she showed disappeared, the slight retardation she had previously shown in her simple replies was no longer evident, and, from being a facile and biddable woman, she now reacted to her environment by formulating her own opinions and being less hesitant about disagreeing with people, including the ward sister. No effect was produced, however, in her underlying oligophrenia. On 1.1.39 the eczema showed signs of finally responding to Ung.Hydrarg. and, against advice, she was taken out on her husband's responsibility.

14.11.38	(1)	4.0 c.c.	M	
16	(2)	4.0	"	
18	(3)	4.0	"	
23	(4)	4.2	"	
25	(5)	5.0	"	
28	(6)	5.4	"	Bradycardia.
30	(7)	5.6	"	"
2.12.38	(8)	5.6	"	"
5	(9)	6.0	"	E.-G.
7	(10)	6.0	"	"
12	(11)	7.0	"	
14	(12)	7.2	"	

16.12.38	(13)	7.4 c.c.	M	Bradycardia.
19	(14)	7.6	"	"
21	(15)	7.8	"	
23	(16)	8.0	"	Bradycardia.
26	(17)	8.2	"	E.-G.
28	(18)	8.8	"	
30	(19)	8.8	"	Bradycardia.

CASE 57. H.R. Female, aged 45. Single. Admitted 5.11.38, transferred to Stoneyetts Mental Hospital 28.12.38.

She was a well-nourished woman who was edentulous in both jaws. Her tongue was dry and glazed: her appetite was good but there was a complaint of dysphagia due to the xerostomia. A right paramedian subumbilical operative scar, slightly keloid, was present. Menstruation had ceased two years previously.

She was operated on one year before admission, in the Victoria Infirmary, Glasgow, for an ovarian cyst and made a satisfactory recovery from the operation. Thereafter, however, she kept "drifting from one post to another" as a domestic servant, seemingly unable to undertake the responsibility of her work. In June, 1938, she became depressed and "strange in manner" and said, without any foundation for her statements, that people were talking about her and saying that she was unclean. Her father died three years previously of old age and her mother had died when the patient was very young: the mother was described as being of "very nervous temperament". Before admission the patient complained of deafness and was attending the outdoor dispensary of the Western Infirmary, Glasgow, for treatment.

On admission there was no evidence that this deafness had an organic origin but was, on the contrary, functional. She lay in bed indifferent to her surroundings with a pleased, happy expression on her face as if she were

enjoying pleasant hallucinations and she had, or seemed to have, sufficient insight into her own condition to recognise their hallucinatory nature: for, when questioned about the presence of hallucinations or as to why she was smiling, she would pretend deafness. At other times when she was speaking in reply to a question put in a soft, low tone, and which she heard perfectly, she would suddenly interrupt her reply as if to listen to a further hallucination. She denied being hallucinated, however, was secretive and suspicious when these were mentioned, and would not discuss her delusions concerning people talking about her.

Under Cardiazol treatment, she at first lost her indifference and preoccupations with her hallucinations and became more lively, taking an apparent interest in her surroundings. Whenever any mental approach was made to her, however, she instantly betrayed her suspicious and secretive attitude. With the continuation of treatment, however, she became violent and aggressive and ultimately lapsed into the state she had been on admission. It was considered advisable to certify her. Her fear of treatment was extreme and ultimately the injections only could be given to her after a struggle. They had to be stopped for that reason.

18.11.38	(1)	4.0 c.c.	M	
21	(2)	4.0 R.1	"	
23	(3)	4.5 R.3	S/C	
25	(4)	7.5 c.c.	M	
28	(5)	7.8	"	
30	(6)	8.0	"	
2.12.38	(7)	8.2	"	
5	(8)	8.4	"	
7	(9)	8.6	"	
9	(10)	8.8 R.1	"	
12	(11)	9.0	"	
15	(12)	10.0	"	
16	(13)	10.0	"	
19	(14)	10.2	S/C	
23	(15)	10.2	M	(twice)
26	(16)	10.2	"	

CASE 58. B.S. Female, aged 50. Unmarried.
Admitted 6.11.38, discharged home 24.12.38.

She was a moderately tall, poorly nourished woman of pale complexion with a melancholic and resigned expression. Her arteries were moderately sclerosed. B.P. = 90/70 mm. Hg. Despite a thin chest-wall, the cardiac sounds were soft in tone and poorly heard and almost inaudible at the aortic and pulmonic areas. A few crepitations were audible at the right base. The knee jerks were diminished and the ankle jerks were not elicited. The plantar responses were equivocal. No tremor, spasticity paresis or inco-ordination was detected. She was edentulous in both jaws. The bowels were costive. Menstruation had ceased five years previously. Blood and cerebro-spinal fluid Wassermann reaction were both negative. C.S.F. floculation test negative. Albumin 18 mgms %. Globulin negative. Colloidal gold curve 1122211000.

She had had no previous admission to hospital. Stated to have had sunstroke when four years old, she was very ill afterwards and was nursed at home. She attended an ordinary school but her memory has always been slightly impaired. After leaving school she looked after her old grandparents and was not allowed out much so that she did not mix with company. After they died she worked in a baker's shop for some little time, but owing to her memory being poor she was paid off. This worried her very much and she had a period of depression as a consequence. For the ten years thereafter she carried on with moderate success (she was able to make ends meet and no more) a small newsagents and confectioner's business. In January, 1938, she was "run down" and a little depressed and was advised to have a complete change but refused to leave the shop, and the depression increased in intensity ever since. On 3.11.38 she collapsed in the shop and had complete amnesia for a few hours thereafter.

On admission she was indifferent to all that was occurring around her and lay in bed in an apathetic manner with her eyes closed. She could give a moderately good account of herself and by means of questioning it was elicited that she was depressed and convinced that nothing would help her as she was beyond hope.

Under Cardiazol treatment, however, she progressed to the point of social recovery, became lively, took a healthy interest in things in her immediate environment, was full of hope and began asking to be allowed home. In the post-convulsion confusion after one of her fits, she indulged quietly and ruminatively in coprophagia after fingering her anal region.

After treatment was three weeks over, she had during one whole afternoon a continuous spell of talking to no particular end.

18.11.38	(1)	4.0 c.c.	M	
21	(2)	4.0	"	Bradycardia.
23	(3)	4.2	"	
25	(4)	4.4	"	
28	(5)	4.6	"	
30	(6)	5.0	"	
2.12.38	(7)	5.2	"	
5	(8)	5.4	"	Bradycardia.
7	(9)	5.6	"	"
9	(10)	5.6	"	"

CASE 59. M.G.MacM. Female, aged 55. Married. Admitted 16.11.38, discharged home 25.3.39.

She was a thin, under-nourished woman of sallow complexion. Her eyes were set apart more widely than normally in her head. The pupils were of unequal size, the left being larger than the right, the left pupil reacted sluggishly and through small amplitude directly and consensually to light and on accommodation. The reactions to light and on accommodation of the right pupil were normal. The biceps, triceps and supinator jerks of both arms were equally exaggerated; the knee jerks by comparison were diminished and the ankle jerks absent. The right abdominal reflex was brisk: the left abdominal reflex was absent. The plantar responses were flexor in type. There was hyperaesthesia of the soles of

the feet. Otherwise no abnormal findings were detected on ordinary clinical examination in connection with the nervous system. The arterial walls were slightly sclerosed and irregular. B.P. = 140/90 mm. Hg. The cardiac dullness was normal in shape and not enlarged to percussion. The cardiac sounds were pure and of good tone. There was a sub-umbilical right paramedian surgical scar with an underlying deficiency of the abdominal wall. The bowels were costive. There was a complaint of her urine being "slow in coming" but, owing to her depressed mental state, it was not found possible to persuade her to explain this fully: it was taken to mean, however, that there was difficulty in beginning the act of micturition.

Little information was secured from her son concerning the patient's earlier history. Her parents had died in her infancy. She had three sisters alive and well and one brother alive and ? deformed. Her husband was alive and well as were also her two sons. For the three months preceding admission she complained of sleeplessness with depression. The informant with his two sons stayed with her and she stated that they and her daughter-in-law got on her nerves: before this, she had been greatly attached to them. Just before admission she refused to go out or to speak in reply to anyone and became irritable. She expressed the idea that she wanted to die and that she was "of no use" and "only in the way". She was, however, never violent nor did she attempt any self-injury.

On admission the general effect of the patient was one of depression which tinged all her other traits. She was correctly orientated as to time, place and person and her memory was good. She spoke in a soft, monotonous, almost inaudible voice: her talk was to the point she wished to make and quite rational. She was apathetic and indifferent to her surroundings. Her present trouble, she said, dated from eight months previously when things at home began to prey on her nerves, particularly her daughter-in-law and grandchildren. She became irritable and came to feel she was not wanted: this latter amounted to a fixed belief. Other than that, she betrayed no evidence of the existence of delusions or hallucinations. She stated that she suffered from insomnia and that she

had no intention of committing suicide. She gave the impression of a depression co-existing with a syphilitic state or, alternately, a case of dementia paralytica beginning as a depression. She herself had no history of syphilitic infection, but the blood Wassermann was very strong positive as was also the cerebro-spinal fluid. The flocculation test was doubtful and the colloidal gold curve 3334443210.

On 5.12.38, 20 c.c. of malarial blood was injected intramuscularly, 10 c.c. into the interscapular region and 10 c.c. into the gluteal region. On 5.1.39 the malarial therapy was stopped after the occurrence of four typical rigors owing to the recurrence of a moderately profuse rectal haemorrhage. Her heart sounds were weak and soft in tone and her pulse of poor quality as compared with formerly. Mentally, she appeared brighter though in view of her convalescent state it was difficult to estimate the full extent of her mental improvement. By 16.1.39, however, she had reverted to her pristine state of apathy and depression. She stated she had no desire to get better. Occasionally, she complained of rectal pains obviously in the nature of rectal crises which on two occasions necessitated the administration of morphine gr. $\frac{1}{4}$.

As an experiment to see whether her depression, presumably paretic in origin, could be influenced with Cardiazol, she was begun with sub-convulsive doses (as her heart sounds were still weak) and after the first dose on 30.1.39 had a very strong psychic catharsis: she stated, in an extremely agitated emotional state, that her present depression was due to her being an adultress on several occasions with various men, "doing it not for money but for the love of it", while her husband was in the Army serving in the Great War and while she was working in munitions. For these past sins she was, she said, externally damned and was beyond all hope of forgiveness. As she catharted in this fashion, she lay racked with remorse, taunted by doubt which my counter-suggestions had produced in her against her depressive ideas, and yearning for her comparatively happy state she had once known. From that date, she gradually improved. She ultimately was quite bright, cheery and worked well in the wards and no remains of her depression were present. Her

cheeriness, however, was not boisterous but quiet and restrained. It was difficult to say whether her improvement was due to a delayed effect from the malaria or to the Cardiazol, though the latter is the most probable in view of the strong catharsis referred to. She had a marked fear of the injections after each of which she felt she was going to die.

Tryparsamide injections were begun on 27.2.39 and when she was discharged she reported for the continuation of treatment as an out patient.

30.1.39	(1)	2.0 c.c.	S/C	
1.2.39	(2)	2.0 c.c.	"	
3	(3)	3.0 c.c.	"	
6	(4)	3.0 c.c.	"	
8	(5)	4.0 c.c.	M	
10	(6)	4.2 R.1	"	
13	(7)	4.4 R.1	"	irregularity.
15	(8)	4.6 R.1	"	
17	(9)	4.8 c.c.	"	
20	(10)	5.0 c.c.	"	
22	(11)	5.2 R.1	"	

CASE 60. J.P.MacG. Female, aged 25. Married. Admitted 2.11.38, discharged home 13.3.39.

She was a moderately well-nourished woman of clear skin and of high facial colour particularly over the malar prominences. Her pulse was rapid in rate (due to her maniacal condition) and dicrotic in character. B.P. = 120/75 mm. Hg. The second cardiac sound at all areas was accentuated. The abdominal reflexes were not elicited: the ankle jerks were diminished. Recent lineal atrophica were present on the abdomen. Her breasts were engorged and slightly tender. There was no lochia nor were there any urinary symptoms. Sugar and acetone were present in the urine.

She was delivered of a normal full-time son in the maternity wards of the Southern General Hospital on 5.10.38 and after the puerperium and on her return home complained of some headaches and dizziness. As a routine measure, she attended Florence Street Clinic with her baby, to whom she was very attentive. A fortnight before admission to the Mental Observation Wards, she began "getting strange": she became depressed and did not wish to speak to anyone. At that time, some keys had been lost but she said that her husband had given them to some man so that this man could get into the house at any time. Without any justification, she accused her husband of unfaithfulness and declared that he and his people were against her. The day before admission she went out with her baby saying that she was going to watch for people coming into the house: she was persuaded with great difficulty to return home. In the embulance on the way to hospital, she stated that it was going through slum streets to "pick up women like her" and that the driver stopped on the way to have a drink.

On admission she was restless in bed and did not maintain any one attitude for any length of time. Her attention was easily caught but held with difficulty. She was correctly orientated. She flitted rapidly from one topic to another in her conversation and uttered fleeting delusions, e.g., to the effect that her baby was dead or dying. On 1.12.38 she had passed into the state of "delirious mania" which required almost continual sedation for its effective control. By 10.12.38 this state had subsided leaving her apparently normal mentally, but after a day she again passed into her original maniacal state.

Under Cardiazol treatment there was a distinct improvement in her mental condition in that she now had comparatively long periods of normality with occasional maniacal and hypo-maniacal outbursts.

This state continued until the end of treatment and a few days after the cessation of this these outbursts had quite gone. She still voiced fleeting delusions, e.g. to the effect that the Duchess of Windsor had been to see her baby. These, however, had disappeared for a few days before her dismissal as a social recovery. She

had no insight, however, into her past condition.

There was a noticeable gain in weight under treatment (although she was moderately well-nourished when it was begun) and she ate and slept very well.

28.12.38	(1)	1.0 c.c.	S/C	
30	(2)	2.0	"	
2.1.39	(3)	3.0	M	
4	(4)	3.0 R.1	"	
6	(5)	3.5 R.1	"	reduplicated 1st. sound at the tricuspid area
9	(6)	4.0 + 5.0	"	
11	(7)	5.2	"	
13	(8)	5.4 + 6.0 + 6.6	S/C	
18	(9)	7.0 R.1	M	
20	(10)	7.2 c.c.	"	
23	(11)	7.4	"	
30	(12)	7.6	"	
1.2.39	(13)	7.6	"	
3	(14)	7.8	"	
6	(15)	8.2	"	
8	(16)	8.5	"	
10	(17)	8.8	"	
13	(18)	9.0	"	
15	(19)	9.4	"	
17	(20)	9.6	"	
18	(21)	9.6	"	
24	(22)	9.8	"	
27	(23)	10.0	"	
2.3.39	(24)	10.0	"	

CASE 61. W.C. Female, aged 31. Married.
Admitted 22.11.38, discharged home 19.12.38.

No abnormalities were noted physically. B.P. = 130/80 mm. Hg. In connection with the genito-urinary system, she complained of irregular menstruation since 19.8.38 with dysmenorrhoea and gave a history of passing per vaginam "a small white thing, like a piece

of skin with a clot at the end of it" about five weeks before admission.

She had no previous illnesses and was always of a cheery disposition. She had been married 14 years and had three of a family aged 11, 9 and 8, all of whom were healthy. Six weeks before admission she had fallen down a ladder inside her house and sustained bruised hips. Since then she had not felt well and had been "in and out of bed". She also complained of severe frontal headaches and flushing of the face.

There was an absence of psychotic traits on admission and her complaints of headaches and flushings seemed to be conversion symptoms. The headaches were not actually painful but more a feeling of heaviness. This together with the subsidiary complaints of irritability and inability to concentrate, pointed to anxiety features in addition. There was also an element of mild depression though this was not psychotic in its extent. There seemed little reason to doubt the patient's self-diagnosis of an abortion five weeks before admission and this together with the fact elicited that she had a fear of further pregnancies, had never previously aborted, and the fall from the ladder raised the suspicion if she had not purposely tried to bring it on.

All her symptoms disappeared under Cardiazol treatment and she was discharged as a social recovery.

7.12.38	(1)	4.5 c.c.	M	- reduplicated 1st.
9	(2)	4.5 R.1	S/C	sound at the tricuspid
12	(3)	5.0 + 6.0	M	area.
14	(4)	6.2	"	
16	(5)	6.4	"	

CASE 62. M.B. Female, aged 54. Single.
Admitted 21.12.38, discharged home on 20.2.39.

She was a small, thin, under-nourished woman of

sallow complexion. There were numerous bruises of large size over both legs and a large peri-orbital bruise of the right eye with a subconjunctival haemorrhage. There was no left eye (which was lost after an attack of measles in childhood), the eye socket was empty and the eyelids in apposition. B.P. = 138/80 mm. Hg. The first cardiac sound was slightly accentuated at all areas.

She was stated to have enjoyed excellent health, both physical and mental, all her life, and had for "a good number of years" (exact number not recorded) attended on an invalid sister, who, for the few months preceding the patient's admission, was becoming more difficult to nurse and manage and who was becoming touchy and quarrelsome: "she could not be pleased in any way". This worried the patient very much as she was very devoted to her invalid sister and "the strain told so much on her" (the patient) that she became depressed, on account of which she was admitted to hospital.

On admission the bruises were judged to be due to scurvy and rapidly disappeared with an ordinary hospital mixed diet. For the first few days after admission she revealed no psychotic traits beyond a moderately severe depression. Her talk when she was persuaded to talk concerned her sister whom she had nursed for years: she took it very badly that her kindness and attention to the sister should have been repaid in the coin of inability to please. A few days after admission, however, she stated without any foundation that the other patients in the ward had been told not to talk to her and that the nurses were saying that she was selfish.

Her depression was relieved during Cardiazol treatment and it seemed that the relief of this merely threw into prominence features such as her delusions referred to above. She seemed very preoccupied with her thoughts to such an extent that on two occasions she had gone to bed fully clothed. In addition, an element of slight confusion was present. With further treatment all these features disappeared, however, and left her a very pleasant lady to deal with and an industrious worker, but she was rather facile in her speech and manner, and had a very high opinion of herself, e.g., she thought that a mental defective in the same ward who had been sent to

Lennox Castle Institution was sent because this patient had had words with her.

Save for a temporary set-back in her mental state occasioned by the anniversary of her father's death, there were no outstanding features in connection with her mental state after treatment was terminated. She was dismissed as a social recovery but had no insight of any description into her immediately past mental state.

26.12.38	(1)	4.5 c.c.	M
28	(2)	4.5 c.c.	"
30	(3)	4.5 R.1	"
2.1.39	(4)	5.0 + 6.0	"
4	(5)	6.0 c.c.	"
6	(6)	6.5 c.c.	"
9	(7)	6.8 + 7.0	"
11	(8)	7.0 R.3	"
13	(9)	7.4 c.c.	"
16	(10)	7.6 c.c.	"
18	(11)	7.8 c.c.	"
20	(12)	7.8 c.c.	"
23	(13)	8.0 R.3	"

CASE 63. M.O'B. Female, aged 42. Single.
Admitted 28.12.38, discharged home 30.3.39.

She was a thin under-nourished woman of fresh complexion. There was phthisis bulbae of the right eye. The arterial walls were slightly sclerosed and irregular. B.P. = 120/75 mm. Hg. The percussion note at the right apex anteriorly was dull as compared with the opposite corresponding area. There was a trace of albuminuria. This latter cleared up with no therapy within two days of her admission.

Nothing abnormal was recorded in her earlier history. On the death of her mother when the patient was 17 years old, she had to bring up five younger children, which she did in a commendable manner. Throughout,

she always remained of a cheery disposition. For the nine years preceding admission she had worked in a paper mill, and for the three years immediately preceding admission she had been "acting oddly" at her work, becoming slow in the execution of any task allotted to her and quarrelling on slight pretext with her fellow-workers. She complained during this period of heaviness on one side of her head but of no other physical discomfort. She "developed a mania for religion" and attended chapel three or four times a day. Her manner became suspicious and aggressive and, as well as becoming untidy in her personal habits, neglected her home. In 1937 she was admitted to the Mental Observation Wards of the Southern General Hospital but was taken out on her brother's responsibility after a period of five weeks. She then disappeared from home for two days and on coming back announced that she was now in domestic service: she remained in this until 26.11.38 when she returned home saying that her employer was working her too hard. She was very aggressive to the doctor who was called in.

For the first few days after admission she was quiet and well behaved and there was nothing of note concerning her mental state save that she was a high-grade mental defective. After a few days, however, and without just cause, she became interfering, truculent and physically aggressive, e.g., struck a fellow patient quietly engaged in making a bed.

She quickly responded to Cardiazol therapy in that she became quiet and gave no further trouble: she was allowed up and helped well with the ward work. The improvement in her mental state continued. For half an hour after the last convulsion induced she was very confused and noisy and complained of pain in both arms but settled later in the evening only to become noisy and restless during the night, again complaining of pain in the arms. A dislocation of the head of the right humerus and avulsion of the lesser tubercle of the left humerus wad siagnosed by Dr.Levack, Surgical Registrar, and confirmed by X-ray. There was no reason to suppose that the above bony and articular damage was produced other than by muscular action following upon the administration of Cardiazol. There was nothing atypical about the fit nor was there any modification of the customary technique.

She was transferred to the surgical wards and returned after a few days to the Observation Wards after having received surgical treatment. There was an occasional complaint of shoulder pains and of limited range of movement of the left arm. These complaints responded to massage. Mentally, she continued quite well until a few days before dismissal when she again became verbally abusive and delusional saying that her relatives were outside the ward. The continuation of Cardiazol treatment being precluded, she was discharged as "slightly improved" as she was otherwise psychotherapeutically inaccessible.

16.1.39	(1)	4.0 c.c.	M	
17	(2)	4.5 c.c.	"	
18	(3)	4.5 c.c.	"	dislocated jaw.
20	(4)	4.8 c.c.	"	fracture and dislocation.

CASE 64. J.H.A. Female, aged 60. Married. Admitted 31.1.39, died 9.4.39.

She was a moderately well-nourished woman whose lips were slightly cyanosed. There was no oedema or dyspnoea. The arterial walls were slightly sclerosed. B.P. = 120/75 mm. Hg. The apex beat was not visible or palpable. The cardiac dullness was enlarged to percussion to four and a quarter inches to the left of the mid-sternal line in the fifth interspace. The sounds were soft and of indifferent quality and were largely obscured by a pericardial rub audible over the whole of the praecordium and major portion of the left chest anteriorly including the supra-clavicular region. There was visual evidence of a bilateral iridectomy and a history of operation for bilateral glaucoma. The abdomen was moderately obese and lax and a median sub-umbilical surgical scar was present. There was a history of a "major operation" following a dilatation and curettage later followed by appendicitis. Albumin,

acetone and pus were present in the urine.

Her mother and a sister had both died in a mental hospital. Her own two children were alive and well. Her husband (stated to have been always a difficult man to get on with, moody, and who bullied his wife and children) had left her five years previously: but it should be noted that the patient was stated to have been "affected mentally for the last five years". For the years preceding admission, she said that people were watching her, were afflicting her with electricity and had the power to affect her son who was abroad. Her symptoms became worse in the darkness of night time.

She was very suspicious on admission and stated that "they" (people) listened to her speech and thoughts by means of a microphone placed over her and also used the wireless on her. She showed considerable agitation and restlessness and clamoured to get home as she said she was "an evil influence". Depression, however, was but a minor feature of the mental picture. She frequently required sedation with paraldehyde or morphine and hyoscine.

Under sub-convulsive Cardiazol treatment her restlessness and agitation disappeared and her non-systematised delusions less frequently expressed. While under treatment she confessed that she heard persecutory voices but these were not now tormenting her so much. She was incapable of testamentary capacity for when a will was presented for her to sign she refused, saying that her son's name was not on it whereas, in effect, it was. By 16.2.39 the rub which was previously present had disappeared.

After the termination of treatment the slight improvement in her mental state continued. Her facial colour varied enormously, from slight to severe cyanosis. On 9.4.39 she developed a syncopal attack and died.

1.2.39	(1)	1.0 c.c.	S/C
3	(2)	2.0	"
6	(3)	1.0	"
8	(4)	1.0	"
10	(5)	1.0	"

13.2.39	(6)	1.0 c.c.	S/C
15	(7)	1.0	"
17	(8)	1.0	"
20	(9)	1.0	"
22	(10)	1.0	"
27	(11)	1.0	"
1.3.39	(12)	1.0	"
3	(13)	1.0	"
5	(14)	1.0	"
8	(15)	1.0	"
11	(16)	1.0	"
13	(17)	1.0	"

CASE 65. F.MacL. Female, aged 54 years. Married. Admitted from the Victoria Infirmary, Glasgow, on 22.1.39 and discharged home on her sister's responsibility on 18.3.39.

She was of sallow complexion and very thin, bordering on emaciation. Her whole appearance was suggestive of malignant cachexia. She complained of breathlessness but there was no evidence of this during the examination. The arterial walls were slightly sclerosed. B.P. = 130/85 mm. Hg. The biceps and ankle jerks were not elicited. There was slight pyorrhoea alveolaris. Her appetite was indifferent and she complained of a choking sensation in the epigastrium. She complained of constipation. There was no tenderness, rigidity, pain or palpable mass on abdominal examination. There was a small ridge palpable rectally, but this had none of the features of a carciuoma and seemed to be a hypertrophied value of Houston. There was a trace of albuminuria.

Notes concerning her state on admission to the Victoria Infirmary and investigations conducted therein were not recorded, nor were any relatives available to obtain a history. Her mental state on admission to the Southern General Hospital was one of depression with apathy and disinterestedness. She made these

characteristics seem worse by having an enormous amount of sympathy with and self-pity for herself and was constantly on the alert with any trick or line of conduct that might win these solicitations from other people and took it very badly when the sympathy and condolences she expected were not forthcoming. She was very reserved and suspicious in her relations with me and any attempt at mental rapprochement was unsuccessful beyond discovering the sense of frustation engendered by her barrenness, and that her husband was at sea and treated her on his brief leaves very much like a doll: it was doubtful if sexual relations had ever occurred between them - ? rejection by her.

She at first showed a slight improvement with sub-convulsive Cardiazol treatment, both physically and mentally becoming less narcissistic concerning herself and an improvement in her appetite occurred. After her first injection she showed signs of extreme fear and with pallor beneath her sallow complexion and moderate bradycardia. After a few injections, however, she reverted to the mental state she had been in on admission and was taken out on her sister's responsibility against medical advice. Like the patient herself, this sister was suspicious and hostile of any approach and stated that the patient's relapse into her original condition was due to the injections and disbelieved the statement that the same injections had brought about the improvement in the first instance. She did state, however, despite her efforts to reveal no information to me, that the patient drank heavily and that she "sometimes put it on" meaning that she made the most of her symptoms. The trace of albuminuria was still present on her discharge.

28.1.39	(1)	2.0 c.c.	S/C	bradycardia.
30	(2)	1.0	"	
1.2.39	(3)	1.0	"	
3	(4)	1.0	"	
6	(5)	1.0	"	
8	(6)	1.0	"	
10	(7)	1.0	"	
13	(8)	1.0	"	
15	(9)	1.0	"	
17	(10)	1.0	"	
20	(11)	1.0	"	

22.2.39	(12)	1.0 c.c.	S/C
1.3.39	(13)	1.0	"
3	(14)	1.0	"
6	(15)	1.0	"
8	(16)	1.0	"

CASE 66. S.R. Female, aged 33. Married.
Admitted 6.2.39, discharged home 5.5.39.

She revealed no physical abnormalities. B.P. not recorded.

There was a history of having, several years previously - the exact number was unstated, slipped on a Clyde ferry and had fallen into the water. Whereas previously she had been bright and cheerful she became apprehensive and nervous after the accident. She gave birth to a healthy child at the end of September in the Maternity Wards of the Southern General Hospital and was removed to the mental observation wards three days after the birth and was taken out against medical advice by a sister on 5.10.38. (She had four healthy children, one miscarriage and one still birth). Since her discharge, she had gradually been getting worse: she became depressed, lost interest in herself and in her children. Just before admission her husband was taken to hospital with pneumonia. This increased her depression still more. She expressed a wish to a neighbour to do away with herself.

On admission she was a typical case of depression and she said that her feeling of hopelessness dated since three months previously. During the same period she had heard voices telling her she was "through" and "finished".

Under Cardiazol treatment she progressed to the point of social recovery. At first treatment produced in her a state of mild confusion and restlessness

and during the night she would get out of bed, some nights complaining that the injections of Cardiazol she received the day before had given her too much energy. By 26.3.39 there was a definite improvement in her condition although her behaviour at times was rather uncertain. Her case was characterised by the frequence and rapidity with which she would pass from a depressed state to one of hypomania and vice versa. She finally passed into a state of agitated melancholia which lasted for two weeks before she finally recovered.

8.2.39	(1)	4.0 c.c.	M	
10	(2)	4.2	"	
13	(3)	4.4	"	
15	(4)	4.6	"	
17	(5)	4.8	"	
20	(6)	5.0	"	
22	(7)	5.2	"	
24	(8)	5.4	"	
27	(9)	5.8	"	E.-G.
1.3.39	(10)	5.0	"	
6	(11)	5.2	"	
8	(12)	5.4	"	
11	(13)	5.6	"	
13	(14)	5.6	"	
15	(15)	5.6	"	
17	(16)	6.0	"	
22	(17)	6.2	"	
24	(18)	6.4	"	
27	(19)	6.4	"	
29	(20)	6.6	"	Tachycardia.

CASE 67. M.D.W. Female, aged 32. Married. Admitted 7.2.39 and discharged home on own responsibility on 17.5.39.

The first cardiac sound at all areas was dull, low in pitch and slightly prolonged. B.P. - 120/70 mm.Hg.

There was nothing relevant in her earlier history, though the impression was gained that the relatives were withholding information, e.g., it transpired later that she was a spoiled (and only child) and very much attached to her mother, that her (the patient's) husband before her marriage had tried to break off the engagement but had capitulated when she became hysterical and caused a scene. No details concerning their marital relations were forthcoming. There was a history of a similar attack one year previously for which she had been treated in the Mental Observation Wards of the Southern General Hospital for a period of fourteen weeks.

On admission, her conduct, speech and behaviour were suggestive of either a late dementia praecox or a paraphrenia. She admitted hearing voices speaking to her but was unable to tell what they said and to being subject to visual hallucinations, these taking the form of seeing statues before her eyes. Any real mental approach to the patient was, however, impossible: she was quite unmindful of her surroundings including the persons who peopled them. She was simple and facile, smiled or laughed without apparent cause and wandered around the ward in a purposeless manner. She was quite unappreciative of the fact that she was mentally ill and did not chafe at any of the restrictions which ward life of necessity imposed: she was quite self-contained and happy. A suspicion of an underlying oligophrenia arose but insufficient co-operation was forthcoming to confirm or refute this suspicion.

During Cardiazol treatment some slight improvement was observed in that she came to take more notice of her environment to which she reacted with aggressiveness instead of her customary indifference: her hallucinations and other psychotic manifestations, however, persisted unchanged. This state persisted until she was taken home against medical advice.

8.2.39	(1)	4.0 c.c.	M	Bradycardia.
10	(2)	4.2 R.1	"	"
13	(3)	4.4 + 5.0 R.1.	"	E.-G.
15	(4)	6.0	"	Bradycardia.
17	(5)	6.2	"	marked "
20	(6)	6.4	"	" " & irregularity

22.2.39	(7)	6.6	M	marked Bradycardia.
24	(8)	7.0 + 8.0 + 9.0	"	E.-G.
27	(9)	9.2	"	Bradycardia.
1.3.39	(10)	9.2 R.1	S/C	E.-G.
3	(11)	9.4	M	Bradycardia.
6	(12)	9.4	"	"
8	(13)	8.0	S/C	"
13	(14)	8.6	M	"
15	(15)	8.8	"	"
17	(16)	8.8	"	"
20	(17)	9.0	"	E.-G.
22	(18)	9.2	"	"
24	(19)	9.4	"	Marked Bradycardia.
27	(20)	9.4	"	B. & tachycardia.
29	(21)	9.6	"	E.-G. Irreg.& tachyc.
31	(22)	9.8	"	E.-G. Irregularity.
3.4.39	(23)	10.0	"	E.-G.
5	(24)	10.2	"	X-ray.
7	(25)	10.2	"	Irregularity.
13	(26)	10.4	"	E.-G.

CASE 68. M.H.A. Female, aged 45 years. Widow. Admitted 7.2.39, discharged home 27.2.39.

The cardiac dullness was enlarged to 4 inches to the left of the mid-sternal line in the 5th.inter-space. The cardiac sounds were well heard: there was a re-duplication of the first sound at the tricuspid area. A palsy of the right external rectus gave a strabismus. The abdominal and plantar responses were not elicited. The abdomen was moderately obese and there was a right paramedian subumbilical surgical scar from a hysterectomy performed one year previously in the Royal Samaritan Hospital. The bowels were costive. B.P. = 130/80 mm.Hg.

She had enjoyed excellent mental health until the death of her husband two years previously when, owing to straightened circumstances, she had to take in boarders and ever since was subject to constant and

unwonted worries as well as constant work. Two weeks before admission one of her boarders had taken ill with meningitis and was removed to hospital where he died one week later. She brooded over this, and this was added to by the boarder's relations accusing her of neglect as a result of which she "became hysterical" with outbursts of weeping. Finally, she became confused to the point of not knowing her own family and kept saying "These people are at the door to take me away".

There were no signs of agitation on admission: on the contrary, she was depressed, apathetic and indifferent to her surroundings. She suffered from a tic which occurred fairly frequently during the course of her retarded conversation: this tic took the form of a sudden sideways jerking of her head. She admitted to auditory hallucinations (voices) before her admission to hospital which had now disappeared, however. She was quite rational in her conversation, appreciated the fact that she was ill, but was very fatalistic regarding the outcome. Her appetite was indifferent and her sleep was poor and required sedation.

Under Cardiazol therapy, her improvement was uneventful and progressed to the point of social recovery.

8.2.39	(1)	2.0	S/C	
10	(2)	2.0	"	
13	(3)	4.0	M	irregularity.
15	(4)	4.2	"	
17	(5)	4.4	"	
20	(6)	5.0	"	
22	(7)	5.2	"	

CASE 69. A.C. Female, aged 23. Single.
Admitted on 4.2.39, discharged home 27.3.39.

She was a somewhat thinly nourished patient of fresh and high facial colour, particularly over the

malar prominences. B.P. = 102/58 mm.Hg.

For the two years preceding admission, the patient had complained of dysmenorrhoea and in addition demonstrated a "nervous state" in which she vomited at any sudden fright or after any emotional disturbance: the vomiting was accompanied by abdominal pains. In October, 1937, she had a series of plates taken after a barium meal as an out-patient at the Western Infirmary, Glasgow, and all plates were reported negative. In February, 1938, a test meal done at the same infirmary also proved negative. Her complaints continued with some loss in weight over which she worried. For two days before a previous admission to the Mental Observation Wards of the Southern General Hospital on 27.6.38 to 29.9.38, she was described as almost continually sick and "in a hysterical state". After her discharge she attended the out-patient dispensary. On the interview when readmission was recommended, she was fretful and discontented, though about what she could not say, and complained of nausea and vomiting following any untoward psychic disturbance.

On her readmission, she was quite happy with no symptoms save the complaint of hysmenorrhoea, for which a dilatation and curettage were performed in the gynaecological wards. Sufficient time did not elapse to judge of any possible beneficial effect, but, as there was judged to be a large psychological element in her complaint, she was given a course of Cardiazol treatment.

Under treatment she became more contented and came to take an active and apparently genuine interest in all that was occurring around her. Occupational therapy gave her a sense of her own usefulness. There were no signs of hysterical symptoms on her dismissal as a social recovery.

4.2.39	(1)	2.0 c.c.	M.
6	(2)	2.5 R.1	"
10	(3)	3.2 c.c.	"
13	(4)	3.4 + 4.0	"
15	(5)	4.2	"
20	(6)	4.4	"
22	(7)	4.6	"

3.3.39	(8)	4.8 c.c.	M
6	(9)	5.2	"
8	(10)	5.2	"
10	(11)	5.4	"
13	(12)	5.6	"
15	(13)	5.8	"
17	(14)	6.0	"
20	(15)	6.0	"

CASE 70. E.C.MacD. Female, aged 65. Widow. Admitted 13.2.39, discharged 17.6.39 to Woodilee Mental Hospital.

She was a thin, under-nourished woman of sallow complexion who looked her age. Her arteries were slightly sclerosed. B.P. = 140/80 mm.Hg. The first sound at the mitral area was accentuated, dull and slightly prolonged: the first sound at the tricuspid area was reduplicated and the second sound at the aortic and pulmonic areas were accentuated and slightly intoned. The abdominal wall was lax. There was no rigidity, tenderness or pain. A palpable, cylindrical tumour occupied roughly the line of the transverse colon: it was hard and painless. The left iliac fossa was relatively empty compared with the right iliac fossa. No hepatic or splenic enlargement was detected. The bowels were costive. Generally the looseness of the skin, particularly on the abdomen, was indicative of a rapid and considerable loss or weight: on the abdomen there were numerous, scattered Campbell de Morgan spots.

The patient's first husband died in 1917 from a cardiac condition and left her with two children. She re-married in 1920 and ten years later her husband was burnt to death on board ship. She became very distressed at the news and suffered her first "breakdown" - an attack of depression for which she remained at home. Seven years before admission she had a further attack for which she was a patient in the Mental Observation

Wards of Stobhill Hospital for two weeks, and thereafter she kept well until one year before admission though it was not until some months later that she began to suffer from insomnia, loss of appetite and severe constipation. Just before admission she began to express the belief which had no foundation in fact that she would be taken away from her daughter with whom she lived.

On admission she was depressed and had a very sad and woebegone expression with very pronounced naso-labial folds and tightly apposed, thin, "sour" lips. As well as the retardation shown, there was some agitation accompanying the depression, the agitation taking the form of constant and slow wringing of her hands. She was uncommunicative beyond a "yes" or "no" with regard to her mental state and even gave no infirmation concerning the tumour detected in her abdomen.

Concomitantly with the investigation of this tumour by barium enemata and X-ray, she was begun on a sub-convulsive course of Cardiazol treatment which, at first, has the effect of lessening her signs of agitation to the point of disappearance but she suffered a relapse on 26.3.39 after another patient had attempted to strangle her. (The assault, committed by an acutely maniacal patient, was unprovoked, for the present patient was retiring and interfered with no one.) A few days later, however, she again improved to her former state but again relapsed a few days after the termination of treatment when jaundice appeared. (The direct and indirect Van den Bergh reactions were both positive.) She associated this jaundice with "uncleanliness". (The results of the special investigations into her abdominal condition are not recorded.) The jaundice had almost cleared when, on 17.6.39, the persistence of her mental state and delusional statements which she now was uttering in connection with her daughter made her certification advisable.

17.2.39	(1)	1.5 c.c.	S/C
20	(2)	2.0	"
22	(3)	2.0	"
27	(4)	2.0	"
1.3.39	(5)	2.0	"
3	(6)	2.0	"
6	(7)	2.0	"

8.3.39	(8)	2.0 c.c.	S/C
11	(9)	2.0	"
13	(10)	2.0	"
15	(11)	2.0	"
17	(12)	2.0	"
20	(13)	2.0	"
22	(14)	2.0	"
24	(15)	2.0	"

CASE 71. J.MacC. Female, aged 22. Single. Admitted 11.2.39, discharged to Stoneyetts Mental Hospital on 29.4.39.

She was a rather tall, thin girl. B.P. = 120/80 mm.Hg.

She was stated to have always been a cheery, healthy girl and an average scholar at school. She got on well with her superiors but when she turned 21 she became "nervous" and fond of her own company, traits hitherto alien to her. She, herself, was aware of the change and, nine months before admission, consulted her doctor concerning it: he advised a holiday and she went to stay with relatives in the highlands for a period of eight months, returning much improved, but she had just returned when her father died. This seemed to have a very adverse effect on her. She became depressed, went off her food and sleep and lost all interest in her personal appearance.

On admission, she gave no indication of depression, but was apathetic and indifferent to her surroundings. She made no attempt to join in the activities of the wards but manifestly preferred her own company: when she did so, this activity was quite aimless and purposeless. She was indifferent to her dress and personal appearance. She seemed preoccupied with her own thoughts yet when asked about these, replied that she was thinking of nothing and did not day-dream. She

denied having hallucinations and she gave no evidence of harbouring delusions. It was not found possible to establish any real contact with the patient. She was simple and facile and gave no trouble in the wards. She was lacking in any insight into her condition.

Four days after admission she became slightly restless and uncertain in her behaviour at night time getting out of bed and wandering aimlessly about the ward. By way of explanation, she said that as she did very little through the day she wanted to do everything at night.

Cardiazol treatment produced no change in her mental state and there gradually developed signs of an increasing mental withdrawal from the world of reality and it was considered advisable to have her certified.

17.2.39	(1)	4.0 c.c.	M	
20	(2)	4.4	"	dislocated jaw.
22	(3)	4.6	"	
27	(4)	5.0	"	
1.3.39	(5)	5.2	"	E.G.
3	(6)	5.4	"	
6	(7)	5.8	"	
8	(8)	5.8	"	
11	(9)	5.8	"	
13	(10)	5.8	"	
15	(11)	5.8	"	
17	(12)	5.8	"	
20	(13)	5.8	"	tachycardia.
22	(14)	6.0	"	
24	(15)	6.2	"	
27	(16)	6.4	"	brady. then tachy.
29	(17)	6.0	"	irregularity.
31	(18)	6.0	"	
3.4.39	(19)	6.0 + 7.0	"	E.-G.
5	(20)	7.2	"	
7	(21)	7.4	"	irregularity.
10	(22)	7.6	"	

CASE 72. M.H.J. Female, aged 42. Married. Admitted 20.3.39 from Salvation Army Home and transferred to Stoneyetts Mental Hospital on 15.8.39.

There was a trace of albuminuria. B.P. = 120/80 mm.Hg.

Her father was stated to have died abroad from alcoholic poisoning: her mother of old age. The two sisters of the patient were of a "nervous temperament". The patient herself married during the Great War but never lived with her husband and stayed with one of her two sisters. Eight years before admission she underwent a mastoidectomy in the Royal Infirmary, Glasgow, and five years before her admission was a patient for a few months in the Chronic Sick Wards, Southern General Hospital, being in bed most of that time with swollen feet: the exact nature of her complaint was unknown. About three months before her admission to the Southern General Hospital Observation Wards she had been a patient for two months in the corresponding wards of Stobhill Hospital: she had become "difficult to get on with" and "could not agree with her sister". Since her dismissal she had been complaining of noises in her head and was in the habit of talking to herself. She herself wanted to go into hospital but her relatives did not think her a suitable case for Observation Wards.

On admission she presented the typical features of depression with considerable agitation, frequently moaning and weeping and inclined to be restless. She also expressed ideas of a hypochondriacal nature. She declined to explain why she left her husband three hours after the wedding. It was difficult to secure her attention or to hold her conversation to one line of thought.

Cardiazol treatment (sub-convulsive) produced no improvement in her condition. From its termination until her transfer, she came to voice delusions, e.g. regarding other patients and, in connection with herself, she maintained that she was a child of the devil and completely in his charge.

23.3.39 (1) 2.0 c.c. S/C

27.3.39	(2)	2.0 c.c.	S/C
29	(3)	2.0	"
31	(4)	2.0	"
3.4.39	(5)	2.0	"
5	(6)	2.0	"
7	(7)	2.0	"
10	(8)	2.0	"
12	(9)	2.0	"
14	(10)	2.0	"
17	(11)	2.0	"
19	(12)	2.0	"
21	(13)	2.0	"
24	(14)	2.0	"
26	(15)	2.0	"
28	(16)	2.0	"
1.5.39	(17)	2.0	"
5	(18)	2.0	"

CASE 73. E.N.G. Female, aged 28. Married.
Admitted 19.4.39 and discharged home 23.5.39

She was a tall, well-nourished woman of sallow complexion. B.P. = 120/80 mm.Hg.

She was stated to be subject to alternating periods of elation and depression, each phase lasting approximately three months, and for the month before admission was "very unsettled": she would conscientiously look after her two of a family for a few days and then she would neglect them: she was also stated to be depressed and worried about the least little thing.

She presented the features of an agitated melancholia on admission and uttered fleeting, ill-sustained delusions, forgotten as soon as they were spoken. Despite her agitation, she had a keen appreciation of her disturbed mental state but was unappreciative of what were most probably the precipitating factors of her mental condition. She was of Jewish persuasion and

her husband, 17 years her senior, seems to have married her merely that she should be the means of continuing a dynasty. She was a powerful, virile woman and for some time before admission he was quite indifferent to her, both sexually and socially, now that she had served his purpose. This had consciously engendered in her a sense of being needless, unwanted and whose love (such as it was) was spurned.

She was to all intents and purposes mentally normal after the first convulsion. Her psycho-somatic reactions to a sub-convulsive dose are referred to fully in the text of section 3 of the thesis.

19.4.39	(1)	3.0 c.c. +4.0 + 4.0	M	E.-G.
22	(2)	3.0 c.c. R.1	S/C	E.-G.
15.5.39	(3)	4.0 c.c.	M	E.-G.

CASE 74. I.P. Female, aged 17. Single. Admitted 10.4.39 from the Victoria Infirmary and discharged home 24.6.39.

She was a markedly obese girl. B.P. = 120/80 mm. Hg.

She went to an ordinary school and was an average scholar and, since leaving school, had been in a variety of different jobs which she left of her own accord without giving any reasons for doing so. For the two years preceding admission she was "acting in an abnormal manner". In December, 1938, she was employed as a domestic and was stated to have attempted to gas herself, was admitted to hospital and discharged three days later as recovered, went to a Salvation Army Home whence she wired her people to take her home. Always of a solitary disposition, she recently took to staying out late at night or go away in the morning and not return till late. A second attempt at suicide by gassing occurred five weeks before admission and, when rescued,

was unconscious and was taken by the police to the Victoria Infirmary from which she was discharged to Atholl House but readmitted with various complaints unspecified.

On admission her affect was shallow and all her preoccupations self-centred. Her nails were bitten to the quick and there were superficial transverse scratches on the flexor aspects of both wrists and on the skin of her left breast. She gave a story of a sexual assault by a man in Alexandra Park at night time - she was very vague about details which made a critical attitude to her story seem desirable, all the more so since her knowledge of sexual matters was slight despite her desire to impress one to the contrary. She gave no evidence of being hallucinated or deluded: her story of the sexual assault was judged to be phantasy.

Cardiazol treatment produced no change in her mental condition, though during treatment several new facts emerged, though it was difficult to verify them. She said that she was unwanted by her parents and stated that she strongly suspected she was illegitimate. Her habit of nail-biting was intractible and she felt sensitive concerning her "Mae West" figure. Her ideas of moral responsibility were vague. She was judged to be a psychopath, all the more so since she was unable to see any point of view but her own.

11.4.39		20.0 c.c.	distilled water i/v.	E.-G.
11.4.39	(1)	2.0	S/C	E.-G.
12	(2)	2.0	"	
14	(3)	2.0	"	
17	(4)	2.0	"	tachycardia.
19	(5)	2.0	"	
21	(6)	2.0	"	
24	(7)	2.0	"	
26	(8)	4.0	M	E.-G.
28	(9)	4.2	R.1"	X-ray.
1.5.39	(10)	5.0	"	
19	(11)	4.5	"	E.-G.
22	(12)	5.0	S/C	

CASE 75. E.H. Female, aged 35. Married. Admitted 25.3.39, discharged on husband's responsibility 15.4.39.

She was a sparely-nourished woman. B.P. - 120/75 mm.Hg. The arteries were slightly sclerosed. The pulse and the cardiac sounds were slightly irregular in rate. The first sound at all four areas was slightly reduplicated. The tongue had a slight brownish coating on the dorsum and was slightly dry. The upper jaw was edentulous and the dentition of the lower jaw was deficient and carious with pyorrhoea alveolaris. The breath was foul. There was a somewhat illdefined mass, hard and vertically disposed, to the left of the umbilicus which gave the impression of either an abnormally palpable aorta or a tumour which transmitted the aortic pulsation: the mass was tender and slightly painful to touch, this latter having been present about a year. No hepatic or splenic enlargement was detected. Menstruation was regular. Trace albuminuria.

There was nothing of note concerning her previous mental history save that she was stated to have always been of a bright and cheery disposition and had revealed no abnormal behaviour until the day before admission when she "suddenly became strange in manner", "talked foolishly", and said that she persecuted her husband.

She stated that the "black-eye" which she presented on admission was given to her by God by whom she was "cast out", eternally damned and beyond all hope of salvation. Her two children, she was convinced, were all dead through spiritual illnesses, this being a punishment from God for all the sins she had committed. She could see, she said, all her sins written up in a large list before her, though, when asked to enumerate them, she was taken aback and declined to do so. She was well orientated and able to give a good account of herself (with some retardation) but all her statements were very much coloured by her intense depression, and no connected account of herself was obtainable owing to the marked tendency shown by her to revert to the verbal expression of her depressive delusions.

Cardiazol treatment (which produced no effect on her mental state) was interrupted by her husband insisting on taking her out against medical advice.

6.4.39	20.0 c.c.	distilled water	i/v. E.-G.
6.4.39	(1)	2.0 c.c.	S/C
7	(2)	2.0	"
10	(3)	2.0	"
12	(4)	2.0	"

CASE 76. S.H. Female, aged 49. Married.
Admitted 15.12.38. Died 4.2.39.

She was a frail, under-nourished woman of sallow complexion and was, from the habit of plucking at her hair, completely bald save for a few scattered hairs. Her fingers were very deeply stained with nicotine from cigarette smoking. B.P. = 170/100 mm.Hg. The pulse was regular in rate and rhythm and there was no evidence of arterio-sclerosis. The cardiac dullness was enlarged to four and a quarter inches to the left of the mid-sternal line in the fifth inter-space. The sounds were somewhat soft in tone. A harsh systolic bruit at the mitral area was conducted upwards and outwards to the posterior axillary line. ? A soft systolic murmur at the aortic area. There were no signs or history of cardiac decompensation. The bowels were somewhat loose. The plantar responses were not elicited and all the tendon jerks were feeble, particularly that of the right ankle. There was a trace of albuminuria. There were numerous bruises over the patient's body and sores on her scalp, at which sores she had been picking.

She had never been in hospital before and was stated to have always enjoyed excellent health until three months before admission when she took a "severe chill" and before fully recovering went to nurse the wife of one of her five sons who had newly given birth to twins: both her daughter-in-law and the twins died.

The patient worried about this so much that she had "a complete breakdown". She became depressed and could not sleep: she refused to dress and went about the house in her dressing gown smoking incessantly. Refusing to eat with her family, she ate alone and ate "anything and everything". She became much worse during the month preceding admission and sat twisting her hair and pulling it out.

The mental state on admission was primarily one of depression accompanied by agitation. In addition, there was an element of confusion with disorientation as to time and place but not to person. Her attention was caught and held with difficulty. Her agitation made her restless. There was faecal smearing of the bed clothes. Her appetite was enormous and indiscriminate: she would, indeed, eat anything she could lay her hands on and plundered other patients' lockers to steal such things as oranges which she ate, skin and all.

Her course of Cardiazol treatment lasted from 26.12.38 to 30.1.39 and was sub-convulsive in its effects save for a convulsion on 30.12.38 in connection with which there were no untoward features. Treatment had no effect upon her mental condition.

On the evening of 1.2.39 her breathing became noisy and laboured and her pulse poor in quality and rapid. Chest signs indicative of acute pulmonary oedema responded after some time to three doses of 1/100 gr. of atropine sulphate at four-hourly intervals. She was conscious the following morning. Vomiting began, however; it was copious in amount, was bilious and repeated ten times. Jaundice began. Her agitation and restlessness continued and she frequently required 2 drachmas paraldehyde to secure rest for her. Her condition noticeably deteriorated. Glycosuria and acetonuria appeared (in addition to albuminuria), both clearing up with 10 units of insulin thrice daily half an hour before meals. The jaundice increased in intensity. She died on February 4th. after running a pyrexia of unknown origin for a week with numerous rhonchi in the chest during the last two days and which did not respond to a repetition of the administration of atropine. No change in the extent of liver dullness was detected, nor was

any palpable tumour detected.

26.12.38	(1)	2.0	S/C
28	(2)	2.0	"
30	(3)	2.0	"
2.1.39	(4)	2.0	M
4	(5)	2.5	S/C
6	(6)	2.5	"
9	(7)	2.5	"
11	(8)	2.5 + 2.0	"
13	(9)	2.0	"
18	(10)	2.5	"
20	(11)	2.0	"
23	(12)	2.0	"
25	(13)	2.0	"
27	(14)	2.0	"
30	(15)	2.0	"

CASE 77. B.M. Female, aged 48. Widow.
Admitted 5.11.38, discharged home 13.2.39.

She looked very much older than her stated age (60-65 years) and said that she herself was uncertain of her age as she had no birth certificate and that there was no birth register kept in her native village in Ireland. The arterial walls were markedly sclerosed and irregular, and the fundal vessels to the same extent. B.P. =100/60 mm.Hg. The cardiac sounds generally were poor in tone: the second sound at all areas was accentuated and the first sound at the aortic and pulmonic areas was almost inaudible. The ankle jerks were not elicited. The teeth were very carious with an accompanying pyorrhoea alveolaris and gingivitis. She complained of difficulty in micturition.

Thirteen years before admission she had an attack of influenza and afterwards developed a "nervous breakdown" for which, although not certified, she was a patient in an asylum in Ireland and recovered after five

months, but remained of a "highly strung nature" thereafter. Her husband had left her before her first and only daughter was born: the daughter was 29 years old. The history of her condition before her admission to the Southern General Hospital was meagre: it was stated that on 27.10.38 she took a shivering fit and complained of stomach pains with diarrhoea. Her admission to Hospital was recommended for the treatment of an endocarditis she was stated to have been suffering from.

She was a case of depression on admission and lay apathetic and indifferent to all that was happening around her. In a soft, monotonous, almost inaudible voice she stated that she was fit neither for this world or the next on account of her omitting one day ten years previously to say prayers, that there was a fire in the bed beside her and that she was constantly tortured by spirits who moved chiefly among her stomach and heart: she had actually seen these spirits but had not heard them talking to her. She also complained of various aches and pains for which no objective evidence was found. She herself did not complain of insomnia but was reported as muttering continually to herself during the night and was not observed to sleep through the day.

During Cardiazol treatment all her teeth were extracted under Evipan anaesthesia. Under treatment, her delusions and hypochondriacal complaints disappeared during the last week and she began to take a healthy interest in her surroundings and her indifferent appetite and sleep improved to normal. She proved to be of a quiet and reserved nature and very much interested in her daughter whom she had spoiled.

30.12.38	(1)	2.0 c.c.	S/C
2.1.39	(2)	2.0	"
4	(3)	2.0	"
6	(4)	2.0	"
9	(5)	2.0	"
13	(6)	3.0	"
16	(7)	3.0	"
18	(8)	3.0	"
20	(9)	3.0	"
23	(10)	2.4	"
25	(11)	3.0	"

27.1.39	(12)	3.0 c.c.	S/C
30	(13)	3.0	"
1.2.39	(14)	3.0	"
3	(15)	2.0	"
6	(16)	3.0	"
8	(17)	3.0	"

CASE 78. M.R. Female, aged 34. Single. Admitted 17.10.38, transferred to Stoneyetts Mental Hospital 15.3.39.

B.P. = 160/80 mm.Hg.

Particulars concerning her previous history from her relatives were meagre. She was stated never to have been in hospital before and to have remained well mentally until three weeks before her admission when she went as a nursemaid to a Nursing Home. She took ill next day, developing a cough. She was X-rayed at Ruchill Hospital, the result being negative. A psychological basis for her condition was suspected and she was accordingly admitted to the Mental Observation Wards.

On admission, she was very "nervous": during the whole time she was talking her fingers were in constant movement, twisting and pulling at each other: her eyelids blinked with great frequency. Her speech was verbose and circumlocutory and any chance remark easily turned it from the point at issue. Her judgment was inclined to be unsound but the errors she made could be appealed to by reason. By 16.1.39, however, she began to betray frank psychotic traits which she had not previously done. She became very restless and admitted to hearing voices, and began to clamour to be allowed home. This was followed by a spell of apparent mental normality but by 7.2.39 the psychotic traits above-mentioned again became evident and her behaviour became more uncertain. She would indulge in such actions as repeatedly switching on and off the light at her bed and walking up and down

the border of the linoleum. Asked what she was doing collecting an enormous number of pieces of paper (she had gone out of her way to collect them) she said "Into my locker to keep the place tidy".

Cardiazol treatment produced no change in her condition and, a slight degree of confusion now entering the mental picture, it was judged advisable to have her certified.

10.2.39	(1)	4.0 c.c.	M	tachycardia.
13	(2)	4.2 + 5.0	"	
15	(3)	5.0	"	
17	(4)	5.2 R.1	"	
20	(5)	5.4	"	
22	(6)	5.6	"	
24	(7)	5.8	"	E.-G.
27	(8)	6.0 R.1	"	
29	(9)	6.8 R.1	"	tachycardia.
3.3.39	(10)	7.0 R.1	"	
6	(11)	7.2	"	
8	(12)	7.4	"	

CASE 79. A.R. Female, aged 21. Married. Admitted 4.3.39 and discharged on her family's request on 14.4.39.

Physically she was a very thin, under-nourished woman of pale complexion. The P.N. was impaired at the right apex posteriorly and at the left apex anteriorly. At both places the R.M. was tubular. An X-ray of the chest showed active tuberculosis of the whole of the right and of the upper half of the left lung. On 17.3.39 she was sterilised in the Gynaecological Block and on 20.3.39 she was physically distressed and a little breathless and troubled with sickness. Notes as to her mental state before her transfer to the Mental Observation Wards on 23.4.39 are absent but she was reported as having had gr.XV Chloral Hydrate each night.

From the mental point of view, she appeared to be a case of dementia praecox, katatonic variety. She remained mute during the whole of her stay and did not appear to understand what was said to her. Nevertheless, the expression in her eyes was very bright and for the most part of the day sat is a constrained semi-orthopnoeic attitude unsupported by pillows staring in front of her. She had to be fed and was unco-operative (passively) when one examined her.

In the history obtained from her husband, she was stated to have been a patient in Ruchill Hospital with pleurisy for a period of five months beginning one year before admission. She was also reported as having been "strange" in manner "for quite a period" and had been subject to epileptic fits but had not taken any for over a year. She had a healthy four years old child.

The extensive pulmonary tuberculosis seemed a contra-indication to the employment of convulsive Cardiazol therapy which was accordingly limited to sub-convulsive doses of 2.0 c.c. administered on 25.4.39, 26.4.39 and 28.4.39 with no improvement in her mental condition. An electrocardiographic record was taken before and after the administration of the first dose.

CASE 80. C.M. Female, aged 57. Married.
Admitted 27.12.38, discharged home 29.3.39.

She was a moderately well-nourished woman of pale complexion. B.P. = 160/80 mm.Hg. The abdominal and ankle jerks were not elicited. Her teeth were carious and there was an accompanying pyorrhoea alveolaris.

Save for an admission to the Royal Infirmary ten years previously for a fractured patella, she had never been in hospital before or under medical treatment. She had been a habitual drinker for years and for the ten weeks before admission had been drinking constantly and

heavily of whisky and red wine. During that period she ate and slept very little and towards the end of that period heard voices outside the house calling her names, and asked her people to supply her with poison.

On admission she readily admitted to hearing voices and to certain delusions, e.g., that there was a leopard under her bed, and asked for poison so that she might rid herself of the weariness of existence: she said this, however, with a laugh. She was quite quiet and gave no trouble to the nursing staff, lying quiet all day, her face half sunken beneath the bed-sheets and not speaking unless spoken to. In speaking, she showed no retardation.

Before treatment was begun, there was no change in her mental condition. During treatment, which was entirely sub-convulsive in its effects, she had her fourteen carious teeth extracted under Ezipan anaesthesia and the day following complained of pain in the back which did not respond to massage: X-ray later revealed ostio-arthritic changes in the vertebrae with lipping of the bodies. Under Cardiazol treatment there was a gradual improvement in her mental symptoms with ultimately complete disappearance of her psychotic traits. She was a pleasant lady to deal with, very quick-witted and tried to score against me every time I talked with her.

On 15.3.39 she developed jaundice unassociated with pain, sickness or vomiting, elevation of temperature or other constitutional upset. Her appetite was unaffected. On 18.3.39 her stools were loose and they, together with the urine, showed evidence of liver disturbance, the first being clay-coloured and the latter bile-stained. The Van den Bergh reaction was positive, giving the direct and indirect reaction. The jaundice was clearing when she was dismissed, but still present two weeks after dismissal when she reported to the out-patient clinic.

18.1.39	(1)	2.0 c.c.	S/C
20	(2)	2.0	"
23	(3)	2.0	"
25	(4)	2.0	"
27	(5)	2.0	"
30	(6)	2.0	"
1.2.39	(7)	2.0	"

3.2.39	(8)	2.0 c.c.	S/C
6	(9)	2.0	"
8	(10)	2.0	"
10	(11)	2.0	"
13	(12)	2.0	"
15	(13)	2.0	"
17	(14)	2.0	"
20	(15)	2.0	"
23	(16)	2.0	"
27	(17)	2.0	"
1.3.39	(18)	2.0	"
3	(19)	2.0	"
6	(20)	2.0	"
8	(21)	2.0	"
11	(22)	2.0	"
13	(23)	2.0	"

CASE 81. M.K.B. Female, aged 65. Married. Admitted 31.1.39, discharged home 5.4.39.

She was a thin under-nourished woman of pale, anaemic complexion who lay in a semi-orthopnoeic position although there was not actual dyspnoea. There was a slight malar flush and at times her lips became slightly cyanosed. There was no oedema.

The pulse was moderately rapid in rate and the arterial walls slightly sclerosed. B.P. = 120/80 mm.Hg. The apex beat was not visible or palpable. The cardiac sounds were of indifferent quality, being soft in tone. There was a reduplication of the second sound at the tricuspid area. There was a soft systolic and diastolic bruit at the mitral area, not propagated, and a soft systolic bruit not propagated at the tricuspid area. There was an occasional tremor (functional in origin) noticed in her left forearm and a similar tremor of the fingers of her right hand. The tongue was abnormally clean with a slight loss of the normal surface markings.

For the eight years preceding admission she had been a complete invalid, either at home or once in the medical wards of Stobhill Hospital and twice in the medical wards of Duke Street Hospital for the treatment of angina pectoris to attacks of which she was subject. For the three weeks before admission she was stated to have become worse, though, from the description given, there was a large hysterical element superimposed on, or taking the place of, her actual angina. She stated that her attacks were accompanied by a feeling of intense suffocation and during which she began screaming at the pitch of her voice, especially at night time. Her husband stated that she had been "nervous" from the first time he met her.

On admission her voice was weary and soft and at times almost inaudible: generally, she was listless, apathetic and self-centred to the point of extreme selfishness. She took no interest in her immediate surroundings beyond searching for a sympathetic ear in which to pout the verbal description of all her many ailments and woes. When questioned, she feigned deafness in order to win more sympathy. At night time she became very agitated and emotional, stating that she was very ill and asking that her relatives be sent for. A diagnosis of a hysterical superimposition of symptoms upon her angina pectoris was made.

The administration of iron for a secondary anaemia occurred concomitantly with Cardiazol treatment during which she had an attack of haemorrhoids which was successfully treated. Mentally, a gradual improvement showed in that her hysterical symptoms disappeared and towards the end of it (26.3.39) she was up all day without showing any untoward effects. Her insight into her previous condition was non-existent. No actual attack of angina pectoris occurred during her stay in Hospital. She was dismissed as a social recovery. Three months after dismissal on reporting to the out-patient clinic after being on holiday during which she had walked on the average six miles daily.

1.2.39	(1)	1.0 c.c.	S/C
3	(2)	1.0	"
10	(3)	2.0	"

13.2.39	(4)	2.0 c.c.	S/C	
15	(5)	2.0	M	reduplicated 1st,
17	(6)	2.0	S/C	sound at tricuspid area.
20	(7)	2.0	"	
22	(8)	2.0	"	
27	(9)	2.0	"	
1.3.39	(10)	2.0	"	
3	(11)	2.0	"	
6	(12)	2.0	M	
8	(13)	2.0	S/C	
11	(14)	2.0	"	
13	(15)	2.0	"	
15	(16)	2.0	"	
17	(17)	2.0	"	
20	(18)	2.0	"	
22	(19)	2.0	"	
24	(20)	2.0	"	
27	(21)	2.0	"	

CASE 82. A.W. Female, aged 31. Married.
Readmitted 5.3.39, discharged home 10.6.39.

B.P. = 128/75 mm.Hg.

Her previous admission was from 21.10.35 to 12.11.38 when she was admitted to the maternity ward for confinement, five days after which she became strange in manner, delusional and excited and had as a consequence to be removed to the Mental Observation Wards on 28.10.38 (there was a history of depression and nervousness during one of her previous six pregnancies) from which she was discharged after a gradual improvement. On her re-admission she was stated to have been very quiet for three weeks after her dismissal and then began to accuse her husband (a third-rate actor) of conspiring with her neighbours to cut off her head. She said her children were not hers as she had sent them to America. She had attempted taking her children's lives by cutting their throats. On the day before admission she went to a

police station where she brought back a doctor to examine her husband who was perfectly well.

On her re-admission her mental state was typically one of depression with apathy and retardation very marked. She also complained of general weakness and of headaches.

Cardiazol treatment produced no improvement in her mental condition but after its termination began to improve slowly but was apt to suffer relapses from such things as her relatives failing to visit her. On dismissal she had no insight into her past illness and maintained, with what justification it was not found possible to determine, that her husband and his people were against her.

B.P. on dismissal 145/90.

She was again admitted on 6.12.39 and transferred to Stoneyetts Hospital as a certified patient on 6.1.40.

30.3.39	(1)	4.0 c.c.	M	E.-G.
3.4.39	(2)	5.0	"	
5	(3)	5.0	"	
7	(4)	5.4	"	
10	(5)	5.6	"	irregularity.
12	(6)	6.0	"	X-ray.
14	(7)	6.2	"	Blood K. estim. before and after.
17	(8)	6.4	"	E.-G.
21	(9)	6.6	"	
24	(10)	6.8	"	
26	(11)	7.0	"	
28	(12)	7.2	"	

CASE 83. E.H. Female, aged 16. Single. Readmitted 3.10.38, transferred to Hawkhead Mental Hospital on 31.1.39.

On her readmission she complained of a sensation of fullness in the lower abdomen, a sensation which might have had an objective basis as in both iliac fossae there was a sensation of fullness and deep pressure elicited gurgling. B.P. = 110/70 mm.Hg.

On her previous admission from 26.1.38 to 26.3.38 she was aged 15 years 7 months and before that she had enjoyed excellent health until she began menstruating one year previously when she became depressed and complained of severe pain in the right side of the abdomen. From then her periods were irregular and accompanied by depression. She was treated by her own doctor for chronic salpingitis and before admission she was getting difficult to manage, was quarrelsome and suspicious of her sisters. Pelvic examination under general anaesthesia revealed no abnormality of the pelvic organs. Cardiazol treatment was given from 5.3.38 to 22.3.38 with the administration of six doses and the production of three convulsions, after two of which she demonstrated tachycardia. She improved and was discharged on 26.3.38.

On her readmission she was stated during the intervening seven months to have been in several posts and dismissed each time for reasons unstated. She was troublesome at home, stealing, and deceiving her parents. On her physical examination she complained of her throat being sore as well as her abdomen, of sleeplessness and her loneliness. She also said that someone had been trying to choke her but did not explain more fully. She was exhibitionistic in her behaviour, and at times evidences of a sullen, categorical nature reminded one of the epileptic diathesis or of a basic psychopathic constitution. The longer her stay, the more evident became her spasmodic outbursts of sullen truculency and lying which was difficult to dissociate with phantasy: she confessed to a fellow-patient that she at one time was pregnant and that she was again in the same condition. Her sullen and unremitting neglect of authority also became more in evidence: she ultimately came to continually disobey the nursing staff and her behaviour became more irresponsible:

she would dance on the top of her bed at nights when the lights were out, stealing rides on the tea-wagon among scalding cans of tea, accosting men in the street through the hospital railings and asking them for a cigarette and a match. She was judged to be a high grade moral imbecile who occasionally uttered delusions. On this point of view being communicated to the patient's mother before certification was carried out, the mother brought out new facts concerning her daughter's conduct at home before readmission, e.g., she had soundly thrashed her younger sister into whose eye she had endeavoured to push a needle, and that she had fits of uncontrollable temper.

Cardiazol treatment had had no effect on her mental state during her readmission though it had to be discontinued prematurely owing to the fact that her extreme fear of the injections caused her eventually to struggle to an extent which it was not possible to overcome.

5.11.38	(1)	4.0 c.c.	M
7	(2)	5.0	"
9	(3)	5.2	"
12	(4)	5.4	"
14	(5)	5.6	"
17	(6)	5.8	"
19	(7)	6.0	"
21	(8)	6.2	"
24	(9)	6.4	"
26	(10)	6.6	"
28	(11)	6.6	"

CASE 84. M.K.A. Female, aged 50 years. Married. Admitted 3.4.39 and discharged home 3.5.39.

She was a thin under-nourished woman of sallow complexion. Her radial arteries were slightly sclerosed. The apex beat was visible and palpable in the 5th. interspace four inches from the mid-sternal line. The cardiac

sounds were of indifferent quality, being of poor tone and almost inaudible at the aortic and pulmonic areas. Her chest-shape was pigeon in type. The R.M. was vesicular though coarse with prolongation of the expiratory phase at the right apex, anteriorly and posteriorly, where there was bronchophony. Her right eye had been excised seven years previously following an injury to it. She had a deficient dentition and most of the teeth remaining were carious with pyorrhoea alveolaris.

She was reported as being strange in manner since 1927 when her attitude towards her husband changed: she became quarrelsome and troublesome. On account of this, her husband left her on several occasions for short periods giving as his reason that he was unable to put up with her short temper. On 12.3.39 she swallowed some lysol after which she gave herself up to the police by whom she was detained for three days when she was admonished and sent home. Two of her nieces were in the Smithston Mental Hospital, Greenock.

Her mental state on admission appeared to be one of typical depression. Ordinarily she gave no trouble but at times she was distressed and worried about household affairs. Under a course of Cardiazol treatment she improved but during her improvement attributed her depression to home circumstances, by a husband who did not want to work and by an ungrateful family. With the other patients she had a sharp tongue, a violent temper and did not make friends easily. She was discharged home much improved on 31.5.39.

7.4.49	2.0 c.c.	S/C	E.-G.
10	"	M	irregularity.
12	"	S/C	
14	"	"	
17	"	"	
19	"	M	slow irregularity.
21	"	S/C	
24	"	"	
26	"	"	
28	"	"	
1.5.39	"	"	
3	"	"	

CASE 85. E.C. Female, aged 47. Married. Admitted 7.1.39, discharged home much improved on 3.2.39.

The patient was a thin woman of fresh complexion who was so restless that she did not of herself retain any position in bed for any length of time. Her abdomen was protuberant in comparison with the remainder of her body, a fact about which the patient was very sensitive. She had reached her menopause one year before admission. B.P. = 125/70 mm.Hg.

Her mental state was fairly typically one of mania with flight of ideas, psycho-motor activity and elation. In her conversation she flitted from one subject to another with great facility: the mainstream of her conversation could be followed without much difficulty and easily diverted without causing her offence. Her attention was easily caught but held with difficulty. She had a tendency to exhibitionism: she asked "You're not going to examine me down below, are you?" as if such a procedure would be distasteful to her, but twice thereafter slipped down her clothes exposing herself to permit of the examination.

A brief history was obtained from her husband who stated that she had been a patient in Hawkhead Mental Hospital some years previously. He himself did not know whether or not his wife had reached the menopause. There were two sons, aged 15 and 5 years.

She was begun on Cardiazol therapy on 9.1.39 with an initial dose of 4.5 + 5.0 c.c. and the production of a major convulsion. Her second convulsion occurred on 11.1.39 and the day following her effect had undergone a complete reversal so that she now seemed a case of agitated melancholia with a slight element of confusion. Her talk now concerned her husband whom she described as "a wee dark man" the height of her bed from the floor and that she "didn't know him after she married him", a slip of the tongue which she corrected to "before she married him" and confessed that he did not satisfy her sexually. As she spoke she kept slipping off her marriage ring: she was unable to tell the date of her marriage and she once expressed that she wished to be rid of him. She

immediately went on to repeat an incident which previously she had frequently spoken of - the sudden death of a man who lived above her at home and of her great alarm when the police came to question her to see if she could cast any light on the death. She complained that her husband never came to visit her while actually he had been present every visiting day. When told of this she asserted that she had seen only "a wee dark man". From such a mental state she slowly progressed to the point of social recovery and was discharged home.

9.1.39	(1)	4.5 + 5.0 c.c.	M	
11	(2)	5.0 c.c.	"	
13	(3)	5.2	"	
16	(4)	5.4	"	
18	(5)	5.6	"	reduplicated 1st.
20	(6)	5.8	"	sound at tricuspid
23	(7)	6.0	"	area.
25	(8)	6.2	"	

CASE 86. I.C. Female, aged 29 years. Married. Admitted 8.10.39. Discharged home 10.11.39.

She enjoyed good health until six weeks after her first baby was born (11/12 before admission) when she went out with the baby to join her husband in Jamaica. On the way over she had suggested to the ship's doctor drowning herself. Her husband reported that on her arrival she was highly strung and nervous and was odd in her speech and behaviour: after a period of some months he sent her home refusing to put her into a mental hospital in Jamaica, as had been medically advised.

On admission she was very agitated and distressed, continually wringing her hands as she walked up and down and continually speaking ... "The ship broke down - I was the Jonah - I sank the ship because I had an iron will - they are cutting up my mother - I did the opposite of what I was told as I wanted to be a tragedy

queen. I twisted the baby's neck - I said to the doctor 'Save her from me' - I just have to be punished. I don't want to be ... "

She had had a very strict upbringing by a very dogmatic mother, intolerant of any ideas which conflicted with her own. The patient was of an athletic and sociable type and a "great leader" among any sect in which the mixed. She was a brilliant scholar and eventually took her M.A., teaching for several years thereafter until she married. During her study for her degree she had a "nervous breakdown" lasting three months: during this time she refused to work saying that she had pains in her head which prevented her from studying.

There was produced by Cardiazol treatment (to which she had a marked dread on account of the feeling that her brain would protrude through the openings in the skull bones which felt as if they had been rent open) a gradual and sustained improvement with a loss of her agitation and expression of guilt-feelings. There came an increasing realisation that she had been mentally ill but her insight on dismissal was by no means complete.

14.10.39	(1)	4.5 c.c.	M
16	(2)	4.7	"
18	(3)	4.9	"
20	(4)	5.1	"
7.11.39	(5)	5.0	"

CASE 87. C.I.B. Female, aged 52 years. Married. Admitted 3.3.39, died 20.11.39.

In June, 1937, she sustained an injury to her back by slipping on the steps of a bathing pool. This injury (which was accompanied by bruising) became an obsession with her until ultimately she said she was even unfit for her household work. Four days before admission she suddenly got up and began pacing the floor, saying

that she was going to do something and that it would take a thousand men to hold her down. She began screaming loudly. Before admission she was depressed and began to wander about the house aimlessly. She threatened to drown herself and was found trying to push her dentures down her throat.

On admission the skin around her finger nails was much roughened owing to her nervous rubbing and picking of it. She was apprehensive of attacks similar to those she had had four days before admission. On these occasions she felt that she was going to stop breathing and that her heart would stop beating. She dealt with this fear by a process of swallowing until she was unable to continue the act: she then screamed. She said "No one knows the blow I got on my back. It was on my bare back, right on the hard concrete", and, amid continual moaning, continually reverted to the precise details of the accident herself. At times she stated that her condition was first due to nerves and said that she knew her back had nothing to do with it.

Despite intensive psychotherapy and a course of Somnifaine treatment she did not improve. Before Cardiazol treatment was begun she remained depressed, agitated and restless, continually walking up and down the ward and speaking of the pain in her back whenever the least opportunity presented itself. She was begun on sub-convulsive doses but the aura from these was so distressing that these were abandoned. The obesity of the patient making the finding of veins difficult, for her third injection she was given 2 c.c. Azoman intramuscularly and a further 2 c.c. when, after 15 minutes, she showed no sign of convulsing. The convulsion was twice repeated within half an hour despite morphine gr.1/2 and hyoscine gr.1/100. The improvement resulting in the patient's mental condition after these three convulsions did not necessitate any more Cardiazol being given until Nov.7th., when, owing to her insistence on the recurrence of her main symptoms (pain in the back and acute phobias about dying) she was again begun on a sub-convulsive dose of Cardiazol which was repeated on Nov.14th., when, owing to a slight improvement again showing, treatment was stopped. On 20.11.39 she committed suicide by hanging. The long periods of absence she had had from the ward, and which were construed in the

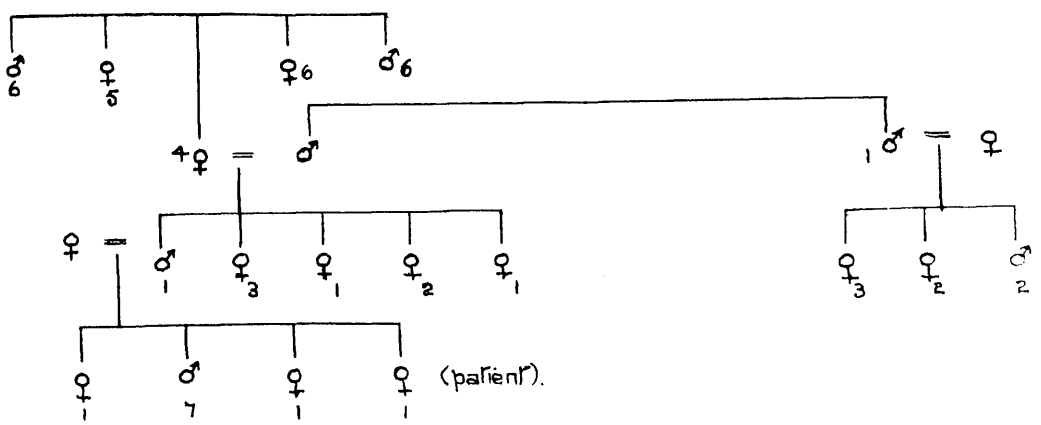
light of a healthy sign, were apparently utilised by her in studying the surroundings with a view to committing suicide - a sand-bagged wooden shelter and the noose composed of soiled dressings knotted together and suspending her from the cross beam.

After her death it was revealed for the first time that her father had died in a mental home (at first he was stated to have died with an asthmatic complaint). Her mother had had a "nervous breakdown" during the Great War and her only brother committed suicide by throwing himself from a window after an attack of pneumonia.

23.10.39	(1)	2.0	S/C.
24	(2)	2.0	"
25	(3)	2.0	"
30	(4)	2.0	R.l. Triazol M3
3.11.39	(5)	2.0	S/C
6	(6)	2.0	"
7	(7)	2.0	"
14	(8)	3.0	"

CASE 88. B.C. Female, aged 20 years. Single. Admitted 17.12.36, discharged as "relieved" on 4.12.39.

She came of stock in which there was a well-marked hereditary element.



(1) suffered from obsessions.
(2) obsessions with well-defined depressive attacks.
(3) depressive attacks without obvious obsessions.
(4) senile dementia.
(5) "nervous breakdown".
(6) "reserved and sensitive".
(7) died in infancy.

She was always a very irritable child, the irritability being especially marked in having her hair done or face washed and, with the outbreak of obsessional symptoms when 12 years of age, she began to lose her power of concentration and there occurred a distinct falling away in her ability to learn. She remained at home since leaving school. At twelve she began to suffer from nightmares and somnambulism and developed a violent hatred of her eldest syster aged 22 and stated that when with her she was "too near death". For a number of years she could not eat potatoes, vegetables and meat from the same plate, but could only eat them from separate plates. She developed a violent fear of answering the door. When seventeen years old she had coitus with a boy of 14 and was thrown into a state of acute anxiety concerning the moral wrong she had committed. She developed a ritual in which things had to be said to put things right for her own welfare.

She readily gave evidence of these obsessions on admission and of at times feeling depressed and on 25.12.37 succeeded in gaining possession of carbolic lotion of which she drank a mouthful. From that date until Cardiazol treatment was begun on 6.11.39 she continued to have recurrent attacks of depression and acute obsessional doubts. During treatment she showed a considerable improvement with complete loss of the unreality feelings she was afflicted with and which she found so distressing. It was learned after her discharge (23.3.40) that at home although she was slightly obsessional she was taking a great deal of interest in ordinary affairs and that she was better than she had been since adolescence.

6.11.39	(1)	4.5 c.c.	M
8	(2)	4.5 R.1	"
10	(3)	4.5	"
14	(4)	4.5	"

CASE 89. J.H.A. Female, aged 53 years. Married. Admitted 20.11 39, discharged recovered 17.2.40.

She was reported by her husband as always being shy and highly strung, going out of her way to avoid people and always preferring the home life. She was inclined to be hypochondriacal. She has been married for twenty-four years and there was no family. Three years before admission she became abnormally shy, more reserved and more secluded, gradually coming to voice vague suspicions. A month before admission she stated that her food was being poisoned and that she was being watched and about to be taken away. Whereas previously she was very frigid and anxious to avoid children, she now desired coitus almost at every moment of the day. She became indifferent to her housework and slightly untidy in her habits.

On admission she was unco-operative but in a few days she was quite frank and expatiated at length on various delusions, e.g., to the effect that people were pulling out her eyes, that her right hip-bone was broken and that her stomach and bowels were hanging down. She was very depressed and stated that she was beyond all hope of recovery. She would ask such questions as to why she should pay three guineas a week in order to be tortured by e.g. poisonous gas being blown into her room at night.

Following her sixteenth injection I referred to the delusions she had previously expressed and she had completely forgotten about them: she thought when I spoke of them that I was either trying to trick her or was of the opinion she was mad. She began to take an interest in her surroundings and became particularly friendly with a fellow patient under treatment with whom she used to discuss the various manifestations that treatment had brought about. A relapse occurred by 2.1.40 and she maintained that her food was being tampered with as was also her serviette and her clothing, but further treatment brought about further improvement which lasted until her dismissal. She lacked, however, any insight into her past illness. (She was readmitted on 2.11.40 with a history of having remained well until two weeks before her readmission.

12.11.39 (1) 4.5 R.1 c.c. S/C

14.11.39	(2)	5.0 c.c.	S/C
21	(3)	5.5	"
23	(4)	6.0	"
27	(5)	7.0	"
29	(6)	8.0	M
2.12.39	(7)	8.0	"
5	(8)	8.0	"
8	(9)	8.0	"
12	(10)	8.0	"
9.1.40	(11)	7.0	"
11	(12)	7.2	"
16	(13)	7.4	"
18	(14)	7.6	"
23	(15)	7.6	"
25	(16)	7.6	"

CASE 90. I.S. Female, aged 46 years. Married. Admitted 29.8.39, discharged recovered 6.1.40.

Save for a "nervous breakdown" in which she was depressed just after the Great War, she had always been of a bright, alert disposition, although inclined to worry. Following a radical removal of her right breast a year before admission she became depressed and several times expressed the idea that life was not worth living.

She confessed to the same on admission and mentioned in a casual way that she had tried to put herself under a motor lorry: she had no idea how long ago that was, for she had lost count of time and space. She suddenly stated that she had done all kinds of agonies to everybody and felt as if she had committed many crimes and murders. Until treatment was begun she had periods of restlessness and agitation and often it was difficult to persuade her to remain in bed: once she drove her hand through a pane of glass.

Her progress under treatment is referred to in

detail in Section II. of the thesis. She relapsed a few days after dismissal and was admitted in a few weeks' time into another mental hospital near her home.

13.11.39	(1)	4.5 c.c.	S/C
21	(2)	5.0	"
23	(3)	5.5	"
27	(4)	6.5	"
29	(5)	7.0	M
2.12.39	(6)	7.0	S/C
5	(7)	7.5	M
8	(8)	7.7	S/C
12	(9)	8.7	M

CASE 91. H.J.H.H. Female, aged 25 years. Single. Admitted 8.11.39, discharged relieved 13.12.39.

There was a previous admission from 9.8.38 to 15.6.39 when she was discharged not improved. She was then a fairly typical case of dementia praecox and suffered from visual and auditory hallucinations. Since her dismissal, there was a history of indifferent conduct. On some days she was able to perform any work efficiently and on other days would be very distracted. As a rule she was very intractable and stubborn, refusing to see reason. She frequently masturbated. She was very sensitive and suspicious concerning other people, was depressed and wept a lot. Before her readmission, she was getting so out of hand that she was uncontrollable.

On admission she was restless and excited but soon calmed to a state in which, for the most part of the day, she lay quietly in bed, her eyes closed. She frequently smiled for no apparent cause. Even while she was talking and while she was being spoken to, she said she still heard voices talking to her. Her replies to questions were frequently irrelevant.

After each of her injections and before

convulsing she did nothing but repeat vehemently "I love the Lord Jesus. I love the Lord Jesus". As a result of treatment she became much more amenable though her dreamy schizophrenic state was unaltered. At one period, on 25.11.39, she was sulky and impulsive when allowed up, with a repetition of the same behaviour on 28 and 30.11.39 on which latter date she made ? suicidal attempt. Thereafter her condition became more settled until she went off without leave and was considered discharged, only to be readmitted on 12.1.40 to 17.5.41 with exactly the same condition.

10.11.39	(1)	4.5 c.c. R.1	M
13	(2)	5.0	"
21	(3)	5.5	"
23	(4)	5.7	"
27	(5)	6.0	"
29	(6)	6.2	S/C
2.12.39	(7)	6.8	M
5	(8)	7.0	S/C
8	(9)	7.0	M
12	(10)	7.2	"

CASE 92. J.T. Female, aged 41 years. Married. Admitted 5.4.38, discharged relieved 28.4.41.

Ten years before admission she began to suffer from headaches and had "never been properly free from them since". She gradually became very hypochondriacal and adopted any new chronic illness she came across, after reading about them in text-books, and trying patent medicines for their relief. Three years before admission she developed a chronic nasal catarrh and was operated on for this, without relief, one year later. A few months before admission she began to say there must be a growth inside her head that was causing the headaches. Latterly, she could talk of nothing else save her illnesses. She felt other people's noses and compared them with her own, similarly with her skin and with her hair. She took to

bed saying that she couldn't walk and thereafter refused to make any effort to do so.

On admission she said that she was "not right anywhere" and any part of her body suggested to her was equally involved with the rest. As time went on, it became very apparent that she was earnestly desiring a genital examination in bed, and it was suggested to her that her complaints were related to sexual frustration (her husband was a seaman and was often away for as long as 20 months) and that her wish to be examined in bed was a desire for sexual gratification. This promoted a denial but not an indignant one, and she then said her genital region had not been examined like the remainder of her body. A course of Somnifaine treatment produced no improvement. Latterly she said there was an absence of spine in the lower part of her body which prevented her from sitting up or walking.

Under Cardiazol treatment there was an improvement in that there was an absence of talk about her complaints. She talked instead about her son to whom she was much attached and, indeed, in love with. She said she had dreamt she was walking about with him in a garden to the accompaniment of a feeling of extraordinary elation and happiness. A week's cessation of treatment at this point, however, was followed by a relapse from which she did not recover with continuance. She could be made to walk in the post-convulsion state but in a very halting and histrionic fashion. Treatment was stopped owing to the occurrence of a fracture of the lower right tibia.

Between then and her transfer to another hospital there was no change in her condition.

25.10.39	(1)	4.5 + 5.0 c.c.	M
27	(2)	6.0 c.c.	"
1.11.39	(3)	5.0	"
3	(4)	5.5	"
6	(5)	6.0	"
8	(6)	5.0 R.1	"
10	(7)	5.5	"
13	(8)	5.5	S/C
21	(9)	5.5	M
23	(10)	5.5 R.1	"

27.11.39	(11)	6.0 c.c.	M
29	(12)	6.0	S/C
1.12.39	(13)	6.0	M
5	(14)	6.0	"
8	(15)	6.0	"
12	(16)	6.0	"
15	(17)	6.0	"
19	(18)	7.0	"
21	(19)	6.0	S/C
26	(20)	6.5	M
28	(21)	6.5	"
2.1.40	(22)	6.5	"
4	(23)	6.5	"
9	(24)	6.5	"
11	(25)	6.5	S/C
16	(26)	7.0	M

CASE 93. F.A.McP.S. Female, aged 29 years. Single. Admitted 14.10.39, discharged relieved 29.3.41.

Her father was said to have been in Hawkhead Mental Hospital for a short period during the last war.

She had led an uneventful life, and was very bright and clever when at school, after leaving which she became an articled chemist eventually working in London, but always homesick. A period of helping to nurse a relative of her landlady proved too much of a strain for her and she arrived home mentally upset, frequently breaking into tears and expressing such beliefs that she had lung trouble. She was suffering from auditory hallucinations, hearing the voice of the young man who worked beside her in London telling her to do things. She became neglectful and untidy in her dress and was given to misidentifying people. Her affection for her father remained unchanged, but she was bitterly hostile to her mother without cause. She had made an attempt at suicide by making for a window as if to jump over.

From admission onwards, her favourite attitude was to lie with her head tucked underneath the clothes with her eyes closed. She gave a long, involved circumstantial account of her illness and, during the recital, frequently smiled for no apparent cause. The question (after it had been persistently put) as to whether she was hearing anything eventually elicited the fact that she was hearing a soft voice speaking to her in laudatory terms. She also heard other voices at times. She was inclined to be slightly aggressive and truculent in her attitude.

She showed an improvement under Cardiazol treatment with the disappearance of all the voices save that of the young man who had worked beside her. But during actual treatment a new voice had appeared accusing her of putting used face water down the lavatory, and she said she was being accused of putting out the lights in her room. These phases passed leaving her improved but the schizophrenic element was still marked.

A dilatation and currettage was performed on 14.6.40 for menorrhagia which produced a severe amaemia. A gradual improvement resulted in both her physical and mental state and she was ultimately discharged but had very little insight into her condition.

24.10.39	(1)	4.5 c.c.	M
1.11.39	(2)	4.5	"
3	(3)	4.7	"
8	(4)	4.9	"
10	(5)	5.0	"
13	(6)	5.2	"
20	(7)	5.5	"
27	(8)	6.0	"
1.12.39	(9)	6.0	"
5	(10)	6.0	"
20	(11)	6.0	"
22	(12)	"	"
27	(13)	"	"
29	(14)	"	"
3.1.40	(15)	"	S/C
5	(16)	"	M
8	(17)	"	"
10	(18)	"	"
12	(19)	"	"
15	(20)	"	"

CASE 94. H.P. Female, aged 35 years. Married. Readmitted 12.12.36 and still in hospital.

The second youngest of a family of nine, she proved to be a delicate child and difficult to bring up. She had night terrors, was afraid of the dark and had enuresis until 5 years. Less robust than the other members of the family, she was pampered on account of this and attended a private school where she was considered to be backward. After leaving school she remained at home neither doing anything nor expressing any desire to do anything until her marriage 15 years before her previous admission on 31.5.36. She had one child two years after her marriage since the birth of whom coitus interruptus had been practised to avoid further children. The identification of her husband as the carrier who had infected his daughter with paratyphoid fever ten years before admission caused the patient to worry and want to submit herself to a test to see if she herself were a carrier. Eighteen months before her first admission, she complained of pain in the stomach and said that she had typhoid fever and refused to go out in case she spread the disease throughout Glasgow. She was depressed and restless as a consequence. This same state of affairs prevailed until her admission. The feeling of jealousy she had in connection with her husband became more intense. She was discharged "not improved" on 27.6.36 and was soon readmitted in still the same state.

Until Cardiazol treatment was begun she showed a gradual deterioration. She eventually passed into a restless, agitated state, either lying in bed all day causing some annoyance on account of her ceaseless speaking in her comparatively loud, penetrating voice with a marked nasal tone, or else wandering up and down the ward in a restless manner speaking in the same voice. During treatment she improved for a time in that she would converse spontaneously in normal tones, asked for her spectacles and wedding ring and sang while another patient played the piano, but she soon relapsed to the state she was in before Cardiazol treatment was begun.

21.11.39	(1)	2.0 c.c.	S/C
23	(2)	2.5	"
27	(3)	2.5	"

29.11.39	(4)	3.0	c.c.	S/C
1.12.39	(5)	3.0		"
5	(6)	4.5		"
8	(7)	5.0		M
12	(8)	5.2		"
15	(9)	5.4		"
19	(10)	5.0		S/C
21	(11)	5.5		M
26	(12)	5.5	R.1	"
2.1.40	(13)	6.5		"
4	(14)	6.5		S/C
9	(15)	7.0		M
11	(16)	7.2		"
16	(17)	7.2		S/C
18	(18)	7.8		M
8.2.40	(19)	8.0		"
13	(20)	8.0		"
27	(21)	8.0		"
5.3.40	(22)	8.0		"
7	(23)	8.2		"
30	(24)	8.0		"

CASE 95. I.McF.S.R. Female, aged 33 years. Married. Admitted 15.6.31 and still in hospital.

In the summer of 1930 while on holiday, some people were laughing as they passed her on the street: she thought they were laughing at her and started to shout after them. Before that she had expressed a vague belief that people were conspiring against her. She developed a spite against her mother who was of a domineering nature. She began to weep and cry in a hysterical fashion and muttered aloud in an incoherent way.

The same state was present on admission, but for the most part she sat quietly in bed and spitting on the bed sheets for no apparent reason. She admitted to the presence of auditory hallucinations and showed dissociation of affect.

Between then and the beginning of treatment her mental state underwent no change save in the way of deterioration to inaccessibility, asociality, hallucinating continually, laughing foolishly to herself and being occasionally impulsive.

A slight temporary improvement was effected with Cardiazol treatment in that she would speak to her husband spontaneously and enquire about people she had once known. She became a little tidier in her appearance and was less inclined to be impulsive. Her fear of the injections was very marked and ultimately a definite struggle was necessary before they could be given. She soon relapsed after the termination of treatment into the condition she was in before treatment was begun.

22.11.39	(1)	4.5 c.c.	M
24	(2)	4.7	"
27	(3)	4.9	"
29	(4)	4.9	"
1.12.39	(5)	5.1	"
4	(6)	5.3	"
6	(7)	5.5 R.1	S/C
8	(8)	6.5	M
11	(9)	6.7	"
13	(10)	6.9	"
15	(11)	7.1	"
18	(12)	7.3	"
20	(13)	7.5	"
22	(14)	7.7	S/C
27	(15)	8.0	M
29	(16)	8.2	"
3.1.40	(17)	8.4	"
5	(18)	8.6	"
8	(19)	8.8	"
10	(20)	9.0	"

CASE 96. J.S. Female, aged 33 years. Single. Admitted 6.5.25 and still in hospital.

She was an only child and was described as being bright, clever and musical when young. Since her mother's death, when the patient was aged 14 years, she had been alone a good deal and "in and out of all sorts of employment". Before admission, she began to act "strangely", objecting to going to church and began swearing at it: she was restless at night, irritable and cross, and at times seemed to hear voices. She became careless in regard to her appearance and dress, became moody and suspicious of the people who, she said, were looking at her and reading her thoughts.

On admission she said that she missed her mother very much and that she (the patient) was now adopted into the Salvation Army, admitted hearing voices of a spiritual nature and said that she had been "getting light upon the Bible". Asked if she were happy, she said she was not and gave a giggle: when asked why she did this, she replied that she was "getting expression for her thoughts" but would not explain further. She was correctly orientated.

From that date until treatment was begun, her progress was one of mental deterioration until eventually she was in a depraved, slovenly state. A favourite posture of hers was to be on the floor and masturbating frequently. She was quite indifferent to her surroundings and quite mute. She was at first very resistive to the injections but later in the course submitted with comparatively good grace. After the injection on 29.11.39 she was markedly confused and clawed vigorously at her genitals. She showed improvement under treatment in that she became tidy in her habits and began to take an interest in ward routine, doing useful and appreciated work spontaneously, but by 11.4.40 she had quite reverted to the state she had been in before treatment was begun.

20.11.39	(1)	4.5 c.c.	M
22	(2)	4.7	"
24	(3)	4.9	"
27	(4)	5.0	"
29	(5)	5.2 R.1	S/C

1.12.39	(6)	6.2 c.c.	S/C
4	(7)	6.4 R.1	"
6	(8)	7.4	"
8	(9)	8.4	M
11	(10)	8.6	"
13	(11)	8.8	"
15	(12)	9.0	"
18	(13)	9.2	"
20	(14)	9.4	"
22	(15)	9.6	"
27	(16)	9.8	"
29	(17)	10.0	"
3.1.40	(18)	10.0	"
5	(19)	10.0	"
8	(20)	10.0	S/C
10	(21)	10.5	M

CASE 97. E.M.B. Female, aged 39 years. Single. Admitted 24.5.30 and still in hospital.

She was always healthy as a child save for deafness, was clever at school but handicapped on account of her affliction and was reproved and slapped by her teacher who did not know of its existence. She became nervous as a consequence. She was always of a deeply religious nature and worried greatly over details. In April, 1929, she wakened her brother one morning at 5.a.m. saying that she was preparing to take a cold bath which would cleanse her soul. She had no clothes on. She was very distressed as she read passages out of the Bible and said she was damned, warning people to keep away from her as she was contaminated. Between that date and her admission there had been unsuccessful attempts at suicide. Ultimately she became impulsive, dirty in her habits with soiling, complained of noises in her head, laughed without cause and wolfed her food.

The same state was present on admission and in addition her replies to questions were irrelevant and she

was stated to be hallucinating. This state prevailed and mental deterioration was progressive.

Cardiazol treatment produced no change in her condition.

20.11.39	(1)	4.5 + 5.0 c.c.	M
22	(2)	5.0	"
24	(3)	5.2	S/C
27	(4)	5.2	"
29	(5)	5.5	"
1.12.39	(6)	6.0	M
4	(7)	6.2	"
6	(8)	6.2	S/C
8	(9)	7.0	"
11	(10)	7.5	M
13	(11)	7.7	S/C
15	(12)	8.5	M
18	(13)	8.7	"
20	(14)	8.9	"
22	(15)	9.1 R.1	"

CASE 98. M.McT. Female, aged 63 years. Single. Admitted 29.8.39 and still in hospital.

This patient was admitted from another hospital with no particulars concerning her. Shortly after admission she went into a typical maniac attack, revealed preponderantly in her conversation. On being asked her age she said, "I am 65. No, I don't know. You are my loved one, the Duke of Clarence". She then made to touch the interrogator's handkerchief and tie. Next she put her leg forward, saying that was where her breast was ... "My married name is Mrs.Murray and before that I was married to Alec Kerr. I would like to marry you. I had one boy to Alec Kerr and a daughter to the next husband".

By the time treatment was begun she was in a very noisy obstreporous mood. Owing to a skin rash on

her buttocks and both thighs she had been confined to bed for some considerable time, and she lay the livelong day uttering at the pitch of her voice obscene remarks with continual swearing. Treatment had no effect on her until 18.12.39 when she became definitely quieter, which state continued with the exception of one period of two days beginning 2.1.40 when her mania recurred with some destruction of her clothing. She eventually passed into a very quiet state which, in view of the fact that little rapport was achieved with her, was judged to be a mild depression. She sat on a couch in front of the fire all day, saying very little unless spoken to and then only with a "yes" or "no" with some retardation. She maintained this state until 8.2.41 when she again passed into a maniacal state.

4.12.39	(1)	4.5 c.c.	M
6	(2)	3.0	S/C
8	(3)	3.2	"
11	(4)	4.2	"
13	(5)	5.0	M
15	(6)	4.0	"
18	(7)	4.2	"
20	(8)	4.2	"
22	(9)	4.4	"
27	(10)	4.4	S/C
3.1.40	(11)	4.8	M
5	(12)	5.0	"
8	(13)	5.0	"
10	(14)	5.1	"
12	(15)	4.5	S/C

CASE 99. J.McA. Female, aged 43 years. Married. Admitted 7.4.32 and still in hospital.

She was transferred from Stobhill Hospital to which she was admitted on account of delusions she held, e.g., that other families in the building in which she stayed were listening to and planning against her. She

wrote to these families complaining about their conduct. A sister of the patient's was stated to be in Larbert Mental Hospital.

It was revealed that since 1916 she had always been in the habit of making unjust accusations against her husband and his family, the uttering of these accusations becoming more persistent as time went on. About 1925 she stated that a man was following her about. Her state previous to admission was a gradual development from this and latterly she became antagonistic to her husband.

On admission she stated, in addition to confirming these things, that she was being poisoned and felt stupified as a consequence. Between admission and beginning treatment she remained in a very quiet state with occasional outbursts of impulsive behaviour.

Before treatment was begun, she would only speak when spoken to and her lisped replies to questions were at times irrelevant. She was tidy in her habits and quite lacking in spontaneity: she sat about the ward all day quite unoccupied. Treatment produced no change in her condition.

20.11.39	(1)	4.5 c.c.	M
22	(2)	4.7	"
24	(3)	4.7	"
27	(4)	4.7	"
29	(5)	4.9	"
1.12.39	(6)	5.2	"
4	(7)	5.4	"
6	(8)	5.6	"
8	(9)	5.8	"
11	(10)	6.0	"
13	(11)	6.2	"
15	(12)	6.4	"
18	(13)	6.6	"
20	(14)	6.8	"
22	(15)	7.0	"
27	(16)	7.2	"
29	(17)	7.4	"
3.1.40	(18)	7.6	"
5	(19)	7.8	"
8	(20)	8.0	"
10	(21)	8.2	"

CASE 100. A.W. Female, aged 33 years. Single. Readmitted 6.4.39 and still in hospital.

There was nothing of note in her previous history save that six years before her first admission (23.10.37 - 5.10.38) she procured an abortion for a pregnancy and after the abortion she was depressed and hypochondriacal. A week before her first admission she began to maintain that "people" were spreading stories concerning the abortion and she became very depressed and said that people did not care for her: eventually she scarcely spoke and said that a baby she was looking after was really her own. Her ideas of guilt deepened on admission yet she did not seem deeply depressed: she frequently smiled inanely, appeared hallucinated. It proved difficult to make satisfactory contact with her. She was given nine Cardiazol convulsions with the result that she was able to return home.

Her period at home was, however, far from satisfactory - she ate irregularly and smoked excessively, often stayed up all night shouting in reply to voices she was hearing, was impulsive and for the few months previous to her readmission played the gramophone all day to herself. Her schizophrenic state remained very much in evidence during her readmission and before a second course of Cardiazol treatment was begun she was uncommunicative and stood for practically the whole day gazing out of the ward window, heedless otherwise of her environment. Her fear of treatment was very marked and one had frequently to struggle before any injection could be given. On one occasion she sustained a moderately severe cut of her left index finger in an endeavour to escape from the injection by going out the bathroom window. Her aura appeared to consist of the feeling that she was being done to death. This was very obvious when, after the immediate effects of a sub-convulsive dose on 24.11.39 had passed off, she explained "I am back to life!". On the occasion of her cutting her finger, she subsequently took the Cardiazol bottle and mouth gag and put them down the lavatory pan. Two days later she became very aggressive verbally and said that if curses were of any avail I would have been dead for the past two weeks. After each injection she was very restless and agitated, continually walking up and down or else anxiously hovering about the

door so that when it was opened she could get out. She said that if she were to get out she "would never do anything wrong again".

Treatment left her more active than she had hitherto been but there was a definite lack of purpose behind all her movements. She talked more readily, her topics of conversation were concerning what she wished to do when she got out - to get married, or become a children's nurse or to join the Women's Police Force. These wishes were not sustained for any length of time. By 31.7.41 she had completely reverted to the demented state she had been in before treatment was begun.

20.11.39	(1)	4.5 c.c.	M
22	(2)	4.5	S/C
24	(3)	5.0	"
27	(4)	5.5	M
29	(5)	5.5	S/C
1.12.39	(6)	6.0	"
5	(7)	6.5	M
8	(8)	6.7	S/C
11	(9)	7.7	M
13	(10)	7.9	"
15	(11)	8.1	"
18	(12)	8.2	"
20	(13)	8.4 R.1	"
22	(14)	9.4	"
27	(15)	9.4	"
29	(16)	9.6 R.1	"
3.1.40	(17)	10.5	"
5	(18)	10.5	"
8	(19)	10.5	"
17	(20)	10.5	"

CASE 101. J.C. Female, aged 59 years. Single. Admitted 26.4.39 and still in hospital.

Always of a retiring disposition and tending to

hold very definite opinions, she lived alone after the death of her father in 1936. In April, 1939, she asked her sister-in-law to go out shopping with her as the people in the shops were talking about her. She was very quiet usually and would not talk, but just before admission she became very talkative and excited.

On admission she was emaciated, her weight being approximately four and a half stone (she was a small woman) and glycosuria was present. She was continually noisy and talkative on admission, sat up in bed gesticulating, or stood on it declaiming. Her speech was quite disconnected and her replies to questions were irrelevant and untrustworthy.

A few days before treatment was begun she passed into a state of depression and then into one of mild mania. This mental state continued until 19.12.39 when for the first time she replied intelligently to questions asked her and began to show an interest in her surroundings. This state was held until 29.12.39 when she reverted to her hypomaniacal state and on 2.1.40 passed into a state of delirious mania which lasted one day after which she reverted to a hypomaniacal state in which she has remained until the present (31.7.41).

20.11.39	(1)	4.5		M
22	(2)	2.0		S/C
24	(3)	2.5		"
27	(4)	2.7		"
29	(5)	2.9		"
1.12.39	(6)	2.9		M
4	(7)	2.9		S/C
6	(8)	3.0		"
11	(9)	3.2		"
13	(10)	3.4		M
15	(11)	3.4		"
18	(12)	3.4		S/C
20	(13)	3.4		M
23	(14)	3.4		"
27	(15)	3.4		"
29	(16)	3.6	R.1	S/C
3.1.40	(17)	4.6		M
5	(18)	4.8		"
8	(19)	5.0		S/C
10	(20)	5.5		M
12	(21)	5.5		"

CASE 102. I.K.S. Female, aged 44 years. Married. Admitted 18.7.39, discharged relieved 8.3.40.

One of the patient's five sisters had been in Gartloch Mental Hospital for eleven years. The patient was connected with church work since her childhood, and all her social outlets since her marriage in 1918 had been mostly connected with the church. For the three years before admission a slow change was observed to come over her and she became increasingly concerned that the Roman Catholics were getting too powerful in Glasgow and five weeks before admission she began to assert that she had "failed the Master" and thought that a lady doctor was going to call for her in her car because she had failed in her duty. She wanted to pray all night. She was removed to another hospital where she attempted suicide by cutting her wrist under the belief that she had to make sacrifices.

On admission she had to be tube fed as she refused to eat. She eventually confessed that years ago she had been very elated by the works of Henry Drummond and his conception of an intense idealistic love, but a man (her minister) for whom she developed such a love showed her by several signs that he thought she was carnal in her interest in him. This made her very despondent and she thought that evil had entered into her soul. Because of her sinfulness and vanity, she thought that the green would never reappear on the trees and that there would be perpetual winter in the world. She was so fallen from grace through being a mental adultress that she was quite unworthy of food.

Her aura after her Cardiazol injections consisted of "a horrible falling, falling, falling, as if falling down through the earth for miles and miles" and that she did not then know whether she was part of this world or not: she "seemed to be in a half-and-half position". Her fear of treatment was profound, and on 28.11.40 she escaped from the hospital by climbing the hospital wall, making her way across a busy marshalling yard to the house of her minister who, together with her husband, brought her back again. There was then a pitiful scene in which she dropped to her knees and pleaded with her husband that she should not be given any

more injections. An improvement in her mental state occurred with the continuance of treatment which was eventually stopped on 29.12.39 but was renewed at her own request on 12.1.40: she had been a coward, she said: other patients could take the treatment "so why not me?" She attributed her eventual recovery to the will of God and there still remained a vague sign of religiosity in her description of her past illness.

20.11.39	(1)	4.5 c.c.	M
22	(2)	4.7	"
24	(3)	4.7	S/C
27	(4)	5.0	M
28	(5)	5.2	"
1.12.39	(6)	5.4	S/C
4	(7)	6.0	"
6	(8)	7.0 R.1	M
8	(9)	8.0	"
11	(10)	8.2	"
13	(11)	8.4	S/C
15	(12)	9.4	M
18	(13)	9.6	"
20	(14)	9.8	"
27	(15)	9.8	"
29	(16)	10.0	"
12.1.40	(17)	10.2	"
15	(18)	10.2	"

CASE 103. I.D.S. Female, aged 55 years. Widow. Readmitted 23.5.39, discharged recovered 27.12.39.

A maternal uncle committed suicide at the age of 43 years.

Six months before her previous admission (9.5.36 - 19.12.36) her husband had died leaving her and her only daughter in financial straits. Her husband became a chronic alcoholic, it was stated, as a protest against the patient's very possessive attitude towards

herself and her daughter. She became offended at his conduct and for the two or three years preceding his death they were not on speaking terms.

A month before her first admission she told her daughter she thought people were signalling to her by oscillating on the wireless and later complained that they were making improper suggestions to her by the same means. As a result she became abusive and shouted loudly at them whenever she met them. She accused her daughter of having had connection with several men and with her own father and of wanting to destroy her mother. Her condition on admission was typically one of acute mania.

She remained well after dismissal until a few days before her second admission when she again passed into the same maniacal state which was present on admission and said how on a visit to Edinburgh Zoo a few days before admission that people's evil faces were worse than some of the animals. She was obscene in her actions and conversation but, under treatment, slowly and gradually regained her normal of being a quiet, refined and educated lady.

Even after two injections she was much calmer and brighter. Her fear of the injections became very marked, and after her convulsions on 13 and 18.12.39 she was extremely restless and clamoured at the locked door of the treatment ward to be allowed out. When subsequently questioned as to the reason for this behaviour she said that she felt as if chloroform had been given her for the purpose of extracting her teeth and then thought that the effort of pulling out the teeth had been left to her own decision and for her to do. The teeth were going to be taken out very much against her will, hence her eager desire to get out of the ward before anyone could approach her.

Before her subsequent and last admission (8.3.40 - 30.3.40) she repeatedly spoke of her Cardiazol treatment and how unpleasant it was and for several nights was troubled with unpleasant dreams. She seemed to have no confidence in herself and would not go out. Frequently she asked for various reassurances. This same state was present on admission (contrasting markedly with

her previous admissions) when she complained of insecurity, uncertainty, of not sleeping well and of being afraid to be left alone. These symptoms gradually became less severe until ultimately she regained her confidence and was discharged.

22.11.39	(1)	2.0	S/C
24	(2)	4.0	M
27	(3)	4.0	"
29	(4)	4.0	S/C
1.12.39	(5)	4.5	M
4	(6)	4.7	"
6	(7)	4.9	S/C
8	(8)	5.1	"
11	(9)	5.5	"
13	(10)	6.5	M
15	(11)	6.7	"
18	(12)	6.9	"

CASE 104. I.McP. Female, aged 41 years. Single. Admitted 29.8.39 and still in hospital.

Information concerning her previous history was unsatisfactory. Until her mother died she had done satisfactory work as a clerkess and then took over the charge of the home which she conducted in an efficient manner. Although given to reflecting a lot she was not given to worrying. She had no friends outside the family with whom she had a frank, open nature.

In 1938 she began to fear that her brother in the U.S.A. would get mixed up with gangsters, and, on learning that he intended to assume American citizenship, she became violent, singing and shouting and wanted to be out of doors at all hours. She was admitted to the mental observation wards of Stobhill Hospital and discharged her quiet self in 10 weeks' time. But her mental state again returned and she was re-admitted, being transferred to Gartloch Mental Hospital after six weeks.

She remained therein until her transfer here, when her condition was one of mania, in which state she remained save for quiet spells of brief duration.

She showed a slight temporary improvement with Cardiazol treatment in that she became pleasant, sociable, spontaneous and rational in her talk and very helpful in the ward. This state rapidly gave place to the state she had been in when treatment was begun. On 31.7.41 she was reported as being maniacal, in which apparently she was subject to auditory hallucinations and in which she smiled and laughed to herself.

22.11.39	(1)	2.0 c.c.	S/C
24	(2)	2.5	"
27	(3)	3.0	M
29	(4)	2.5	S/C
1.12.39	(5)	2.5	"
4	(6)	2.5	"
6	(7)	3.0	"
8	(8)	3.0	M
11	(9)	3.2	"
13	(10)	3.4	S/C
15	(11)	3.6	"
18	(12)	3.8	M
20	(13)	4.0	"
22	(14)	4.2	"
27	(15)	4.2	"
29	(16)	4.2	S/C
3.1.40	(17)	5.5	M
5	(18)	5.7	"
8	(19)	5.9	"
10	(20)	6.1	"

CASE 105. J.A.D. Female, aged 48 years. Single. Admitted 28.4.32 and still in hospital.

Two years before admission her mother died, since when the patient has been living with a friend who

was more or less a complete invalid for whom she had to do a great deal of work. A fortnight before admission she became depressed and retarded: she blamed herself for something which she could not express and came to look and behave in a distressed way. This state was present on admission and continued up until treatment was begun. There gradually began to show, however, a gradual deterioration in addition to the depression and before treatment was begun she was in a depraved state. She would usually strip herself and it was customary to see her sitting in a half-naked condition on the couch making the same stereotyped gestures. These consisted of making a few clutches at her extremely short hair with her finger tips of her right hand: having done this she would draw her fingers downwards across her mouth. The other hand she would either use to hold her left ear or clutch at the hair on the left side of her head. As she indulged in these activities she would utter gutteral noises.

There were no facts of note during treatment save the following. From the physical aspect, bradycardias and slow irregularities were the rule after each convulsion without special search having to be made for them. On 20.12.39 immediately before the onset of the convulsion she asked "No teeth to pull to-day?" On 10.1.40 it was noticed that she was speaking quite rationally to any questions which the ward sister or nurses asked her, a state which lasted until 14.1.40. But she soon relapsed into and continues in (31.7.41) the same state as before treatment was begun.

22.11.39	(1)	4.5 c.c.	M
24	(2)	4.0	"
27	(3)	2.0	S/C
29	(4)	2.5	M
1.12.39	(5)	2.5	S/C
5	(6)	3.0	M
8	(7)	3.0	S/C
11	(8)	3.2	"
13	(9)	3.4	"
15	(10)	4.0	M
18	(11)	4.0	"
20	(12)	4.0	"
22	(13)	4.0	S/C

27.12.39	(14)	4.2 c.c.	M
29	(15)	4.2	S/C
3.1.40	(16)	4.5	M
5	(17)	4.5	"
8	(18)	4.5	"
10	(19)	4.5	"
12	(20)	4.5	S/C
17	(21)	4.4	M
19	(22)	4.2	"
22	(23)	3.5	"
24	(24)	3.0	S/C

CASE 106. E.MacL. Female, aged 21 years. Single. Admitted 23.5.39 and discharged not improved on 24.5.40.

She grew up under the belief that her stepmother was her mother and was greatly upset when informed by her school chums of the true state of affairs: at school she was backward and between then and coming to Glasgow two years before admission to train as a children's nurse she was at home doing housework willingly and efficiently. On taking up training, it was noticed that it was her habit to speak to herself. A succession of illnesses (influenza, jaundice and mumps) interfered with her training, and, when she returned to it, she was put on night duty. The disturbance of routine prevented her sleeping and within a few weeks she was in a very nervous state. At this time, 18 months before admission, she returned home, on medical advice, for a holiday during which she threatened suicide at times. Her difficult behaviour was confined to the home circle: with outsiders she was quite pleasant. Ultimately she became unmanageable.

On admission she lay quietly in bed for the first two days with occasional bursts of quiet laughter. Her replies to questions were often irrelevant and she would interrupt them by answering voices she heard

speaking to her, e.g. "Get away! Leave me alone just now!" Her concentration was poor. She denied any sexual conflicts and when questioned about masturbation said: "Peace to you. No young gentleman shall find a girl's secret". This mental state continued. She remained detached and unco-operative, took no interest of any description in her surroundings and would frequently talk, smile and laugh to herself.

She developed a marked fear of the injections of treatment, which she preferred to have in the sitting position, as she invariably felt that the injections suffocated her. Before convulsing, she would invariably indicate this by a short struggle and attempt to sit up still further, exclaiming "Let me get some air!" On one occasion, 1.12.39, she identified me with her own father, saying, "Don't hurt me will you please, father. I'm sorry". These sentences she repeated very often. From remarks passed in the stage of post-convulsion confusion, there appeared to be a comparatively recent sexual trauma with some boy: she was very reticent about discussing this although it obviously was perplexing her greatly. A slight improvement resulted from treatment in that she became more industrious and co-operative in the ward, but otherwise treatment left her unchanged.

22.11.39	(1)	4.5 c.c.	M
24	(2)	4.5	"
27	(3)	4.5	"
29	(4)	4.7	S/C
1.12.39	(5)	4.9	"
5	(6)	5.5	M
8	(7)	5.7	"
11	(8)	5.9	S/C
13	(9)	6.5	M
15	(10)	6.7	"
18	(11)	6.9	"
20	(12)	7.1	"
22	(13)	7.2	"
27	(14)	7.2	"
29	(15)	7.4	"
3.1.40	(16)	7.6	"
5	(17)	7.8	"
8	(18)	8.0	"
10	(19)	8.2	"
12	(20)	8.4	"
15	(21)	8.6	"
17	(22)	8.8	"

CASE 107. C.B. Female, aged 38 years. Single. Readmitted 12.7.39 and discharged relieved on 18.4.41.

The patient had on the whole a happy, uneventful life until 10 years before her first admission (26.12.36 - 12.7.39) when she developed a severe and permanent deafness following upon an attack of influenza. The deafness made a considerable change in her life: she tended to be reserved, to stay at home from a good position in commerce as much as possible, and, in fact, to "hide herself". Before then she used to mix freely with people, go out a lot, and enjoy herself thoroughly. Four months before admission she was afraid of being blamed at her work for a mistake which she did not commit and began to think that something was going to happen to her and that the police were going to take her away. She became depressed and made an impulsive attempt to drown herself. On her admission a considerable degree of agitation was present in addition to her depression and verbal rapport could not be secured with her on account of her deafness. She showed a gradual deterioration during her stay in hospital and ultimately her favourite position was to stand in her nightgown or a loosely-fitting dress and bare feet at a particular window in the ward, her arms folded across her flat chest, her hands clasped and resting beneath her chin.

Under Cardiazol treatment there was an improvement in her condition: it was noted that she now took a bath of her own accord whereas previously there was usually a struggle to get her to do so. She began to dress herself and to take an interest in her appearance, and spoke sharply to her sister who came to visit her for not having brought up new clothes for her so that she might dress the better. She stopped pulling at her hair which she had plucked quite short.

She soon gradually relapsed, however, into her original state when treatment was terminated. She again responded to the same degree with 35 shocks of electrical convulsion therapy but as soon relapsed. She was taken home by her sister.

22.11.39	(1)	3.0 c.c.	M
24	(2)	3.2	S/C
27	(3)	3.4	"
29	(4)	3.5 R.2	"
1.12.39	(5)	4.0	"
5	(6)	5.0	M
8	(7)	5.2	S/C
11	(8)	6.2	M
13	(9)	6.4	"
15	(10)	6.6	"
18	(11)	6.8	"
20	(12)	4.8	S/C
22	(13)	6.8	M
27	(14)	7.0	"
29	(15)	7.2	"
3.1.40	(16)	7.4	"
5	(17)	7.6	"
8	(18)	7.8	"
10	(19)	8.0	"
12	(20)	8.2	S/C

CASE 108. M.M.M. Female, aged 44 years. Single. Readmitted 17.8.39, discharged recovered 9.12.39.

Previous admissions occurred from 1.5.34 - 2.10.34, 5.12.34 - 23.2.35, 1.8.35 - 31.3.36, 30.6.36 - 12.9.38, on each occasion being discharged as either relieved or not improved.

She had always been of a worrying, sensitive disposition and very considerate to everyone, although not inclined to make friends. Four months before her first admission she became very hypochondriacal following an attack of fibrositis in her back and ultimately became very depressed despite medical reassurances and came to believe that she had done something for which she was to be hanged. On several occasions she attempted suicide. Since then she had had several depressive attacks which required hospitalisation as stated above. Gradually her

hostility to her family (who were never sympathetic to her) became more apparent and it became at last apparent that her attempts at suicide were made (or were threatened) in order to make them sympathetic towards her as was also the object of a faecal incontinence which appeared. She came to speak invariably in whining tones with apparently the same object. It became more and more evident that there was a large psychopathic element in her mental make-up.

Cardiazol treatment from 22.11.39 - 4.12.39 produced a marked improvement in these unsocial qualities and she seemed rather surprised and bewildered by her altered mental state. She became pleasant and agreeable, doing knitting, assisting in the ward, and paying attention to her personal appearance.

She was readmitted on 19.12.39 however, for a relapse and Cardiazol treatment was reinstituted and enabled her to reach her previous level of improvement and was discharged on 21.3.40.

22.11.39	(1)	4.5 c.c.	M
24	(2)	4.5	"
27	(3)	4.7	"
29	(4)	4.9	"
1.12.39	(5)	5.1	"
4	(6)	5.2	"
20.12.39	(1)	5.1 c.c.	M
22	(2)	5.3	"
3.1.40	(3)	5.3	"
5	(4)	5.5	"
8	(5)	5.7	"
10	(6)	6.0	"
2.2.40	(7)	5.0	"
5	(8)	5.0	S/C
26 2.40	(9)	5.0	M
28	(10)	5.0 R.1	"
1.3.40	(11)	6.0	"
4	(12)	6.2	"

CASE 109. M.S. Female, aged 16 years. Single. Admitted 31.10.31 and still in hospital.

She suffered from a serious degree of mental deficiency as shown in early life in being late in talking, being about four years when she walked and her development in general was slow. She was subject to "terrible outbursts of temper". She was incapable of profiting by instruction and was never able to read, write or dress herself. Institutional treatment was eventually sought by her parents who had the greatest difficulty in controlling the effects of her temper.

She gave no trouble since her admission beyond an occasional outburst of temper.

Cardiazol treatment was begun with subconvulsive doses on account of a marked and comparatively harsh systolic bruit audible at the pulmonic area, a congenital cardiac abnormality being suspected perhaps associated with her mental deficiency. Her fear of all the injections was intense and a struggle was invariably necessary to permit of the injections being given. She is referred to in the text of the thesis as a case who showed apparent worsening as the result of treatment, although towards the end of treatment she had been trying to echo a few words that she had heard other patients speak, such as: "Sister, sister". This speaking was something entirely new to her, for hitherto she had been quite mute.

22.11.39	(1)	3.5 c.c.	S/C
24	(2)	3.5	"
27	(3)	3.5	"
29	(4)	3.5	"
1.12.39	(5)	3.5	"
5	(6)	4.5	"
8	(7)	5.5	"
11	(8)	6.5	M
13	(9)	6.7	S/C
15	(10)	7.1	M
18	(11)	7.2	"
20	(12)	7.4	S/C
22	(13)	7.6	"
27	(14)	8.5	"
29	(15)	9.5	M
3.1.40	(16)	9.7	S/C
5	(17)	10.0	"

CASE 110. C.N. Female, aged 24 years. Single. Admitted 10.2.30 and still in hospital.

A brother, treated at home, was stated to be dull, apathetic and demented since the Great War in which he served.

She was transferred from the Royal Asylum, Montrose, and it was stated in the notes accompanying her admission on 10.2.30 that about 1925 she began to deteriorate. Formerly she had been bright and attractive. She became engaged to be married in 1927 and after six months of the engagement she began to say that the girls in the office in which she worked were prostitutes, and said that they wanted to interfere between her and her fiancé. On admission to Montrose, she was dull and apathetic, frequently laughed foolishly and frequently carried on an imaginary conversation when she was alone. She suffered from auditory hallucinations. She stated that she had had frequent intercourse with her fiancé during her engagement but that she had no idea she was transgressing any ethical rules in so doing.

Her schizophrenic state was still very much in evidence on her admission on 10.2.30 and between that date and the beginning of treatment her history was one of gradual dementia. A course of insulin therapy from 2.5.38 to 15.6.38 had no influence on her mental condition.

Cardiazol treatment produced no change of any significance in her mental state. She was very resistive and excited where the actual injections were concerned and before them she invariably talked in her excitement about "the wee brats" and how they got into trouble for touching some girl on the stair. She could not be induced to enlarge further on this topic, and, indeed, was inaccessible mentally. About 15.1.40 the Ward Sister reported that the patient had become "very vain", continually looking at herself in the mirror. This state was of short duration, and her original state is still reported as being present (8.8.41).

24.11.39	(1)	4.5 c.c.	M
27	(2)	4.7 R.1	S/C
29	(3)	5.0 R.1	M
1.12.39	(4)	6.0	"

4.12.39	(5)	6.2 c.c.	M
6	(6)	6.4	"
8	(7)	6.6	"
11	(8)	6.8	"
13	(9)	7.0	"
15	(10)	7.2	S/C
18	(11)	8.2	M
20	(12)	8.4	"
22	(13)	8.6	"
27	(14)	8.6	"
29	(15)	8.8	"
5.1.40	(16)	10.0	"
8	(17)	9.0	"
10	(18)	9.2	"
12	(19)	9.4	"
15	(20)	9.6	"
17	(21)	9.8	"

CASE 111. M.R. Female, aged 35 years. Single. Admitted 5.2.34 and still in hospital.

From a very early age she was reserved and a-social and had no special interests. Ten years before admission she had refused an offer of marriage stating that she was quite happy as she was. She subsequently came to regret the rejection of the proposal and became gradually despondent, suffered from insomnia and refused her food. With the passage of years she began to think that every man she met wanted to marry her and that men were influencing her in some way. On one occasion she rushed to a seated stranger, sat on his knee, began crying and saying that he had been influencing her to come for a long time: she then went down on her knees and adopted extravagant postures towards him. She came to harbour ideas of persecution, e.g., she thought her food was being poisoned and that people in general were against her.

On admission she was out of touch with her surroundings, answered in a distracted fashion and was

evidently hallucinating. At times she was extremely impulsive and without warning she would strike at those around her or attempt to break a window.

Until the time treatment was begun she showed a slow steady deterioration and had ultimately to be confined to bed. She could not be induced to enter into conversation and was completely withdrawn. Occasionally she was impulsive. Immediately after receiving her first injection she asked me "Who are you?" but could not be induced to speak further. The ward sister, however, reported that, as treatment continued, the patient would occasionally ask spontaneously about people or patients in the ward. On 8.1.40 a period of confusion following upon a period of impulsiveness was noticed: this period lasted until 16.1.40 and on 19.1.40 she stated that she wanted to get home in order to commit suicide by drowning in some lake. By 25.1.40 sister reported that the patient was amenable, was feeding herself and that there was a lack of impulsiveness, but soon after treatment was terminated she soon relapsed to her original condition of complete inaccessibility, bedwetting, faecal smearing and impulsiveness. A subsequent course by another physician produced similar improvement with subsequent relapse which latter is still present (8.8.41).

23.11.39	(1)	2.0 c.c.	S/C
27	(2)	2.5	"
29	(3)	3.0	M
1.12.39	(4)	3.0	S/C
5	(5)	3.5	"
8	(6)	4.0	M
12	(7)	4.2	"
15	(8)	4.4	S/C
19	(9)	5.0	M
21	(10)	5.0	"
26	(11)	5.0	"
28	(12)	5.0	"
2.1.40	(13)	5.2	S/C
4	(14)	6.2	M
9	(15)	6.0	"
11	(16)	6.0	"
16	(17)	6.2	"
19	(18)	6.2	S/C
23	(19)	7.0	M
25	(20)	7.2	"

CASE 112. F.Macd.McI. Female, aged 55 years.
Single.
Readmitted 18.1.40, discharged relieved 5.4.40.

Nothing was found relevant in her previous or family history save that she had always been careful about her money and spent very little. She had a maniac attack when aged 27 but this did not require hospital treatment. The first attack which so required treatment (28.5.30 - 4.11.30) occurred after the death of an old lady she had been nursing and who had left her £100 legacy. She said that this old lady had been poisoned by the housekeeper. At home before admission the patient was restless and struck her mother, and said after she had been admitted that she was thankful she "was in" as her parents were demented, although when "in" she said that the other patients worked on her with wireless sets and at night time she was indecently interfered with. Her second admission occurred after she had complained to the police that the sugar she obtained from the grocer had been poisoned by him. Her admission on this occasion was from 12.11.39 to 16.12.39 and under Cardiazol treatment her typically maniacal state rapidly passed after two injections into a mildly depressed state in which she became slow in her speech and, with tears in her eyes, she would smile and say she was well enough to be at home.

Before her third admission on 18.1.40 her hostility to her mother was again evident and she stated on admission that "Old people like that should be chloroformed and put out of the way". Her case is referred to more fully in the text of the thesis as the lady who in her maniacal state fervidly pursued her embroidery almost to the exclusion of other activities and who, when she again reverted to a depression as the result of treatment, completely forgot all about her previous activity.

29.11.39	(1)	4.5 c.c.	M
1.12.39	(2)	4.7 R.1	"
5	(3)	5.7	"
27.2.40	(1)	5.5 c.c.	M
29	(2)	5.7	"
2.3.40	(3)	5.9 R.1	"
5	(4)	6.9	"

7.3.40	(5)	7.1 c.c.	M
9	(6)	7.3	"
12	(7)	7.5	"
14	(8)	7.7	"
16	(9)	7.9	"

CASE 113. A.R. Female, aged 25 years. Single. Readmitted 21.12.37 and still in hospital.

Her previous admissions were from 16.5.35 to 7.6.35 and 24.6.35 to 1.11.35. No previous history accompanied her first admission when she was extremely resistive to all forms of help and treatment and had occasionally to be tube fed. She was extremely negativistic and it was impossible to gain her attention in any way. The same condition was present at her next admission but she improved to the point of going out with a nurse and occupying herself with a little sewing or knitting. She still remained uncommunicative and antagonistic when any attempt was made to approach her. The same state was present on her third admission, refusing to converse and lying with her head beneath the bedclothes.

Before treatment was begun she showed katatonic features such as standing still in the one position for long periods. She was still mentally inaccessible. Through treatment the fear of the injections became progressively more marked and unseemly struggles were eventually necessary before the injections could be given. On 19.12.39 she reached the peak of a maniacal, agitated state of a few days' duration and during which she was very apprehensive apart altogether from treatment and for the first time spoke to me, repeatedly asking for her mother and to be allowed home. The nursing staff reported that she was not so frequently incontinent during the day and that she was now dressing and bathing herself, things she did not previously do. This state continued with a slight relapse, but towards the end of treatment her fear became so marked that she ran away and walked and ran

miles through the deep snow before finally being recovered. Relapse (which was still present on 8.8.41) followed the termination of treatment.

29.11.39	(1)	4.5 c.c.	M
1.12.39	(2)	4.7	"
5	(3)	4.9	"
8	(4)	5.1	"
12	(5)	5.3	"
15	(6)	5.5	"
19	(7)	7.0	"
21	(8)	6.0 + 7.2	"
26	(9)	7.5 R.1	"
28	(10)	8.5	"
2.1.40	(11)	8.7	"
4	(12)	8.9	"
9	(13)	9.1	"
11	(14)	9.3	"
16	(15)	9.5	"
18	(16)	9.7	"
23	(17)	9.9	"
25	(18)	10.1	"
30	(19)	10.3	"
1.2.40	(20)	10.5 R.1	"

CASE 114. J.B.A. Female, aged 59 years. Single. Readmitted 20.6.31, died 10.2.40.

Her early childhood was normal, but she showed extreme intelligence at school. She was fond of society and was the life and soul of the party. There was no tendency to moodiness or depression. Her first attack of mental illness occurred when she was on a visit to Germany when at Heidelberg she was induced to sing folk-songs and dance, shortly afterwards becoming excited and shouting in her hotel. She called her chambermaid Gretchen and herself the Margarita in Faust. During her first admission from 30.8.25 to 10.10.25 she was in a maniac state and gradually recovered. During her

discharge she remained well until 1928 when she had a short attack of depression from which she made a good recovery without being admitted to hospital. Her second admission was from 4.6.29 to 30.6.30 when she developed a sudden maniac attack without previous depression: she talked rapidly in German and in English and showed flight of ideas and elation. Before her admission on 20.6.31 she began to have attacks of screaming, saying that a white elephant was pursuing her, and gradually her conversation became incoherent due to extreme flight of ideas.

A specimen of her conversation on admission when she was in a maniac state was "Excuse me, sir. Ja, ja, harmony cuckoo - Roumanian - sour, sour, sauerkraut - bitte Acht - Acht bitte - come and stay in my house - 16 I have I know - no, I will not - dead dogs tell no tales - die for your King and country - dulci et decorum - sweet it is - sweetly tolls the curfew", and so on. Ever since then she remained in a disturbed mental state: usually she was maniac but at times she had spells of depression. Before treatment was begun she was in a typically maniacal state: the element of hyperacousis was especially marked and she would reiterate anything I said at the other end of the ward from where she was, even though it was said in a whisper. Her mania gradually subsided under treatment and she passed into a mild depression. On the morning following her last dose (almost twenty-four hours after her last injection) she was discovered dead in bed when the remainder of the patients were being called to get up. The cause of death on post-mortem examination was certified to be influenzal bronchitis and chronic myocarditis.

4.12.39	(1)	4.5 R.1 c.c.	S/C
6	(2)	5.5 R.1	M
8	(3)	3.5 c.c.	S/C
11	(4)	3.5	"
13	(5)	3.5	"
15	(6)	3.5	"
18	(7)	3.5	"
20	(8)	3.5	"
22	(9)	3.5	"
27	(10)	3.5	"
29	(11)	3.5	"
3.1.40	(12)	3.5	"
5	(13)	3.5	"

10.1.40	(14)	3.5 c.c.	S/C
12	(15)	3.4	"
7.2.40	(16)	3.0	"
9	(17)	3.5	"

CASE 115. E.T.R. Female, aged 44 years. Married. Readmitted 4.10.32 and still in hospital.

A previous admission was from 20.10.15 to 12.6.16, before which she had stated she was determined to end her own life. (One of her two brothers was then stated to be a ne'er-do-well and a chronic alcoholic, and a maternal aunt had died in Hartwood Mental Hospital.) She was then stated to be a very dangerous patient who had to be watched closely at all times on account of her impulsiveness and what were presumably attempts at suicide. A gradual improvement occurred and she was discharged.

For the three years preceding her readmission she and her husband had a very lean time financially: he was out of work during that period and they went through all their savings. Ten weeks before admission he managed to secure a job and this, apparently, caused her to become "nervous, tremulous and terrible frightened". She began to say that she had ruined him, that she had told lies and that everyone was against her. She ultimately said that she had ruined the whole world. Masturbation was admitted to her doctor. She tried to commit suicide by pushing her artificial teeth down her throat and by trying to jump out of the window. Her depressed, agitated state was present on admission and little in the way of relevant information was obtained from her save that some calamity was going to fall on her.

By 10.12.35 she had shown considerable mental deterioration and was in the habit of frequently masturbating and, when Cardiazol treatment was begun, she did nothing but sit in a chair of the corner of the ward continually masturbating. She seemed to have no

realisation of her surroundings and did not reply to any questions or remarks addressed to her. She was resistive in her behaviour, e.g., to having her face washed. Occasionally she was impulsive and would strike out. Treatment produced practically no change in her mental state. On 29.12.39 after a subconvulsive dose, she passed into a state of what appeared to be hypomania and tried to get upstairs again through the locked door of the treatment ward. When she found this was unsuccessful, she stated that another patient (Case 105, J.D.) was her husband, addressing J.D. in very affectionate terms and with very affectionate gestures, exhorting the patient to come upstairs with her. She is still (8.8.41) in the same condition she was in before treatment was begun.

4.12.39	(1)	4.5 c.c.	M
6	(2)	4.7	"
8	(3)	4.9	"
11	(4)	5.1	"
13	(5)	5.3	"
15	(6)	5.5	S/C
18	(7)	5.7	M
20	(8)	5.9	"
22	(9)	6.1	S/C
27	(10)	6.5	M
29	(11)	6.7	"
3.1.40	(12)	6.9	"
5	(13)	7.1	"
8	(14)	7.3	"
10	(15)	7.4	"
12	(16)	7.6	S/C
15	(17)	8.0	M
17	(18)	8.2	"
19	(19)	8.4	"
22	(20)	8.4	S/C
24	(21)	9.0	M

CASE 116. J.Macd. Female, aged 43 years. Married. Admitted 18.12.39, discharged relieved 30.12.40.

She was described as always of a quiet conscientious nature inclined to worry and to take a gloomy view of things. She was rather frigid in the early years of her marriage which occurred in 1917. Two years before admission she had a spell of a few days in which she slept poorly, was apprehensive, jumpy and took to bed. She would repeat, "I don't know what's come over me. I don't know what to do. It's my nerves". A year before admission she again became very anxious for a few days and was convinced that she had cancer of her throat, despite medical reassurances. Three months before admission she again became anxious saying that she was unworthy of attending Church Communion, and then passed into an agitated state in which she said a tiger skin was covering her. She complained that her clothes were dirty and insisted on changing them constantly. She asked her husband on several occasions why he did not give her poison. She made no attempt at suicide although she frequently refused her food.

The refusal of food was very marked on admission and she had to be tube fed against considerable resistance. She spoke very little and then in a whisper, saying that she had done wrong and was not fit to live.

Her appetite and desire for food was rapidly restored with Cardiazol treatment. She was markedly disturbed by the aura associated with the injections but could not be induced to describe it subsequently: but it appeared, however, that she found herself in some situation in which she found herself imprisoned, for in addition to always asking in despairing tones "How am I to get out?" she always tried to get out of bed whenever the immediate effects of the injections had passed off. During treatment she also said that all her trouble was due to the costive state of her bowels, and also lost her depression, and on some days was quite bright and almost hypomaniacal. A noticeable feature in her case was the marked tendency to relapse and the rapidity with which her normal state could be restored with even one injection, and how with each relapse new phantasies intruded into her mental state, e.g., that she had committed adultery (untru-)

and that she heard voices on the wireless saying that she was going to be taken away, a phantastic prospect which greatly alarmed her.

She subsequently sank into a depressive stupor about 17.6.40 from which she recovered from a further course of 13 Cardiazol injections administered by another physician, relapsed again four times and was further returned to normal by a further few injections. Her condition eventually became sufficiently stable to allow of her going home on 28 days' pass at the end of which time she was discharged, her condition then being satisfactory.

27.12.39	(1)	3.5 c.c.	S/C
29	(2)	4.5	"
3.1.40	(3)	5.5	"
5	(4)	6.7	M
8	(5)	6.9	"
10	(6)	7.1	"
12	(7)	7.3	"
15	(8)	7.5	"
17	(9)	7.7	"
19	(10)	7.9	S/C
22	(11)	8.0	"
2.2.40	(12)	7.0	M
5	(13)	7.2	"
7	(14)	7.4	"
9	(15)	7.6	S/C
12	(16)	8.0	M
14	(17)	7.8	"
16	(18)	7.6	S/C
19	(19)	8.0	M
21	(20)	8.2	S/C
1.3.40	(21)	8.5	M
4	(22)	8.7	"
6	(23)	8.9	"
8	(24)	9.1	"
11	(25)	9.3	"
13	(26)	9.5	S/C
15	(27)	10.0	M

CASE 117. C.R.K. Male, aged 56 years. Married. Readmitted 28.1.38, discharged to Inverness District Asylum 15.12.39.

There was nothing of note recorded in his previous history save that while a prisoner of war in Germany during the Great War he had had a mental illness which was treated in hospital and after which he was exchanged and interned in Holland for the remainder of the war. He married in 1911 the German lady who had been teaching him German. The marriage had never been consummated sexually.

His previous admission from 25.1.38 to 27.1.39 (apparently first precipitated by severe losses on the Stock Exchange) were characterised by feelings of incompetence and unworthiness. He also suffered from insomnia and depression, believed that he had syphilis and that he was losing control of his excreta and that they would contaminate everyone. He was convinced he would never get better. An improvement showing, however, he was granted parole and in March, 1938, threw himself under an omnibus, sustaining a dislocation of the right knee and a fracture of both pubic rami. His depression continued which complicated the treatment of the injury.

Before Cardiazol treatment was begun he became increasingly concerned about the state of his bowels, frequently soiling himself and constantly demanding to go to the lavatory and expressing the hope that his bowels would "dry up" altogether. The first injection proved subconvulsive in its effects and he pleaded (hours after the effects were worn off) to have it repeated, but before the actual injection of the subsequent convulsive dose showed a very marked fear indeed. This is referred to in the text of the thesis. During this convulsion, two large cracks were heard which seemed to come from the region of the pelvis although no actual bony damage was discovered. His temperature rose the same evening to 101°F. Faecal smearing all over his bed and body occurred. He was found to be suffering from a paratyphoid infection and removed to another hospital from which he was subsequently readmitted free from infection though still in his depressed state. He subsequently improved to the point of being allowed home at his wife's request on 8.11.40.

28.11.39	(1)	5.0 c.c.	S/C
30	(2)	6.0 R.1	M

CASE 118. W.S.T. Male, aged 26 years. Single. Admitted 16.11.32 and still in hospital.

His paternal grandfather was a patient in the Royal Asylum, Montrose, for thirteen years. The patient was a precocious child and was able to read the morning papers at four years. At school he played games, was sociable and had many friends. At the age of fifteen he noticed a change in himself, finding difficulty in concentrating and was defeated by problems which previously he would have found easy. He had a hysterical paralysis of his legs which lasted three months. Thereafter his history was one of repeated attempts at occupations which he was obliged eventually to give up (his M.A. degree and accountancy) and in July 1932 began to express the belief that noises were being directed towards him and had some special significance. He heard his thoughts repeated by a voice and believed that his mind was being read. One day at Loch Eck he had a revelation and saw Christ standing beside him on the road. He prayed constantly because he believed the sun's rays penetrated the left side of his head and that if he continued praying they would stop. Three days before admission, he completely broke down, had fits of crying, clung to the furniture or lay face down in bed shouting "Christ, hear my prayers! Christ, hear my prayers!"

After admission he went into a katatonic stupor and for a long time afterwards was in a semi-stuperose condition. Mentally he was inaccessible to any psychotherapy and before treatment was begun his dementia was profound. His method of employing the day was to stand in the lavatory apparently looking out of the window pane, although this had been blackened out in the course of A.R.P. preparations. He showed great retardation in reply to any questions asked him: he did not answer any questions which were involved and would frequently smile as he gave answers to simple questions, even although there was no cause for smiling.

On 16.12.39 while under treatment he abandoned his position in the lavatory and began to talk boastfully to the other patients and attendants. On 17.12.39 he reported that wonderful things were happening and that people were curing him. On 19.12.39 there was a relapse

and he had again resumed his position at the lavatory window. On 27.12.39 he became talkative and took an apparent and active interest in things not relating directly to himself. He employed his day doing crossword puzzles or enquired about people to whom he had made no reference for a long time. The attendants reported that he had spoken more that morning than he had done for the past five years. The same evening he had a very restless night and stated that he wanted to get well so that he might go home. Towards the evening of the following day he became very restless, agitated and excited and believed that the ward was his house and that the other patients had no right to be there. When reproved by an attendant for being aggressive to another patient he struck the attendant a blow on the eye. By 2.1.40 he was much quieter and had shown no more impulsive outbursts. From that date until the end of treatment, however, he was very aggressive verbally towards me and these verbal outbursts were liberally interspersed with references to his father, and the patient accused me among other things of "using other people's urges and surges" in order to obtain mastery over them. He always jumped out of bed whenever he saw me coming into the ward and on one occasion caught me by the shoulder and ordered me out, saying that I had no right to be there.

In a few days following the termination of treatment he showed signs of settling down into the state he was in before treatment was begun. Subsequently he was inclined to be impulsive for a few weeks, and he remained easily upset by anything connected with Cardiazol treatment and tried to interfere with its administration to other patients. His condition subsequently reverted to its original state, but he was more amenable. On 8.8.41 I saw him doing useful work with the garden party.

28.11.39	(1)	5.5 c.c.	M
30	(2)	6.0	"
5.12.39	(3)	6.2	"
7	(4)	6.4	"
12	(5)	6.6	"
14	(6)	6.8 R.1	"
16	(7)	7.0 R.1	"
19	(8)	8.0	"
21	(9)	8.2	"
26	(10)	8.4	"

28.12.39	(11)	8.4	c.c.	M
30	(12)	8.6		"
2.1.40	(13)	8.8		"
4	(14)	9.0		"
6	(15)	9.2		"
9	(16)	9.4		"
11	(17)	9.6		"
13	(18)	9.8		"
16	(19)	10.0		S/C
18	(20)	10.5	R.1	M
20	(21)	10.5		S/C
23	(22)	10.5		"

CASE 199. A.McG. Male, aged 22 years. Single. Readmitted 5.7.35 and still in hospital.

On his first admission from 1.6.35 to 16.6.35, it was stated that a younger brother died during the course of an operation for hare-lip at the age of five. The patient's father died in the patient's presence when he was five years old and for a short time after this he was very difficult, refusing to sleep alone or without a light. At school he was above the average as a scholar. At the age of 18 he began to be careless about his work as an apprentice engineer, was warned repeatedly and finally was dismissed. Afraid to go home, he ran away and after a week was brought back by the police. For the next nine months he did nothing save a little light work in the garden and seemed to be constantly brooding over his dismissal. He showed a tendency to get up during the night and to remain in bed late in the morning. His condition gradually became worse. He started reading the Bible in every spare moment he had: he became more and more restless, often refusing to go to bed at night and instead would go out walking until 4 or 5 a.m. He became dull and apathetic and even more shy of meeting people than he had hitherto been. After a transient resistiveness on admission, he settled down and began to read his Bible, and drew up a series of his

misdeeds in chronological order and finding a quotation from the Book of Proverbs to apply to each, one of the incidents being when he was 14 when he was in bed with his sister and felt that he wanted to have intercourse with her: to prevent himself he got out of bed and walked about the room. After that, he started masturbating, a habit he continued ever since. He felt that people knew from his appearance that he had been guilty of serious crimes. He heard voices speaking to him but had never been able to make out what they were saying. He was considered as a case of dementia praecox. He decided to go home and was discharged not improved. He was re-admitted certified about three weeks after and was in exactly the same mental state. Insulin and Cardiazol treatment had no influence on his mental state. Before treatment was begun by me he sat about the ward all day and showed a complete lack of spontaneity: he showed no interest in anything and mental approach to him was impossible. Treatment had no effect on his condition, save that he became interfering with other patients, nudging them as he passed. His condition remains (8.9.41) the same.

28.11.39	(1)	5.0 c.c. R.1	M
30	(2)	5.5 R.2	"
5.12.39	(3)	6.5	"
7	(4)	6.7	"
12	(5)	6.9	"
14	(6)	7.1	"
16	(7)	7.3	"
19	(8)	7.5	"
21	(9)	7.7	"
26	(10)	7.9	S/C
28	(11)	8.1	M
30	(12)	8.3	"
2.1.40	(13)	8.5	S/C
4	(14)	9.5	M
6	(15)	9.7	"
9	(16)	9.9	"
11	(17)	10.1	"
13	(18)	10.3	S/C
16	(19)	10.5	"
18	(20)	10.5	"
20	(21)	10.5	M
23	(22)	10.5	"

CASE 120. J.S.B. Male, aged 56 years. Married. Readmitted 21.9.39 and discharged not improved on 3.4.40 to the Southern General Hospital.

On his first admission (19.3.39 - 16.9.39) it was stated that all the family were very nervous and that one of his five brothers spoke with a stutter. He had been married for 33 years and had 4 sons. Eight years before admission he had had a "breakdown" following overwork: this breakdown lasted three months and was characterised by insomnia, taking no interest in anything and wanting to be left alone. Three weeks before his first admission he accused his wife unjustly of having sexual relations with a friend who came about the house, yet she was still friendly with this man. At this time the patient was complaining of impotence yet had increased sexual desire. At times he had excited outbursts in which he reiterated the accusations against his wife, became very red in the face, then went pale, lost control of his legs and looked extremely faint. He began to think that his eyes were so staring that people's attention would be drawn to them: for this reason he wore his hat down over his face. He threatened suicide. There was no history of alcoholism.

He readily admitted to his suspicions concerning his wife but said "I don't believe it with my lips, but I do with my heart". He laughed at the idea of having ever been suicidal. He soon passed into a depressed state, refusing to speak and taking his food badly. He was given Triazol treatment by another physician from 6.6.39 to 17.6.39, four convulsions being produced, but on account of terror concerning treatment, this was discontinued. After its termination he was more active though still depressed. He insisted on going home but was returned five days later quite unchanged. He continued in the same state until treatment was begun and when it was over. It consisted of two injections and unsightly struggles occurred before these could be administered. Treatment was stopped on account of this and later (18.3.40) he stated "The injections have poisoned me. Oh, stop it, for Christ's sake! .. " this being followed by bitter convulsive sobbing... "If I get these again, they will have to hold me. If that man Good comes, I don't know what will happen. He is not a doctor at all.

No doctor would ever have done that". (A few days previously he had written a letter stating that he was engaging in homo-sexual relations with some of the patients in the ward.) He was discharged, not improved. I subsequently learned that he had been certified and placed in a mental hospital.

28.11.39	(1)	5.0	S/C
30	(2)	6.0 R.1	M

CASE 121. R.McG. Male, aged 39 years. Single. Admitted to Gartloch Mental Hospital on 7.6.20 and transferred to the G.R.M.H. on 29.8.39 and still in hospital.

On his transfer he was quite demented, had no idea of his age or what kind of place he was in. He often heard voices and saw visions, but was unable to describe these.

It was decided not to continue treatment further than the administration of two sub-convulsive doses on account of the grossly abnormal condition of his heart. It was greatly enlarged and on auscultation there was a harsh presystolic and systolic murmur, the last propagated towards the axilla. On 3.12.39 he suddenly showed signs of collapse which, however, were soon recovered from without special treatment. His mental state remained and remains (8.8.41) unaltered.

28.11.39	(1)	2.0 c.c.	S/C
30	(2)	2.0	"

CASE 122. D.F. Male, aged 30 years. Single.
Admitted 22.1.36 and still in hospital.

His maternal grandfather was depressed for 18 months and his paternal grandmother was a chronic alcoholic. The patient was nervous all his life, had night terrors in childhood and enuresis until aged seven. At school he was mentally backward, and on leaving went from job to job as he was unable to hold them for any length of time. A year before admission he began to sleep badly, became exceedingly restless, wandering about the house giving an occasional shout as he did so. He was admitted to the Crichton Royal, Dumfries, for six months, was then tried at home, but became noisy at night and had to be admitted to the G.R.M.H.

He was then remote and inaccessible and his answers were invariably monosyllabic. He was completely apathetic and took no interest of any description in his immediate environment. This state continued until treatment was begun save that he had each day a short outburst in which he shouted at the pitch of his voice. Save for the disappearance of these outbursts, treatment produced no change in his condition.

14.12.39	(1)	5.5 c.c.	M
16	(2)	5.7	"
19	(3)	5.9	"
21	(4)	6.1	"
26	(5)	6.3	"
28	(6)	6.5	"
30	(7)	6.7	"
2.1.40	(8)	6.9	"
4	(9)	7.0	"
6	(10)	7.2	"
9	(11)	7.4	"
11	(12)	7.6	"
13	(13)	7.8	"
16	(14)	8.0	"
18	(15)	8.2	"
20	(16)	8.2	"
23	(17)	8.2	"
25	(18)	8.2	"

CASE 123. H.L.R. Male, aged 29 years. Single. Admitted 16.8.38, still in hospital.

Nothing abnormal was reported in connection with his previous history until in 1932 when he was discharged as a bank employee (after many shifts from branch to branch) for carelessness and insubordination. He behaved normally, it was said, for a year after his discharge from the bank and carried on with his recreations - golf, tennis and swimming. In early 1934 he was reported as "not quite himself": he did not speak much and developed the habit of going out with his mouth set in a firm unnatural manner. Gradually, further signs of mental illness began to show: e.g., in his "bad moods" he began to use improper language and led his people to believe he was keeping bad company. He was capable after 1936 of "talking for about 40 hours without a stop, and would pay attention to no one, being very restless the while" and had to be assisted to see that he washed himself and that he completed his dressing.

On admission he was very noisy and sat up in bed talking loudly and incessantly night and day for the first few days. Heavy sedation gave him only a few hours' sleep. He grimaced and gesticulated. His replies to questions were irrelevant. At a staff meeting he was regarded as a case of simple schizophrenia. From 4.10.38 to 2.11.38 he had insulin therapy with a slight improvement in his condition: he became quieter, not so talkative and tended to be more amenable than he had previously been A course of Cardiazol treatment from 11.11.38 to 17.1.39 with seventeen convulsions produced no further improvement.

The same mental state was present when I began treatment which produced no change in him of any description. His mental state remains (8.9.41) the same, and in addition he is described as being often excited and impulsive and very interfering.

5.12.39	(1)	5.0 + 6.0 + 7.0 c.c.	M
7	(2)	8.0	"
12	(3)	8.2	"
14	(4)	8.4	"
16	(5)	8.6	"
19	(6)	8.8	"

21.12.39	(7)	9.0	c.c.	M
26	(8)	9.2 + 10.2		"
28	(9)	10.5		"
30	(10)	10.5		"
2.1.40	(11)	7.8		"
4	(12)	8.0		"
6	(13)	8.2		"
9	(14)	8.4	R.1	"
11	(15)	9.4	R.1	"
13	(16)	9.6	R.1	"
16	(17)	10.5		"
18	(18)	10.5		"
20	(19)	10.5		"
23	(20)	10.5		"

CASE 124. G.W.B. Male, aged 31 years. Single. Admitted 25.6.34 and still in hospital.

Five years before admission he began to look off colour, complained of frontal headaches and of failing memory and inability to concentrate, and depression. This state continued until six months before admission when he complained of hearing voices and that when he wanted to do something the voices told him not to do it. He became restless and spent most of his time walking.

On admission there was retardation and his replies to questions were irrelevant. He muttered away to himself as he lay in bed. He was incoherent and his conversation rambling. The voices he heard were, he said, the Higher Powers talking to him and he was very worried about the idea of a trapeze which continually cropped up in his mind. This state continued up until the time treatment was begun and then he usually employed his day by sitting on the edge of a seat and showing no initiative of any description. Mentally he was inaccessible.

Under treatment he began to show more initiative and on 6.12.39 was reported on entering spontaneously into

conversation with the attendants. This improvement was maintained until he went home on a fortnight's pass on 23.12.39 and his mental state was relapsed on his return. Treatment was continued with the production of the same improvement, but he soon relapsed after its termination. Towards the end of treatment he became very frightened of the injections and frequently would get out of bed in an endeavour to avoid them.

28.11.39	(1)	5.5 c.c.	M
30	(2)	5.7	"
5.12.39	(3)	5.9	"
7	(4)	6.1	"
12	(5)	6.3	"
14	(6)	6.5	"
16	(7)	6.7	"
19	(8)	6.9	"
21	(9)	7.1	"
9.1.40	(10)	5.5 + 6.5	"
11	(11)	6.5	"
13	(12)	6.7 R.1	S/C
16	(13)	7.7	"
18	(14)	7.7	"
20	(15)	7.9	"
23	(16)	8.1	M
25	(17)	8.3	S/C

CASE 125. D.L. Male, aged 41 years. Married. Admitted 3.10.39, discharged recovered 30.12.39.

A step-brother of the patient's by his father's first marriage was stated to have been in a mental hospital.

The patient remained physically and mentally well until a fortnight before admission, four months previous to which he had been forced to overwork on account of the illness of one of his colleagues. On the outbreak of war he was agitated and spoke repeatedly of how he

should be in the Army. During the ten days preceding admission he "developed various ideas": he thought the whole world was wrong, that he was unworthy and must have had committed a serious crime: he was sure he had lost his job and that his wife had no money to support her. He went off his sleep and at times refused his food.

He was in a semi-stuperose condition on admission but mumbled or whispered replies which permitted a diagnosis of depression of the maniac-depressive type to be made.

After the third injection and convulsion of Cardiazol treatment he passed into what was judged to be a hypo-maniacal state with protestations that he was his old self, never felt better, etc., and paced up and down the ward floor in a confident manner. (His wife subsequently stated that this was his normal.) The improvement was maintained and he was discharged.

28.11.39	(1)	5.5 R.1 c.c.	M
30	(2)	6.0 R.3	"
5.12.39	(3)	7.0 R.1 + 8.0	"
7	(4)	8.5 R.3	"
12	(5)	10.0	"
14	(6)	10.2	S/C
19	(7)	10.5	M
21	(8)	10.5	"
26	(9)	10.5	"
28	(10)	10.5	S/C

CASE 126. W.H.D. Male, aged 52 years. Single. Admitted 4.1.39 and still in hospital.

His father was reported as having had several "nervous breakdowns" and once attempted suicide. A paternal aunt was in a mental hospital.

He returned to this country 14 or 15 years before admission, having prospered as a farmer in New Zealand.

and since then lost most of his money through unwise speculation, thus becoming dependent on his mother. Three years before admission he became irritable and obstinate in his behaviour and two and a half years before admission said he was being poisoned and that the Freemasons and the Church were concerned in it. Shortly before admission his behaviour became more dangerous and he threatened his mother with a gun. He had been refusing his food also.

On admission he gave expression to the same ideas and said he thought his food was being doped and that his mother got into a secret society like the Freemasons. He was inclined to be sullen and truculent during his stay in hospital (from which he twice escaped) and protested against his stay particularly since he had no venereal disease. This mental state prevailed until Cardiazol treatment was begun. He protested against his first injection saying it was being done illegally and that if I thought it was for venereal disease then I was mistaken. Subsequently he was very curious concerning the injections and asked of every available source what was the result of them. His appetite became enormous and he had practically a second helping of every course at every meal. Although he still held to his delusions about his food being tampered with, he could now joke about them. On 6.1.40 he passed into a confused state and his talk was facile and foolish: he did not seem to care about anything, was pleasant to talk to and bore no ill-will to the treatment. This state lasted a few days, and subsequently for a few months there was an almost complete absence of his delusions.

A relapse occurred, however, and he responded to a further course of Cardiazol treatment beginning on 23.7.40 to 8.8.40 with a similar improvement and on 3.11.40 was put on a period of 12 months' probation.

30.11.39	(1)	5.5 c.c.	M
5.12.39	(2)	5.7	"
7	(3)	5.9	"
12	(4)	6.1	"
14	(5)	6.3	"
16	(6)	6.5	"
19	(7)	6.7	"
21	(8)	7.1	"

26.12.39	(9)	7.3 c.c.	M
28	(10)	7.5	"
30	(11)	7.7	"
2.1.40	(12)	7.9	"
4	(13)	8.0	"
6	(14)	8.2	"
9	(15)	8.4	"

CASE 127. J.K. Male, aged 25 years. Single. Readmitted 20.3.37 and still in hospital.

Before his previous admission from 7.2.31 to 24.1.34 it was noted that he had always been of a very quiet nature and was a "tremendous worker" in everything he tackled. In December, 1930, he "began to get contradictory to his father" and "began to talk nonsense, saying that a cow in the byre had appendicitis" and that he would rather take water than milk to his porridge. Later, he said that his mother had been putting poison in his food (a maternal uncle was stated to be suffering from chronic mania) and refused to take anything she touched. Ultimately he became restless and violent, requiring restraint.

On admission the same state was present and in addition it was ascertained that he was suffering from auditory hallucinations, was emotionally apathetic and inclined to be impulsive. Gradual mental deterioration occurred during his admission and occasionally stuperose attacks, but a loss of his impulsiveness. In view of the latter he was taken home. Until his readmission there was, however, no change in his condition and he was unable to do anything useful either in the way of work or of amusing himself. He had become dirty in his habits and was apt to put anything and everything into his mouth and swallow it. On his readmission, it was stated that he was "exceedingly demented and inaccessible". He was prone to indulging in faecal smearing and on one occasion made an active homo-sexual attack on another patient. He

frequently required heavy sedation. The same state was present before treatment was begun: the latter produced no change of any description in him save that he now required infrequent sedation compared with formerly. He was given to tearing paper into small pieces for the remainder of each day following the convulsions. He was reported as being in the same mental state on 13.8.41.

5.12.39	(1)	5.0 c.c.	M
7	(2)	5.2	"
12	(3)	5.4	"
14	(4)	5.6	"
16	(5)	5.8 R.1 + 6.4 + 6.8 c.c.	M
19	(6)	6.8	M
21	(7)	7.0	"
26	(8)	7.2	"
28	(9)	7.4	"
30.12.39	(10)	7.6	"
2.1.40	(11)	7.8	"
4	(12)	8.0	"
6	(13)	8.2	"
9	(14)	8.4	"
11	(15)	8.6	"
13	(16)	8.8	"
16	(17)	9.0	"
18	(18)	9.2	"
20	(19)	9.4	"
23	(20)	9.6	"

CASE 128. H.W. Male, aged 55 years. Single. Admitted 4.5.39 and discharged relieved on 31.1.40.

A brother was stated to have received mental hospital treatment for alcoholism and "worries".

The patient was stated to have always been shy and retiring and self-conscious about a slight shortening of his right arm with some deformity of his elbow as a

result of a wound received during the Great War. An abscess in connection with this developed in Nov., 1937, and, after it was incised, he suffered from pulmonary emboli and was very ill physically for some time afterwards. When he was physically recovered, it was noticed that he was hypochondriacal and extremely nervous. He gradually became more and more depressed with inability to concentrate, insomnia and anorexia.

On admission he was a typical case of agitated melancholia, and when a patient in the ward died he blamed himself for the death. He was convinced he would never recover.

He received 6 injections of Cardiazol from another physician between 22.5.39 and 15.6.39, but no convulsions occurred. He subsequently developed delusions to the effect that electricity was passing through his limbs, and that the other patients and staff were against him and that the ward was full of instruments for the purpose of interfering with him. The same state was present when treatment was begun. Towards the first few injections he showed a marked resentment and slight struggle, and when he had recovered consciousness after the first three convulsions he kept repeating "Away you go" for several hours afterwards. After the sixth convulsion, he passed into a deep sleep of four hours' duration and when he awoke he was quite recovered from his depression and was perturbed to discover that he was in a mental hospital. He seemed to labour under the belief that he had been a source of great annoyance and trouble. He spoke with interest on various topics and his affect was one of mild elation. Thereafter, save for a very slight and transient relapse on 22.12.39, he remained well, a state which continued until his discharge.

7.12.39	(1)	5.5 R.1 c.c.	M
9	(2)	6.5 R.1	"
12	(3)	7.5 R.1	"
14	(4)	8.5	"
19	(5)	8.5	"
21	(6)	8.7 R.1	"
23	(7)	9.7 R.1	"
26	(8)	10.0	"
28	(9)	10.2 R.1	"

30.12.39	(10)	10.5 c.c.	M
2.1.40	(11)	10.5	"
4	(12)	10.5	"
6	(13)	10.5 R.1	"
9	(14)	10.5	"

CASE 129. A.P. Male, aged 32 years. Single. Readmitted 22.4.38 and still in hospital.

The previous admission was from 9.2.28 to 19.4.28. Five years before this, he had been responsible for the arrangements at the launching of a ship and, as part of the arrangements, he cut a wire rope which killed a fellow-workman. Since then, he had been unable to disabuse his mind of his responsibility for the death, and his efficiency as a workman fell off. Before admission he began to suspect his parents were against him, suddenly left home and went to live in the Y.M.C.A. and began to suspect the personnel therein of tampering with his food and he thus returned home again. On admission he blamed himself for what had happened, felt that he would be better dead, wished that he were dead and had no hope for the future. He also had the feeling that people were watching him and speaking about him, and that the R.C. Church had put a curse on him. He left hospital of his own accord and was readmitted a few days later, the same mental state prevailing. Between then and the beginning of treatment, the depressive element gave place more and more to the schizophrenic with noisy, excited outbursts and gradual deterioration until, when before treatment was begun, he was beyond any verbal approach. He was in the habit of making repeated salaams and bowing movements, and, instead of talking, shouted incoherently at the pitch of his voice. This latter disappeared with the first few injections, but his gesticulations continued. He protested verbally before each injection that he was but a small boy, very humble and craving my pardon for things which he did not specify. His shouting fell to a whisper but he could not be induced to answer "yes" or

"no" to very simple questions asked him. Otherwise, treatment produced no change in his condition.

Subsequently, a course of electrical convulsive therapy was abandoned by another physician as no improvement resulted. His condition still remains the same (13.8.41).

9.12.39	(1)	7.0 c.c.	M
12	(2)	7.2	"
14	(3)	7.4	"
16	(4)	7.6	"
19	(5)	7.8	"
21	(6)	8.0	"
26	(7)	8.2	"
28	(8)	7.5	"
30	(9)	7.5	"
2.1.40	(10)	7.5	"
4	(11)	7.5	"
6	(12)	7.5	"
9	(13)	7.5	"
11	(14)	5.7	S/C
13	(15)	6.0	"
16	(16)	6.2	"
18	(17)	6.5	"
20	(18)	6.4	M
23	(19)	6.5	"
25	(20)	6.0	S/C

CASE 130. J.P. Male, aged 20 years. Single. Admitted 12.11.39 and discharged relieved 10.2.40.

He was reported as always tending to be asthmatic and to be a bright, intelligent and very determined boy, but always very self-centred. In June, 1939, while at church he suddenly shouted out "For God's sake get me some whisky" and when he was taken out he said he needed to walk ten miles. He began to make twisting and

bending movements with his body, saying he had to keep on doing it. Following 2-3 weeks of this behaviour, he was for ten weeks in another hospital in a katatonic state in which he was mute and refused food. He got very thin and "full of bedsores" and was taken out by his father who believed his son to be in danger of dying and between then and his admission on 12.11.39 was kept at home and his impulsive outbursts (to which he was also subject) were restrained by locked confinement or else in a jacket with ropes. (His feet were tied with ropes on admission.)

His father was an argumentative, cross and irritable man, very ambitious and disappointed that he had not been a greater success. A sister of the patient's was described as very hysterical.

The patient was admitted in a case of katatonic stupor, was mute, extremely negative and resistive, occasionally striking the attendants.

With Cardiazol treatment, the katatonia disappeared after the third injection and he then stated that he "wal ill" but was quite all right now. He was correctly orientated, friendly and talked sensibly. He thought, however, he had been ill for 8 or 10 days only and could not remember any details of his illness and evaded speaking about any personal points. He subsequently revealed that he was very ambitious. By 16.1.40 he had relapsed, and was hallucinating and delusional: he saw persons on the wall and spoke to them and said that he wanted to be "more of an engineer, that means eating less porridge and using it much better". He could not explain this point further but promised to write a report. Towards the end of treatment, he again improved but still held the same delusions although they were very much more concealed. He was discharged at his father's request. The post-convulsion behaviour of the second injection was of repeatedly hitting his genitals as if punishing them.

26.12.39	(1)	5.0 + 6.0 c.c.	M
28	(2)	6.0	"
31	(3)	6.0	"
2.1.40	(4)	6.0	"
4	(5)	6.0	"

6.1.40	(6)	6.0 + 7.0 c.c. M
9	(7)	6.5 "
11	(8)	6.5 + 7.0 "
13	(9)	7.0 + 8.0 "
17	(10)	8.0 "
19	(11)	7.5 + 8.5 "
22	(12)	8.5 "
25	(13)	8.25 "
27	(14)	8.25 + 9.0 "
1.2.40	(15)	8.5 "
3	(16)	8.5 "

CASE 131. N.I.H. Male, aged 49 years. Married. Admitted 3.11.37 and discharged not improved on 28.1.41.

The patient was stated to have been a heavy drinker since the Great War and before admission threatened to murder his wife if she crossed him. He drew up a deed of separation consisting of 13 pages in words that "only a madman would have used". He imagined he was bankrupt, sat gazing into the fire for long periods and on one occasion stood in one position doing nothing for over an hour. For the month preceding admission he kept getting in and out of bed, saying that the house was surrounded by detectives.

There was a history of an admission to another mental hospital on 30.8.35 for 7½ weeks in a very confused state. His blood Wassermann was strongly positive and the C.S.F. negative. The former was treated with arsenical preparations.

On admission on 3.11.37 he was at first affable, contented and happy but later demanded to know on what legal grounds he was being detained and stated he had heard rumours that an advertisement was in the "Glasgow Herald" for him. He believed his body was destroyed with the arsenical preparations that had been previously given

him. Ultimately he had to be tube fed as he refused food. When asked the reason for the refusal he would say "You know why" or "There are thousands of reasons".

Cardiazol treatment was begun in the hope that it might induce him to eat of his own accord, which it did not and it was stopped on orders received. It produced no change of any description.

He was transferred to the Crichton Royal Hospital, his condition not improved.

31.12.39	(1)	3.5	S/C
2.1.40	(2)	4.5	"
4	(3)	6.5	"
6	(4)	7.5 R.1	"

CASE 132. D.A.M. Male, aged 27 years. Single. Admitted 22.12.38 and still in hospital.

There was a history of mental instability on the other's side, though neither she nor her brothers and sisters had ever received hospital treatment for it, save one treated for alcoholism: another brother had committed suicide.

The patient had been spoiled since infancy when he was late in reaching the landmarks of progress. At school he had been the victim of homosexual assault by a janitor after which assault he took crying turns at night. He was given to masturbating frequently. His illness began to show in a frank form two years before admission when he began to suspect that the men he worked beside were all against him and that he was unable to drive a motor as his foot was crinkled up, the result, he said, of a word which someone said although he did not know what this word was. He was in two mental hospitals (exact dates uncertain) as his condition did not improve.

On admission on 22.12.38 he showed considerable thought blocking and when spoken to frowned hard and appeared to make a great effort at concentration. He frequently got in and out of bed and moved his arms about as if he were warding off an attack, and then struck out at attendants and patients. He showed some improvement, after a course of Insulin treatment lasting sixty days in that he no longer attacked people and was amenable, but would not speak save in monosyllables and only after considerable delay. A course of Triazol treatment by another physician (consisting of 15 injections with the production of twelve convulsions between 10.5.39 and 17.7.39) produced no improvement nor was any in evidence up until I recommenced treatment. By this time he was almost entirely mute and inaccessible and all the livelong day he performed the same stereotyped actions. He believed that his brain had slipped down the back of his skull and there was a compensatory bending of his head forwards and to the right: his shoulders were similarly lurched forward. In this posture he would pace round a circle of about nine feet in diameter all day long, halting abruptly every now and then as if he heard a voice speaking to him and as if he had halted, either to listen the better or else as a result of an injunction received. As he moved round in this circle, he invariably kept his hands in his jacket pockets, the jacket being tightly buttoned around him. At the beginning of treatment, he showed a marked resistance to the injections and, at these times, was frequently very haughty and grandiose concerning those around him. He spoke in a very deprecating manner to me and the other attendants and exclaimed such things as "I don't want your damned injections, God blast your soul!" His stooping posture gradually became less marked and instead of walking around the circle his routes became more devious and he came to read newspapers, listened to the wireless and on one occasion sang to a tune which was being played. He became more grandiose, however, and insisted on being called Sir D.M. It was obvious, however, that none of his underlying beliefs had been more than superficially influenced and he soon relapsed on the termination of treatment and still remains (18.8.41) in the same state.

4.1.40	(1)	5.5 c.c.	M
6	(2)	5.7 R.1	"
9	(3)	6.7	"

11.1.40	(4)	6.9	c.c.	M.
13	(5)	7.1		"
16	(6)	7.3		"
18	(7)	7.5		"
20	(8)	7.7		"
23	(9)	7.9		"
25	(10)	8.1	R.1	"
27	(11)	9.1		"
30	(12)	9.3		"
1.2.40	(13)	9.5		"
3	(14)	9.7		"
6	(15)	9.9		"
8	(16)	10.0		"
10	(17)	10.2		"
13	(18)	10.0		"
15	(19)	10.0		"
17	(20)	10.0		"

CASE 133. F.G.A. Female, aged 49 years. Married. Readmitted 11.11.39, discharged recovered 6.4.40.

Her previous admission was from 9.9.39 to 23.9.39 for an attack of mild depression from which she recovered. Before admission she had gone off her sleep and had spent most of the day emptying drawers and folding and unfolding their contents. She also developed an obsession about washing, had an idea that her money was done and that she was like an outcast. Between her dismissal and her readmission, she was again troubled with marked sleeplessness, had frequent bouts of crying, and maintained that there was something wrong with the house. On her readmission she frequently interjected that "I don't know what is happening at all!" Her affect was one of mild depression and she could be induced to talk little, so preoccupied was she with the thought of her own worries, which, however, she did not clearly specify beyond stating they concerned her family and her husband. (Actually she had no real cause to worry about them.) Before treatment was begun she was in a restless, agitated, impulsive and truculent state against which ordinary ward

measures were of no avail. These unwelcome features disappeared after her first injection of Cardiazol and thereafter she showed a steady, progressive improvement, but was quite lacking in any insight into her past condition and still inclined to revert to the topic of her husband and family.

A month later there was a relapse from which she recovered unaided and was ultimately discharged.

3.1.40	(1)	4.5 c.c.	M
5	(2)	4.7	"
8	(3)	4.9	"
10	(4)	5.1	"
12	(5)	5.3 R.1	"
15	(6)	6.3	"
17	(7)	6.5	"
19	(8)	6.7	"
22	(9)	6.0	"
26.2.40	(10)	6.0	"
28	(11)	6.0	"
1.3.40	(12)	6.0	"
4	(13)	6.0	"
6	(14)	6.0 R.1	"
8	(15)	7.0 R.1	"
11	(16)	8.0	"

CASE 134. M.I.G. Female, aged 49 years. Single. Readmitted 1.1.40, discharged relieved 19.3.40.

Before her previous admission (18.9.39 to 17.10.39 when she was discharged not improved) no notes concerning her were forthcoming, and on admission she was restless and gave the very definite impression that she was suffering from auditory hallucinations. It was difficult to secure a full history partly on account of a very severe degree of functional deafness and partly because she said her memory was poor and she was therefore unable to recollect much concerning herself. A "nervous

breakdown" occurred five and a half years previously following the selling of a house to which she was much attached. The symptoms were those of a mild depression. She now heard voices speaking to her and she was hypochondriacal. Her affect was one of mild depression with some agitation, but it was observed that she was restless only when there was an audience.

The same state was present on her readmission when she asked for "sleep treatment" or else the question "Can you not do something for me?" Under Cardiazol treatment she improved to the point of denying that she had ever heard voices speaking to her and of a definite improvement resulting in her deafness. She occupied herself with doing miniature water-colours of still life devoid of any true artistic merit, but was ever ready to detail to any audience her hypochondriacal complaints. After the injection on 5.2.40 she became very confused and restless, completely disarranged the bed clothes and then sat down in the centre of the bed among the crumpled sheets like a child sitting pleased with itself amid a heap of smashed toys. This confusion lasted for four days and it was after this had passed that she became more accessible from the psychotherapeutic viewpoint.

8.1.40	(1)	4.5 c.c.	M
10	(2)	4.7 R.1 + 5.0	S/C
12	(3)	6.0 R.1 + 7.4	M
15	(4)	7.5	S/C
17	(5)	8.5	M
19	(6)	8.7	S/C
22	(7)	8.7	M
24	(8)	8.9	"
26	(9)	9.1	"
29	(10)	9.3	"
31	(11)	9.5	"
2.2.40	(12)	9.7	"
5	(13)	9.9	"
7	(14)	10.1	"
9	(15)	10.3	"
12	(16)	10.0	"
14	(17)	10.0	"
16	(18)	10.0	"
19	(19)	10.0	"
21	(20)	10.0	"

CASE 135. I.McM. Female, aged 20 years. Single. Admitted 5.1.40, discharged relieved 5.4.40.

Following an appendicectomy at the age of 12 (she was unpopular with the nurses and regarded as a spoiled child) she remained at home for a year in a state of comparative helplessness complaining that she could not walk and having to be carried upstairs. She also showed an increase of fears which had previously existed, of the dark and being left alone. At school she was above average but was particularly nervous about examinations. Although taking her Higher Leaving Certificate she did not proceed to the University but went straight to the Training College for teachers and was much concerned lest she should not do well: she had a "nervous breakdown". In the few months preceding admission she had been studying nursing and talked a good deal about syphilis and gonorrhoea. She was also worried about her boy friend who was in the Territorial Army and who was called up on the outbreak of war.

During her first breakdown in 1937 she became quiet and did not want to see anybody. She imagined everyone was speaking about her and was very self- depreciatory: she made a suicidal attempt by gassing. She remained depressed for three months and after a period of two weeks' transition passed into an excited phase when she was extremely active, did a great deal of dancing and generally had a good time. She was self-assertive, supremely confident and described her previous friends as "a hopeless crowd". At Christmas 1938 she again became depressed after reading about dementia praecox: the depression lasting six weeks. Her present attack was not preceded by depression and began a fortnight before admission when she was in a tram where a small boy was unable to pay his fare. At home she began to throw things around the room and to shout "Heil Hitler!" Ultimately she took no interest in her personal appearance and began to refuse her food.

On admission she was extremely excited, unable to settle, tore things up in the room and would not stay in bed. She shouted constantly, using flippant and abusive language and flitted constantly from one topic to another. She did not elaborate any of these but two topics

constantly recurring, one concerning her boy friend, now called up, and the other to some young man who had been pressing in his attentions. She was very distractible and spoke in an affected, mocking, childish way. She was correctly orientated.

She actively resisted Cardiazol treatment during which the hints of depression present on admission became more marked. Other than that, the only thing that treatment seemed to do was to rob her of her wild behaviour and make her more amenable to ward routine. She displayed no initiative or interest in her appearance.

Some weeks after treatment was terminated she began to show a superficial improvement: she realised she had been ill and mentioned some of the items which contributed to her illness, but she showed no grasp of the seriousness of her condition and could only give a meagre account of the previous difficulties. This state continued until taken out of hospital by her family who were anxious to have her home.

10.1.40	(1)	4.5 + 5.5 c.c.	M
11	(2)	6.5 + 6.0 + 7.0	"
16	(3)	6.5 + 7.5	"
18	(4)	7.5	"
23	(5)	7.7	"
25	(6)	7.9	"
30	(7)	8.1	"
1.2.40	(8)	8.3	"
3	(9)	8.5 R.1	"
6	(10)	9.5 R.1	"
8	(11)	10.5	"
10	(12)	10.5	S/C
13	(13)	10.5	M
15	(14)	10.5	"
17	(15)	10.5	"
20	(16)	10.5	"

CASE 1356. E.F. Female, aged 43 years. Single. Admitted 12.12.31, discharged 1.7.40 as "relieved".

She had previously been a patient in Hawkhead Mental Hospital from 4.11.06 and discharged recovered on 11.4.08 suffering from what was apparently a schizophrenic episode, and again a patient in Dykebar Mental Hospital from 28.2.15 until her transfer on 5.1.16 to Ayr District Asylum from where she was transferred to Armagh District Asylum, Ireland, on 4.7.17 whence she was discharged completely recovered in June, 1918. Since then she had worked as a domestic and ultimately cook-general until six weeks before admission when she became "hysterical, laughing and crying and singing". She was very difficult to manage.

On admission she was a thinly-nourished woman with her cardiac dullness extending to the left to four inches from the mid-sternal line. Her mental state was as before admission and she gave a poor account of herself. By 30.6.37 she was reported as being very demented and having frequent and very acute outbursts of shouting and screaming and scrambling about on the floor.

Before treatment was begun she was very regressed and usually to be seen half-naked squatting beside a radiator with the floor soiled with urine and faeces. She was impulsive at times, smashing a window and chair and hitting another patient on the head with a piece of the chair. She tore all the clothes put on her. The end of treatment found her depravity and uncleanly habits gone and she no longer tore her clothes. She helped the staff not a little by doing table-work at meal times and helped in the small ward kitchen washing and drying dishes. She was in the habit of mis-identifying the sister in the ward whom she called Kate. She did not enter into spontaneous conversation, but replied in monosyllables to questions asked of her. She had little insight into her past and also present condition. During a trial period at home before her ultimate dismissal she was reported as doing ordinary housework very satisfactorily and appearing happy and contented.

15.1.40	(1)	4.5 c.c.	M
17	(2)	4.5	"
19	(3)	4.5	"

22.1.40	(4)	4.5 c.c.	M
24	(5)	4.5	S/C
26	(6)	5.0	M
29	(7)	5.2	"
31	(8)	5.4	"
2.2.40	(9)	5.6	S/C
5	(10)	6.6	M
7	(11)	6.8	"
9	(12)	7.0	"
12	(13)	7.0	"
14	(14)	7.0	"
16	(15)	7.0	"
19	(16)	7.0	"
21	(17)	7.0	"

CASE 137. I.M. Female, aged 49 years. Single. Readmitted 1.10.39 and discharged recovered 3.3.40.

Following her previous discharge (13.8.36 - 10.4.37) she remained well until six weeks before readmission when she began to show evidences of her former maniacal state, her talk becoming "random and noisy". This state becoming worse, she was readmitted, and was typically maniacal in which talkativeness, flight of ideas and psychomotor activity were marked.

Her condition remained the same until treatment was begun when an improvement showed even after the first injection. There was nothing significant to note in connection with her slow steady improvement. Instead of her scraggly maniac letters she now wrote in a distinctive coherent style. She became tidy in her appearance and her interfering habits disappeared. She, however, showed no insight into her illness newly passed.

15.1.40	(1)	4.5 c.c.	M
17	(2)	4.7	S/C
19	(3)	4.9	"
22	(4)	5.1	M

24.1.40	(5)	5.3 c.c.	S/C
26	(6)	5.5	"
29	(7)	6.5	M
31	(8)	6.7	S/C
2.2.40	(9)	7.0	"
5	(10)	8.0	M
7	(11)	8.2	S/C

CASE 138. M.B.R. Female, aged 57 years. Married. Readmitted 27.4.38 and still in hospital.

Previous admissions were 3.12.27 to 27.3.29, 20.4.29 to 4.8.34, and 14.4.38 to 24.4.38. Even previous admissions were recorded, e.g., from April, 1911, - June, 1912, when she was in a state of great depression, showed agitation and was suicidally inclined: from Oct., 1917, to June, 1920, when she was admitted in a typically maniacal state. From 3.12.27 to 27.3.29 she was treated for mania: from 20.4.29 to 4.8.34 for depression which passed into a mania and from 14.4.38 to 24.4.38 for mania and on her readmission on 27.4.38 for agitated melancholia which rapidly passed to a mania in which she, owing to her restlessness, sustained an impacted fracture of the surgical neck of the right humerus on 10.8.38.

Before treatment was begun she was in a typical maniacal state. After her first convulsion she was typically depressed for a few hours. On 19.1.40 after her sub-convulsive dose she stated "I'd rather be put away", meaning that she had a preference for that dose after which she remembered nothing, i.e., a convulsive dose. On 25.1.40 she became permanently depressed and asked to be taken to theatre to be done to death with chloroform. On 6.2.40 she suddenly swung into her old maniacal state and after her sub-convulsive dose on this date asked "Would you like me to present you with these teeth, doctor?" - her artificial ones. She again passed into a depression on 16.2.40 and described herself as a "shivering mass of corruption". She was afraid of the injections

making her blind.

Her condition remains (8.9.41) the same.

15.1.40	(1)	4.0	c.c.	M
17	(2)	4.0		S/C
19	(3)	4.2		"
22	(4)	4.5		M
24	(5)	4.0		S/C
26	(6)	4.2		"
29	(7)	5.2	R.1	M
31	(8)	6.2	R.1	"
2.2.40	(9)	6.8		S/C
16	(10)	6.0	R.1	M
4.3.40	(11)	7.0		"
6	(12)	7.2	R.2	"
8	(13)	8.2		"
11	(14)	8.4		"
13	(15)	9.0		S/C
15	(16)	5.0 +	10.0	M
22	(17)	10.0		"
26	(18)	10.0		"

CASE 139. H.M.R.T. Female, aged 22 years. Single. Admitted 9.8.30 and still in hospital.

As a baby she had been premature, had been difficult to rear and had had convulsions during teething. She was always very shy in company and preferred to stay at home. At the beginning of 1930 she became "difficult" at home, was impertinent to her parents, very irritable and conceived a strong dislike to a sister who was about to be married. Her employers reported (she was a typist) that her work was unsatisfactory, she got things mixed up and made frequent mistakes: her dismissal she treated as a great joke. At home thereafter, she became very preoccupied, sat silent for long hours and would laugh for no apparent cause. At other times she was elated and sang. She began to refer things she read in the

newspapers to herself. She said she was Amy Johnson yet wrote a letter to the King signing herself H.T.

Her mental state on admission was typically one of dementia praecox and she underwent a progressive deterioration with impulsive outbursts and abusing her mother whenever the latter came to visit her. When treatment was begun it was not possible to make any contact with her: she would either run away or else smile inanely whenever she was spoken to. Treatment produced no change other than that she became more animated in her behaviour, impulsively running about the ward all day, and doing such things as drawing her clothes above her knees like a woman wading. On 13.2.40 she attacked a nurse going to dress her after her treatment. At present (19.8.41) her condition is unchanged, save that she is now more amenable to ward routine.

15.1.40	(1)	4.5 c.c.	M
17	(2)	4.7	"
19	(3)	4.7	"
22	(4)	4.7	"
24	(5)	4.7	"
26	(6)	4.9	"
29	(7)	5.1	"
31	(8)	5.3	"
2.2.40	(9)	5.5	"
5	(10)	5.7	"
7	(11)	5.9	"
9	(12)	5.9	"
12	(13)	5.9	S/C
14	(14)	6.5	M
16	(15)	6.5	"
19	(16)	6.5	"
21	(17)	6.5	"
23	(18)	6.5	"
26	(19)	6.5	"
28	(20)	6.5	"

CASE 140. M.M. Female, aged 46 years. Single. Readmitted 7.1.39, discharged recovered 22.4.40.

Her previous admission was from 29.5.38 to 5.1.39 when she was stated to have lived a very active life and to have had many friends. She was happy and contented and had never given anyone any cause for worry until after the death of her father on 11.12.37 when she stated that she was the cause of it. A month before admission she said that she had lost her conscience and could not think. She appeared very depressed and repeated that she had brought bad luck into the house: her sleep was poor. Just before admission she had been staying up all night, crying and complaining of her inability to sleep.

On her first admission, her mental state was one of depression into which an agitated element gradually intruded, and at times she would sit up in bed maintaining the lamentable chant of "I want to go home". Sometimes she required to be spoon fed. Somnifaine treatment was administered between 8.11.38 and 17.11.38 with no improvement resulting in her mental state which continued to her dismissal. Her relatives insisted that she should be tried at home where she was found impossible to manage and readmitted two days later.

From then until treatment was begun there was a gradual deterioration in her mental state until she came to lie all day curled up on her side beneath the bed clothes. Any attempt made to go near her was invariably met with a volley of oaths. She was somewhat depraved in her habits and she was at times impulsive. She occasionally required to be fed. Any mental approach to her was impossible.

After her first convulsion she no longer swore and cursed when she was approached. A slight rise of temperature caused the treatment to be stopped on 24.1.40 but was recommenced on 29.1.40. The aura she experienced seemed to be of a particularly terrifying nature and on 5.2.40 after the injection she maintained that she had died, so disconcerting did she find the aura. At this period it was noted that her habits were definitely better. From 6.2.40 to 13.2.40, however, she went into

a stuporose state after which she improved, but it was not until 21.2.40 that she admitted spontaneously to a great improvement, saying that she felt astonishingly well, indeed better than she had ever been. Mentally, she seemed normal and took great interest and enjoyment in the ward work. A disquieting feature of her case, however, was the fact that she had no insight into her past illness which she was very reluctant to discuss. This state continued until her dismissal save for a threatened relapse which responded to one further Cardiazol convulsion by another physician.

(There was a further admission subsequently from 17.7.40 to 1.2.41 for a recurrence of the same condition and which responded to electrical convulsion therapy.)

15.1.40	(1)	4.5 c.c.	M
17	(2)	4.7	"
22	(3)	3.5	"
24	(4)	3.5	"
29	(5)	3.5	S/C
31	(6)	4.0	"
2.2.40	(7)	4.5	"
5	(8)	5.0	"
7	(9)	5.5	"
9	(10)	6.5	M
12	(11)	6.7	"
14	(12)	6.7	"
16	(13)	6.9	"
19	(14)	7.1	"
21	(15)	7.3	"
22.3.40	(16)	9.0	"

CASE 141. M.T. Female, aged 39 years. Married. Readmitted 3.4.37 and still in hospital.

It was stated on her previous admission (2.7.36 - 1.3.37) that a maternal aunt had died in a Mental Hospital and that a cousin suffered from epilepsy. The

patient herself had been a nervous child and spoiled. She was afraid of the dark and suffered from nocturnal enuresis until she was 14 years of age. She was very shy and had an excessive degree of modesty. She had been married 9 years on her first admission, and after the second of two miscarriages (she had no children alive) four years before had been advised by her doctor to eat plenty in order to regain her strength. She began eating excessively and had attacks of breathlessness which made her imagine she was suffering from heart disease, that her "organs" were upside down and that she ought to stand on her head in order to remedy this. She became lazy and untidy and lost all interest in her house, "simply letting things slide". Her excessive eating continued and she felt that she had to eat in order to live. Her attitude in this could not be shaken and her admission to hospital was sought. On admission she gave expression to bizarre schizophrenic delusions, e.g., she felt "I am simply crushing it (food) down and filling up a large hole, and yet I cannot stop eating". Her arms felt as if they were made of rubber, then that they were made of match sticks and that there was no blood flowing through them. She felt that when she walked she was walking on wood. No change resulted in her condition during her period in hospital.

Her delusions were the same on her readmission but now she stated she was having great difficulty in swallowing and she was taking her food with great reluctance. Before treatment was begun she finally refused to take any food and had from that gradually passed into a stupor. On 19.1.40, two hours after her second convulsion, she suddenly awoke from her stupor and asked "Have I been sleeping?" From that point the patient showed a steady progressive improvement with return of her appetite. Her child-like facility, however, which characterised her speech and behaviour was uninfluenced. She described her experiences during her stupor in which she kept company with God, Christ and attendant spirits, was sometimes terrified by evil spirits but God was always victorious over these. She confessed to a hankering to return to this state which was more real to her at the time, she said, than her waking existence now was. Her condition (19.8.41) remains the same.

17.1.40	(1)	4.5 c.c.	M
19	(2)	4.0	"
22	(3)	3.8	S/C
24	(4)	4.0	"
26	(5)	4.2	"
29	(6)	4.5	"
31	(7)	5.5	M
2.2.40	(8)	5.7	"
5	(9)	5.9	"
7	(10)	6.1	S/C
9	(11)	7.0	M
12	(12)	7.2	"
14	(13)	7.2	"

CASE 142. A.S.T. Female, aged 37 years. Married. Readmitted 1.12.38, and still in hospital.

On her first admission (28.2.38 - 11.8.38 when she was discharged not improved) she was stated to have always been of a nervous, highly strung nature, inefficient as a mother (she had two children) and housekeeper. She was exceedingly self-conscious at all times. For two years before admission she made periodic visits to her doctor and accused her husband of immorality with other women. She periodically retracted these accusations but would turn up again with further accusations. Six months before admission she said her husband was no longer hers but was the husband of her sister and again of her mother. She accused her neighbours of having immoral relations with men including her husband. She was convinced everyone was against her and interfering with her in a sexual way. She confirmed all these points on admission and was facile and inconsequential in her talk. During her 28 days pass at the end of her first admission she behaved asocially and would talk of sex in front of visitors and her children, many of her references being indecent. On her readmission she stated that her husband did not have his own eyes. Her replies to questions were irrelevant and she was typically a paranoid schizophrenic. She

continually asserted that she was fit to be at home. This state persisted until Cardiazol treatment was begun, treatment producing no change in her mental state. Her condition remains (19.8.41) the same.

17.1.40	(1)	4.5 c.c.	M
19	(2)	4.7 R.1	"
22	(3)	5.7	S/C
24	(4)	6.5	M
26	(5)	6.7	S/C
29	(6)	7.7	M
31	(7)	7.9	"
2.2.40	(8)	8.1	"
5	(9)	8.3	S/C
7	(10)	9.3	M
9	(11)	9.5	"
16	(12)	9.6	"
19	(13)	9.6	"
21	(14)	9.6	"
23	(15)	9.6	"
26	(16)	9.8	"
28	(17)	10.0	"
1.3.40	(18)	10.2	"
4	(19)	10.4	"

CASE 143. E.A.A. Female, aged 51 years. Married. Readmitted 27.4.37 and still in hospital.

On her first admission (3.11.35 - 3.6.36 when she was discharged recovered) she was stated to have always been of a bright happy disposition, had many friends, was extremely active, very proud of her two sons, and of having always been easily moved to tears, either of joy or sorrow. In the summer of 1934 following a period of excessive activity she became depressed and unable to sleep: this lasted a few weeks and she made a good recovery only to become depressed again the following summer when she attempted suicide by swallowing Sedormid tablets. Later, despite constant nursing at home, she

made a second attempt by swallowing 80 or 90 grains of Medinal. On her admission she was a typical case of depression and felt that she was beyond hope. She gradually improved with routine hospital treatment and was discharged recovered. She remained well for three months and this was followed by a maniac spell which persisted until a week before readmission when she again became depressed with considerable agitation. Her depression lasted until treatment was begun and occasionally she had outbursts of screaming or spells in which she lay in bed singing continuously and masturbating at the same time. Treatment produced no change in her condition save that she could be encouraged to speak a little more readily. Her condition remains (19.8.41) the same.

18.1.40	(1)	3.5 c.c.	M
23	(2)	2.0	S/C
25	(3)	3.5	M
30	(4)	3.5	S/C
1.2.40	(5)	4.0	M
3	(6)	4.2	S/C
6	(7)	5.0	M
8	(8)	5.2	"
10	(9)	5.4	"
13	(10)	5.6	"
15	(11)	5.8	"
17	(12)	6.0	"
20	(13)	6.2	"
22	(14)	6.4	"
24	(15)	6.6	"
27	(16)	6.8	"
29	(17)	7.0	"
2.3.40	(18)	7.2	S/C
5	(19)	8.0	M
7	(20)	8.2	"

CASE 144. G.T. Female, aged 48 years. Married. Readmitted 18.4.39 and still in hospital.

On her first admission (2.10.37 - 2.7.38 when she was discharged relieved) it was stated that her mother was depressed for many years "in a mild way". The patient was stated to have always been quiet and reserved and disinclined to give many confidences. She was married in 1918 and had a happy married life, was easy to get on with and was meticulously clean and tidy, "everything having to be in its proper place". The summer before admission she was upset by a niece who was ill and she developed a hesitancy and inability to make decisions which became more and more pronounced. She was found one day sitting in a bath at home with all her clothes on and about four inches of water in it. She maintained that she had disgraced her family and that she and her husband would be hanged for attempting suicide. Throughout her stay in hospital her mental state was typically one of depression with spells of acute agitation. She did well after her dismissal until the beginning of 1939 when she began to have spells of agitation which became more frequent until the agitation became persistent during the three weeks preceding admission. She would not let her husband out of her sight and began to say how she and her husband were in debt to everyone. This state gradually subsided on her readmission but otherwise there was no change in her mental state up until treatment was begun. She was then quite mute and could not be induced to reply to any questions. Although with treatment she progressed considerably and from her mute unresponsive state came to helping in the ward and the ward kitchen, she still showed marked retardation in her replies and was very vague and indefinite when an attempt was made to discuss her illness with her. Questioned about the injections themselves, she said that after each injection before losing consciousness she felt as if the left side of her face was twisted and her eyes squinted (both things true) but could not be induced to describe her further sensations beyond saying "It's awful!" She soon relapsed after the termination of treatment and still remains (19.4.41) in the same state she was in before treatment was begun.

18.1.40	(1)	4.0 c.c.	M
22	(2)	4.2	"

23.1.40	(3)	4.2 c.c.	M
25	(4)	4.4	"
30	(5)	4.6	"
3.2.40	(6)	4.8	S/C
6	(7)	5.8	M
8	(8)	6.0	"
10	(9)	6.2	"
13	(10)	6.4	"
15	(11)	6.6	"
17	(12)	6.8	"
20	(13)	7.0	"
22	(14)	7.2	"
24	(15)	7.4	"
27	(16)	7.6	"
29	(17)	7.8	"
14.3.40	(18)	7.8	"
16	(19)	8.0	"

CASE 145. A.S. Female, aged 37 years. Single. Admitted 22.12.39, discharged recovered 23.3.40.

She was described as always having been a quiet and self-effacing child, always interested in religion and showing no interest in men to whom she believed she was sexually inadequate and unattractive. Three years before admission she became acquainted with a sailor who, as the acquaintance ripened, began to send her questionable books on sex psychology and, at a meeting a few weeks before admission, she had handled his penis, which caused her to become extremely agitated and to regard herself as very vile. She subsequently expressed the idea that she might be going to have a baby, that people could read her mind, could see her taking her clothes off and that her whole past life was illuminated. These things she confirmed on admission. She also said while her history was being taken that she could not speak without the whole world hearing, and that she heard voices repeating things that she had said or done. She felt that it was not worth while going on and that she

had thoughts concerning suicide.

She improved to the point of social recovery with treatment. During treatment she revealed guilt feelings in connection with masturbatory activities with a candle, and appeared to benefit with reassurances on this point, and of sexual adventures in her childhood with other boys and girls. On 7.1.40 she passed into a mild excited state characterised by an excessive talkativeness and the wearing of a bright silk scarf around her head. This state reached a peak on 14.2.40 after which a gradual subsidence to her normal occurred with lack of insight into the condition for which she had been admitted.

18.1.40	(1)	4.5 c.c.	S/C
23	(2)	5.5	M
25	(3)	5.7	"
30	(4)	5.9	"
1.2.40	(5)	6.1	"
3	(6)	6.3	"
6	(7)	6.5	"
8	(8)	6.7	"
10	(9)	6.9	"
13	(10)	7.1	"
15	(11)	7.3	"
17	(12)	7.5	"
20	(13)	7.7	"
22	(14)	7.9	"
24	(15)	8.1	"
27	(16)	8.3	"
29	(17)	8.5	"
2.3.40	(18)	8.7	"
5	(19)	8.9	"
7	(20)	9.1	"

CASE 146. A.G.F. Female, aged 21 years. Single. Admitted 20.12.21, and still in hospital.

She was transferred from another hospital. Her father was stated to be an alcoholic and a paternal aunt was stated to have been in a mental hospital. The patient was stated to have been a vain child, to have been fond of reading and music. There was a history of her having been in a mental hospital on 11.3.20 when she was excited, elated, restless and noisy, and talking at the pitch of her voice. After her admission on 20.12.21 she stood or sat about unoccupied and often laughed for no apparent reason. Her replies to questions were never to the point, her power of attention was impaired. She frequently grimaced, puckering her brows, blinking her eyes and pursing her lips. She showed a degree of flexibilitas cerea. Until treatment was begun she showed a steady and progressive dementia with occasional periods of restlessness in which she talked constantly in an unintelligible way and spat in all directions. It was not possible to make any mental contact with her.

Treatment produced no lasting change in her condition and at present (24.8.41) she is reported as being in the same demented state.

22.1.40	(1)	4.5 c.c.	M
24	(2)	4.7	"
26	(3)	4.9	"
29	(4)	5.1	"
31	(5)	5.3	S/C
2.2.40	(6)	5.5	"
5	(7)	6.5	M
7	(8)	6.7	"
9	(9)	6.9	"
12	(10)	6.9	S/C
14	(11)	7.5	M
16	(12)	7.5	"
19	(13)	7.5	S/C
21	(14)	8.0	M
23	(15)	8.2	"
26	(16)	8.2	"
28	(17)	8.4	"
1.3.40	(18)	8.6	"
4	(19)	8.8	"
6	(20)	9.0	"

CASE 147. I.H.S. Female, aged 51 years. Married. Readmitted 20.8.36, discharged 13.3.40.

Before her first admission (1.1.28 - 4.10.28) she was reported as having been in an agitated, depressed state. On that admission she stated that she had had a "nervous breakdown" when aged 23 or 24 and another when she became converted and joined a religious sect of rather narrow persuasion. She wondered when she recollected these times if she should have been converted and if her marriage (performed in a registrar's office) was entirely legal. In general, she wondered if she had not done everything that was entirely correct. There had been one attempt at suicide on account of her depression - she was of the opinion that through her sin the Great War was caused: she had committed the unforgivable sin and was eternally damned. She gradually improved and was discharged home.

On her readmission she was in a fairly typical state of hypomania. Her condition up until the time Cardiazol treatment was begun is described in the text of the thesis as the lady much given to phantasies in which her capacity to identify was especially marked. She improved with treatment to the point of social recovery. The amnesic period following each of her injections lasted for several hours on the average and often normal rapport with her surroundings was not attained until she awoke the morning following her injection the day previously. Asked to describe her feelings concerning Cardiazol treatment, she said she could not, and further, that she herself would not, prescribe the treatment for her worst enemy.

23.1.40	(1)	5.0 c.c.	M
25	(2)	5.4	"
30	(3)	6.0	"
1.2.40	(4)	6.5 R.1	"
3	(5)	7.5	"
6	(6)	8.0	"
8	(7)	8.5	"
10	(8)	8.7	"
13	(9)	8.9	"
15	(10)	9.1	"
17	(11)	9.3	"

CASE 148. J.W. Female, aged 36 years. Single. Admitted 9.11.39 and discharged not improved on 17.5.40.

A meternal grandmother was stated to have been in a Mental Hospital. The patient was described as having always been shy, sensitive, too conscientious and religiously inclined. Following an attack of influenza in February, 1918, she remained depressed, slow and irritable until September, 1919, when she became very full of life, cheery, made puns and "wanted to be doing something all the time". This in its turn was quickly succeeded by another depressed spell when she was tearful and spoke of having lost touch with Christ and that she was bad. She was admitted to a mental hospital for three months and then discharged recovered. She remained well until four or five weeks before her admission on 9.11.39 when she became very dull and uncommunicative "as if there was a cloud hanging over her" and, a week before admission, stated that she was responsible for leading a male colleague astray in the office in which she worked (untrue). She maintained that she would be punished for this, that there was no God, and that God would have nothing more to do with her. The day before admission she drank a small quantity of lysol, the remainder of the bottle being spilled over her face, legs, chest. Evidence of the damage it caused to her face, cheek, left eye, lips and the posterior pharyngeal wall was present on admission. Her mental state was then one of extreme depression with extreme retardation and she said in reply to questions that she committed a sin (unspecified) by going against God's will. By 6.12.39 she showed some lightening of the depression and expressed guilt feelings concerning her past masturbatory activities with a pencil. By 18.1.40, however, she had gradually relapsed to her former state of depression and ultimately became mute and vigorously resisted tube-feeding which was necessary.

After five Cardiazol injections, this extreme resistance became modified and with a little persuasion she took her food for herself. She still refused to speak, however. On 12.2.40 it was noticed that after the sub-convulsive dose she was masturbating. On 26.2.40 her mental state suddenly passed into one of mania which gave place after a week to one of depression with mutism,

which lasted until the end of treatment. Soon, however, she required to be tube-fed again. Her physical state gave cause for anxiety: she was thin and under-nourished on admission and, with her refusal of food, she progressed to the point of emaciation despite tube-feeding. She was taken out of hospital by her father in view of this down-hill tendency, arrangements having been made to nurse her at home where she died on 27.5.40.

24.1.40	(1)	3.5 c.c.	M
2.2.40	(2)	3.7 R.1	"
5	(3)	4.7	"
7	(4)	4.9	"
9	(5)	4.9	"
12	(6)	4.9	S/C
14	(7)	5.5	M
16	(8)	5.7	"
19	(9)	5.9	S/C
21	(10)	6.5	M
23	(11)	6.7	"
26	(12)	6.9	"
28	(13)	7.1 R.1	"
1.3.40	(14)	8.0	"
4	(15)	3.5	S/C
6	(16)	5.0	"
8	(17)	5.5	"
11	(18)	6.0	M
13	(19)	6.0	S/C
15	(20)	6.2	M

CASE 149. J.P. Female, aged 21 years. Single. Admitted 2.9.34 and still in hospital.

No details concerning her previous or family history were forthcoming. She suddenly became ill two months before admission by beginning to sing loudly in the early morning. Thereafter she became "dull" and refused to speak to anyone in the house. She was kept in bed when she "had fits of screaming and shouting". Later

she stated that her brothers were talking and laughing about her (untrue) and that voices were speaking outside her room. She began talking to pieces of furniture as if they were human beings and took to wandering out of the house in her night attire. A few days before admission she smeared all her body with tooth paste.

On admission her schizophrenic state was much in evidence and she giggled when she was spoken to. Between that date and the beginning of treatment no real rapport with the patient was secured and she showed a steady and progressive mental deterioration, interrupted by spells in which she was noisy, restless and impulsive. Eventually she was confined to bed which she soiled with urine and faeces, occasionally darting from bed to destroy articles or throw them about. She frequently cursed and swore in a loud voice.

Under treatment this latter feature at first disappeared as also did her impulsiveness until 19.2.40 when a relapse occurred. On 14.2.40 before convulsing she exclaimed "You've nearly killed me!" and immediately before that she talked of someone called "Bill" and on 21.2.40, in the same circumstances, of someone called "Bob". At other times before convulsing she scolded some girl for having done something wrong (sexually), the girl obviously being herself. The termination of treatment left her in the same condition she was in when it was begun. She still remains (19.8.41) the same.

24.1.40	(1)	4.0 c.c.	M
26	(2)	4.2	"
29	(3)	4.4	"
31	(4)	4.6	"
2.2.40	(5)	4.8	"
5	(6)	5.0	S/C
7	(7)	5.5	M
9	(8)	5.7	"
12	(9)	5.9	"
14	(10)	5.9	"
16	(11)	5.9	S/C
19	(12)	6.5	M
21	(13)	6.7	"
23	(14)	6.9	"
26	(15)	7.1	"

28.2.40	(16)	7.3 c.c.	M
1.3.40	(17)	7.5	"
4	(18)	7.7	"
6	(19)	7.9	"
8	(20)	8.5	"
11	(21)	8.7	"

CASE 150. A.M.C.MacD.S. Female, aged 34 years. Single.
Admitted 30.11.29 and still in hospital.

Her mother was stated to be a paranoiac and lived apart from her family. Her elder sister had a nervous breakdown in which she imagined people were talking about her. The patient was stated to have been backward at school, to have been a poor mixer, had few friends and did not play games. The state of her mother's mental health was said to have had a marked upsetting influence upon her. Two years before admission the patient developed the idea that she was delicate and for a number of months lay in bed more or less continually, and began fasting under the belief that this would help her. She gradually developed the idea that others were putting their wills against hers and that she had to resist at all costs. She came to think she was a person of some importance, that she was really a daughter of Lady Asquith, that she had an unlimited banking account on the strength of which, just before admission, she ordered a motor car and a fur coat.

Since admission she remained very deluded and suspicious with, at times, episodes of excitement. She usually adopted a superior and aloof attitude to the staff whom she thought were exerting some control over her by "foul influences". She was often to be seen answering imaginary voices.

Immediately before treatment was begun she was in a very agitated, restless state and shouted in a loud

voice in reply to the voices she was hearing. On 26.1.40 before her second injection she said that what she needed was really not the injection, but love, and repeatedly asserted that she could not live without love: she also stated that her real name was Jane MacGregor Robertson. On 2.2.40 a slight improvement was noticed in that she now began to call the ward sister by name, which she had not previously done, began to ask for her father and mother, stating that she was going to get well enough to get home, but then remarked "What's the use?" and "I won't be of use to anyone". Her restlessness and agitation had diminished, but a considerable degree of dementia was present and her contact with her surroundings was poor. On 19.8.41 she was reported as "remains demented and her level of activity is very low".

24.1.40	(1)	4.0 c.c.	M
26	(2)	4.2	S/C
29	(3)	5.2	M
31	(4)	5.4	"
2.2.40	(5)	5.6	"
7	(6)	5.8	"
9	(7)	6.0	"
12	(8)	6.0	"
14	(9)	6.0	"
16	(10)	6.0	"
19	(11)	6.0	"
21	(12)	6.0	"
23	(13)	6.0	"
26	(14)	6.0	"
28	(15)	6.0	"
1.3.40	(16)	5.8 R.1	S/C
4	(17)	6.8	M
6	(18)	7.0	"
8	(19)	7.2	"
11	(20)	7.4	"

CASE 151. J.H.C.B. Female, aged 52 years. Widow. Readmitted 25.10.36 and still in hospital.

On her first admission (8.4.36 to 21.7.36 when she was discharged recovered) it was stated that she had always led a healthy active life until the death of her husband four years previously, the death leaving her in considerable financial difficulties. Thereafter she became irritable and disposed to worry over trifles, and although her financial position had improved the year before admission she showed no appreciation of the improvement. Three months before admission, the patient's daughter had an appendicectomy performed after which the patient had sickness whenever she ate anything. This condition persisted until a fortnight before admission when she stopped eating altogether and began talking about her husband as if he were alive and wondering why he took so long to come home from his work. She became excited, talked incessantly and for the most part incoherently: she became elated. She was admitted in an acutely maniacal state which persisted for about four weeks after which she began to improve rapidly and was discharged recovered.

She remained well at home for several weeks after which she began to show signs of anxiety. She said that she would like to return to the hospital and expressed disgust for her own house, which she said was smelly and filthy. From that time onwards she gradually became worse, became depressed and agitated and said that she had lied to everyone and that she ought to go to gaol. The week before admission she became very much worse, restless and unable to sleep at night, continually exclaiming that she had done wrong. Her condition on readmission was one of agitated melancholia. The agitated state disappeared within a few days but her depression persisted until treatment was begun. On 12.2.40 it was noticed that she spoke spontaneously and she stated among other things that she was immortal and that other people might come to harm as a result of her immortality, which, she later stated, she could demonstrate by going without food when no physical consequences would ensue. She was reported by the nursing staff as, with further treatment, more active than she hitherto had been and occypying herself with odd little jobs in the ward which required

little effort. This state persisted until the end of treatment after which she relapsed and has since shown no change (19.8.41).

31.1.40	(1)	2.0 c.c.	S/C
2.2.40	(2)	2.5	"
5	(3)	3.0	"
7	(4)	3.5	M
9	(5)	3.7	"
12	(6)	3.5	S/C
14	(7)	4.0	M
16	(8)	4.0 R.1	"
19	(9)	5.0	"
21	(10)	5.0	"
23	(11)	5.0	"
26	(12)	5.0	"
28	(13)	5.0 R.1	"
1.3.40	(14)	6.0	"
4	(15)	6.2	"
6	(16)	6.4	"
8	(17)	6.6 R.1	"
11	(18)	7.6	"
13	(19)	7.8	"
18	(20)	8.0	"

CASE 152. M.C. Female, aged 28 years. Single. Readmitted 30.1.40, discharged recovered 9.3.40.

On her previous admission (31.1.36 to 22.12.36 when she was discharged recovered) it was stated that a paternal aunt had been in a mental hospital. Her brother was Case 176 of this series. The patient was reported as being stubborn and self-willed from babyhood and from childhood onwards was a nail-biter. She was shy but not timid, never played any games and did not like gymnastics or any activities save drawing and painting. About three years before admission a nervous pupil came to the studio the patient had set up and the patient became very enthusiastic in her work with this pupil, and began to

read about psychology and occupational therapy. She became interested in "sex psychology", the occult, spiritualism and fortune-telling. Six months before admission she had spells of nervousness and excitement, in which she screamed and shouted and would do purposeless actions such as throwing her brother's socks into water, talking readily to strangers and accepting cigarettes from them. She was admitted to a nursing home and, on proving unmanageable here, to Stobhill Hospital wherein she developed ideas of reference. She was impulsive, e.g., snatching a pair of scissors and cutting one side of her hair off. She swallowed some acetic acid, two gramophone needles, a whistle from a cracker, and a hair clasp. On her admission on transfer, her mental state was described as schisophrenic, with irrelevant answers and neologisms, with spells of mutism and impulsiveness. A complete lack of emotion characterised all her behaviour. Gradually, her behaviour became entirely social and she was discharged after being on 28 days' pass.

She remained well until she was called up to an A.T.S.Searchlight unit. No medical examination was performed until six weeks after the call up, when, in answer to the questionnaire, she revealed that she had been a patient in this hospital and was discharged from the unit at the end of two months - ? for inefficiency and not because of her previous mental illness. She then went to live in a house of her own situated in comparatively isolated country and just before admission was persuaded by her sister to come into hospital again after she had telephoned this sister that she was not keeping well.

She was readmitted in a restless state with excessive talk and slight elation and abruptly passed into a restless mute state which disappeared after her first Cardiazol convulsion. She then informed me that she was possessed of a double personality and that this other personality had been speaking to her for the previous 8 or 9 years. She also stated that she was, if anything, over 100 years old; age, she said, was not really measured by actual life on this earth but was a thing purely dependent on the ability with which one could use the mind and memories of other people: and it was this ability so sharply developed in her which made

her so old. She revealed much guilt feeling in connection with her sexual preoccupations. After her Cardiazol injections she felt very frightened owing to the sensation she experienced of being very light in weight - as if she were actually floating above the bed and that there was another part of her outside her body surveying this scene and that she could see our faces as she looked down at us (myself and the nurse) although she was conscious that we were actually above her. Her behaviour again gradually became more social and she was discharged relieved.

31.1.40	(1)	3.0 c.c.		M
2.2.40	(2)	3.2	4.2	"
5	(3)	4.5		"
7	(4)	4.7		S/C
9	(5)	5.5		M
12	(6)	5.7		"

CASE 153. J.S.P. Female, aged 35 years. Single. Admitted 24.12.39, discharged recovered 1.5.40.

Her father was described as eccentric, refused to mix with people, had a great many fads and did everything to the second. Her mother had been a patient in this hospital and also her sister (Case 155). The patient herself was described as energetic and domineering and took charge in the house after her father's death in 1929, her mother then becoming senile and indifferent. No information was forthcoming concerning the illness for which she was admitted other than she had been "interested" in the chauffeur-gardener attached to the house. On his being called up for Army service, the patient had attempted suicide by slashing her wrist with a razor immediately before admission.

She was a grossly obese woman (B.P. = 170/110) with a series of small lacerated wounds on her left wrist. While these were being attended to, she lay in a dull,

inattentive state, keeping her eyes covered with her clasped free hand. She answered questions reluctantly and asked to be allowed to work in the kitchen or at charwoman's work as that was all she deserved. She was obviously very depressed, and, when asked to mention any factors which might have brought on this depression, she gave a very scrappy account of the chauffeur-gardener in whom both her sister and herself took an undue interest. Two days after admission she broke a window and lacerated her other wrist: ordinarily she lay in bed in what appeared to be a depressive stupor and could not be induced to reply to questions - a state which prevailed until 19.2.40 when she stated that she felt "like coming out of a dream". Her resistance to the injections was very marked and on 20.2.40 when she saw me coming she immediately ran out of the ward in an endeavour to escape. On 29.2.40 her recovery from unconsciousness was very quick and there ensued a marked struggle with the nurses which lasted for five minutes: she then lay on her back on the floor of the ward making peddling movements with her legs, movements which seemed to afford her much pleasure and satisfaction. She did not improve beyond reaching the stage of a mild depression and was eventually taken out under her aunt's care.

8.2.40	(1)	4.0 c.c.	S/C
10	(2)	5.0	"
13	(3)	6.0	"
15	(4)	7.0	M
17	(5)	7.2	"
20	(6)	7.4	"
22	(7)	7.6	S/C
24	(8)	8.5	M
27	(9)	8.7	"
29	(10)	8.9	S/C
2.3.40	(11)	9.9	M
5	(12)	10.1	"
7	(13)	10.3	"
9	(14)	10.5	"
12	(15)	10.5	"

CASE 154. A.C.C.S. Female, aged 53 years. Single. Admitted 18.12.34, discharged recovered 6.6.41.

Her mother became acutely depressed about the age of forty and killed the youngest child of the family. The patient herself was described as a very active, sociable woman. She nursed a sister dying of progressive bulbar palsy in 1920 and was greatly affected mentally by her sister's suffering and death. After her father's death in 1931, the patient began to show great concern for her physical health and complained of tiredness - symptoms concomitant with the onset of the menopause. She lost interest in her work and, besides the fatigue, complained of a general feeling of misery. In the summer of 1933 her appetite failed, she began to sleep badly and became somewhat depressed. A slight improvement occurred after some weeks and lasted until October, 1934, when she became acutely depressed until, ultimately, with the difficulty in feeding her and her loss of weight she was admitted to hospital.

She then lay in bed in a depressed stuporose condition and apart from an occasional "Oh, dear, oh!" she did not speak. This condition lasted up until treatment was begun save that she was taking her own meals unaided and that she was allowed up dressed: she sat the livelong day on a chair, her right hand held up over her forehead covering her eyes. It was not possible to make any mental contact with her. As a result of treatment she showed improvement in that she began to take notice of her surroundings and was reported as timidly entering into conversation with other patients. Treatment was stopped owing to the occurrence of a comminuted fracture involving the head and neck of the left humerus, and her mental condition soon relapsed. After a course of electrical convulsion therapy by another physician from 6.12.40 to 16.4.41 she again showed improvement which was maintained and progressive to the point of social recovery.

15.2.40	(1)	4.0 c.c.	M
17	(2)	4.5	"
20	(3)	4.7 + 5.7	"
22	(4)	6.0	"
24	(5)	6.2	"

CASE 155. E.W.P. Female, aged 35 years. Single. Readmitted 26.12.39, discharged recovered 1.5.40.

For family history see that of her sister, Case 153. She was stated on her first admission from 26.6.28 to 24.12.28 to have always been very sensitive and easily upset. For two weeks before her first admission she was said to have become very depressed and, on the afternoon of admission, played the piano for 1 and a half hours after which she started to shout at her sister, saying that the latter was trying to kill her. She struck her relatives and became rather excited. On admission, however, she was in a stuporose state and would not co-operate in any way: she lay quietly with her eyes closed and occasionally let out a high-pitched shout. She was regarded as a katatonic schizophrenic and gradually improved to the point of social recovery. On her second admission she was again in a state of katatonic stupor with again the same recovery. On her readmission on 26.12.39 she was in a state which vacillated between spells of stupor and noisy excitement when she kept humming and singing. She answered no questions.

This state lasted until treatment was begun: nothing of note occurred during it save that she showed a steady progressive improvement to the point of social recovery with no insight of any description into the illness from which she had recovered.

15.2.40	(1)	4.0 c.c.	S/C
17	(2)	5.0	"
20	(3)	6.0	M
22	(4)	6.5 R.1	"
24	(5)	7.5 R.1	S/C
27	(6)	9.0	M
29	(7)	9.2	S/C
2.3.40	(8)	10.2	"
5	(9)	10.5	M
7	(10)	10.5	"
9	(11)	10.5	S/C

CASE 156. S.S. Female, aged 63 years. Widow. Admitted 2.10.39, discharged relieved 15.6.40.

There were no points of note forthcoming in connection with her previous history. Her illness dated from the death of her husband from gastric carcinoma in March, 1939, she herself having nursed him. After his death, she became very depressed, could not settle at anything and began to state that she was in people's way. She became undecided and disposed to worry about trifles. Ultimately, before admission, she tried to commit suicide by strangulation and, after admission, by attempting to injure herself with scissors. She was a typical case of agitated melancholia and continually stated that she would be better out of this world. A month after admission she began to express beliefs that people were trying to break up her home and that the nurses in the ward were in league with these people, and that the patients in the ward were accusing her of being pregnant by her (only) son. Despite her age and her frail under-nourished condition, she was begun treatment. Oral features in the post-convulsion behaviour were marked and even after her first (sub-convulsive) injection she asked "Where are my teeth?" In addition, however, she frequently disarranged her bed only to rearrange the sheets again: this on one occasion was repeated three times and then she went into two other beds in succession. At the end of treatment she was a social recovery and found her previous delusions a fit subject for mirth.

A further admission is recorded from 6.7.40 - 27.5.41 when she was again discharged relieved after a further attack of agitated melancholia.

26.2.40	(1)	3.5 c.c.	S/C
28	(2)	4.5 R.1	"
1.3.40	(3)	5.5 R.1	"
4	(4)	6.5 R.1	M
6	(5)	7.5 R.1	"
8	(6)	7.5 R.1	"
11	(7)	8.5 + 7.5	"
13	(8)	9.5	"
15	(9)	9.7	"

CASE 157. M.C.M. Female, aged 32 years. Single. Readmitted 1.2.39, discharged relieved 16.11.40.

On her first admission (from 9.9.38 - 19.11.38) it was stated that her father had had two attacks of mental illness, one of them requiring hospitalisation. The patient herself was stated to have always been very sociable and active, but that her activities never seemed to be of a lasting character. During the three or four years immediately preceding admission she had become hypochondriacal particularly concerning her stomach for which nothing physical was found to account. She became friendly with a young man in November, 1937, and was repeatedly breaking with him only to patch up the quarrel afterwards. A week before admission they had had another quarrel after which, when she returned home, she began to speak rather wildly of him having committed suicide. Since then she had remained in an acute agitated state (which prevailed on her first admission) with some depression which gradually resolved and permitted her to be discharged relieved. She remained well for a few months, but her symptoms returned. She began to express suicidal ideas, and that she was infecting people with germs, that she was contaminating everything and that she had cancer. Her distressed state was again present on readmission and she stated she ought to have taken her life when she had had the change outside. Her behaviour until treatment was begun was characterised by frequent emotional upsets in which she wept and deplored the fact that she could not get well, that she should not be in hospital, that she was suffering from cancer, that she and Hitler had started the war and that other patients knew about her and looked at her significantly. Treatment robbed her of her emotional outbursts but not of her delusional beliefs. Before most of her injections, she would repeatedly look under the bed saying that it was abnormally warm. Occasionally she spat before convulsing as if there were a nasty taste in her mouth. With the exception of the last three injections, she was physically resistive to treatment. Before her dismissal and between then and the termination of treatment she had progressed to the point of denying that she had ever been depressed. Her belief that she had cancer was quite gone.

16.2.40	(1)	4.5 c.c.	M
19	(2)	4.7	"

21.2.40	(3)	4.9 c.c.	M
23	(4)	5.1	"
26	(5)	5.3	"
28	(6)	5.5 R.1	"
1.3.40	(7)	7.0	"
4	(8)	7.2	"
6	(9)	7.4	"
8	(10)	7.6	"
11	(11)	7.6	"
13	(12)	7.8	"
15	(13)	8.0	"

CASE 158. M.S. Female, aged 45 years. Single. Admitted 27.1.40, discharged 29.3.40.

Her father was reported as being "nervous and disposed to worry". The patient herself was described as being of a worrying nature and always took things seriously. Always reserved and quiet, she employed her spare time in reading "heavy" literature and in knitting. She had shown "no interest to speak of" in the male sex although she had had an offer of marriage (which she rejected) two years before admission, nor any interest in religion until her mental illness began. She had always lived with a sister who was a teacher in the same school as the patient. This sister was unable to explain the onset of the patient's illness other than it might be related to her own (the sister's) illness - septic tonsillitis.

This the patient confirmed as she improved after her admission and told how her sister was not expected to recover. The patient was afflicted with menorrhagia seven months previously which she took as indicative of the onset of the menopause although her subsequent periods were normal. Her mental state on admission fluctuated between agitated melancholia and one of comparative co-operation and insight. She was convinced on the evening of her admission that she had locomotor ataxia but dismissed this belief the following morning as a delusion.

She also complained of inability to concentrate, of lack of initiative and spirit. She felt unable to go on and had contemplated suicide.

Her case is referred to more in detail in the thesis as the lady who stated that she had known for some time that her father was Satan and that Satan had entered into her, and whose aura under Cardiazol treatment was "like looking on God and Satan alternately". With Cardiazol treatment she improved to the point of social recovery, but had little insight into her previous condition. After each of her earlier injections she was very aggressive for lengthy periods, usually of about one to two hours' duration, and on one of these occasions quite exhausted the sister and nurses who were endeavouring to restrain the violence of her movements, and, on another occasion, broke from their care and rushed into the main ward and broke a window by driving her fist through it. On yet another occasion when reference was made to her sister who recovered from her illness, she said, "Don't call back the dead".

17.2.40	(1)	4.5 + 5.0 c.c.	M
20	(2)	6.0 R.3	"
22	(3)	7.0 R.1	S/C
24	(4)	8.2	M
27	(5)	8.4 R.1	"
29	(6)	9.4	"
2.3.40	(7)	9.6	"
5	(8)	9.8	"
7	(9)	10.0	"
9	(10)	10.2	"
12	(11)	10.4	"

CASE 159. S.J.C. Female, aged 33 years. Single. Admitted 13.4.37 and still in hospital.

Her grandfather was stated to be rather eccentric, being generous and very stingy by turns. The

patient was described as always having been timid although very clever. With her own family she was extremely stubborn and liable to storms of temper. She had an extreme hatred for males. Ten years before admission, a gradual change was said to have taken place in her: she became more seclusive and asocial and seemed to have no desire to do things: she was then looked upon as a peculiar girl. She gave up her work as a commercial artist as she stated that her firm didn't know how it should be done. Acute symptoms developed about May, 1936, when she tore up all her clothes stating that she did so at the command of God, threw out valuable perfume that she possessed saying that it incited men, was extremely restless both by day and night and on one occasion threatened to attack her sister with a shillelagh. On admission, she was extremely unco-operative and resistive and abused the medical staff. It was not possible to make any mental contact with her. Between admission and the beginning of treatment she had frequent outbursts in which she stamped her foot with a show of rage while yelling that the M.O. was a fiend. In the intervals, she was quiet, lacking in initiative and was no source of trouble. She occasionally uttered her delusions and seemed to be hallucinating. Her aggressive outbursts stopped with treatment. She reported to another physician that with each injection she "sensed I (the patient) was being murdered. I know that you doctors might do something to try to help me against my will, but I didn't sense that was what he was doing. I sensed that he way trying to kill me ... When I came out of the injections I laboured under the delusion that I had no soul. This is a fear I had when I was very young, about five years old ... I was getting better until Dr.Good (did not continue her speech) ... I am convinced he was trying to kill me and only God saved me from him ... "

She was reported (25.8.41) to have relapsed to her original condition.

8.3.40	(1)	5.0 c.c.	M
11	(2)	5.2	"
13	(3)	5.4	"
15	(4)	5.6	"
22	(5)	6.0	"
26	(6)	7.0	"

CASE 160. M.B.U. Female, aged 28 years. Single. Admitted 8.3.40, discharged relieved 4.7.40.

Her family generally were stated to be nervously inclined. Nothing of note was observed in connection with her earlier history save that at the age of 16 she had a period of mild depression, poor concentration, had ideas that she had disgraced the family, that the police were coming for her. She was considered suicidal. She recovered in about a year's time. Since then she had had no prolonged periods during which she had been mentally well. She alternated between periods of excitement when she was over-active, dressed in gay colours, and was happy, and periods of depression. She had had an acute maniac attack treated with insulin therapy in hospital in Germany (where she was on holiday) from December, 1937, to March, 1938. On the February before admission she passed into an acute maniac attack following an attack of influenza.

This maniac attack was present on admission: it was typical in all its features. She usually spoke in German or Italian. She received only one injection of Cardiazol. It is difficult to say whether this contributed to her gradual recovery. Her post-convulsion behaviour was characterised by curling up on to her side into the foetal attitude, her eyes closed and a continuous beaming smile on her face, as she repeatedly nestled her head into her pillow. Her case has already been referred to in the text of the thesis.

10.3.40 (1) 7.0 + 10.0 c.c. M

CASE 161. M.W.C. Female, aged 32 years. Married. Admitted 12.3.40, discharged recovered 22.4.40.

Her mother was stated to have always been of a nervous and excitable nature and the patient herself to have always been emotional and excitable. Since her

marriage 7 years previously, she was stated to have given herself needless trouble by worrying excessively about trifles. Her frank symptoms were stated to have been of five months' duration and began with the expression of the belief (which was untrue) that she was pregnant. Thereafter she lost her habitual brightness. At theatre one evening and during the performance she heard "another voice" (i.e. a voice other than the actors') telling her to leave and go home - but she ignored this injunction, and subsequently said that God had forsaken her because she ignored it. She became more depressed and said that she could never laugh, all that she could do was to crack her face. She blamed her illness (of which she was conscious) upon her mother who she said had not brought her up properly. She went off her sleep and her appetite became poor, saying that it was not worth while eating as she was "forsaken of God".

On admission, the patient generally confirmed the above and stated on admission that she realised she was ill and that she wanted to get well and was constantly day-dreaming about the happy times and interest she used to have. She stated that she had always been a rather timorous child and very self-conscious. She was troubled with nocturnal enuresis until she was 5½ years old. She was depressed, felt that she was "going round in a daze" and did not see any prospect of her depression lifting. She improved to the point of recovery with treatment and was discharged, feeling yet a little lacking in confidence.

26.3.40	(1)	4.5 c.c.	M
28	(2)	5.5	"
1.4.40	(3)	5.7	"

CASE 162. M.MacD. Female, aged 48 years. Single. Admitted 21.3.40, discharged recovered 12.6.40.

Her father was said to have lost his memory at the age of 50 and to have become gradually worse. He

died in 1926, aged 72. Her mother, who died in 1938, always suffered from asthma and was nervous. A sister of her father's grandmother was said to have been insane. The patient frequently suffered from bronchitis and for the past 30 years previously had had it every winter. Under the belief that a change in climate would help her chest, she took up a domestic's post in Surrey (she had previously lived in Skye) and immediately began worrying about her duties, thought she could not cope with her work and started to worry during the night about what she would have to cook the next morning. She also started to reproach herself about trifles. She gave up her job and returned to Skye, where, however, instead of improving, her symptoms became worse.

On admission she was mildly depressed and was specially preoccupied with the thought of a £10 which she gave a girl many years ago to buy savings certificates without asking for a receipt: she never re-obtained the money and was now reproaching herself for her silly behaviour at that time. She also complained of psoriasis which she had hitherto kept a secret: she said she had had this too every year and gave that as the reason why she did not marry and thus "did not get anything out of life". She knew herself that she overestimated the importance of this disease but could not help herself from doing so.

After the third injection of treatment she showed marked improvement, losing the fears and doubts which previously troubled her, but all her anxiety now centred more and more round the injections to such a degree that she was thinking constantly about them. This fear of the injection became so strong that treatment had to be prematurely terminated. Further progress was uneventful.

22.3.40	(1)	5.0 c.c.	M
25	(2)	5.0 + 6.5	"
27	(3)	6.0 + 7.0	"
29	(4)	7.0	"
1.4.40	(5)	7.0	"
3	(6)	7.0	"
5	(7)	7.0	"
8	(8)	7.0	"

10.4.40	(9)	6.8 c.c.	M
12	(10)	7.0	"
15	(11)	7.0	"
17	(12)	7.0	"
20	(13)	7.0	"

CASE 163. J.D.G. Female, aged 20 years. Single. Admitted 22.3.40 and still in hospital.

Her father was stated to be rather nervous and had had "a bout of neurasthenia" in which he felt he could not go on with his work and was rather depressed for a period of three months. The patient was stated to have always been very reserved and shy and preferred to stay at home where her interests (such as piano-playing) were ill-sustained. In general, her conduct was stated to have shown a lack of proportion and judgment. In March, 1939, she began to complain of severe pains on the top of her head and thereafter and gradually began to be very inactive, seemed depressed and sat around brooding. When urged to do things by her family, she resented this complaining that they were persecuting her and that everyone was against her. In November, 1939, she stated that she had had intercourse with several people (untrue) and that people were talking about this. Her behaviour gradually became more and more abnormal: she would get up in the middle of the night to eat a large number of oranges or to drink large quantities of milk, expressing the belief that this was the right thing to do. Found one day with an elastic band tied tightly round her foot, she asserted that if she took it off her heart would stop beating. She went to a police office and stated her case to them.

On admission, her conversation was rambling and disjointed, and throughout it she frequently fidgetted and smiled for no apparent reason. Her replies to questions were irrelevant and she evaded all attempts to induce her to be more specific in her conversation. She

frequently stated that "I have cheapened myself to the public" - meaning that all her thoughts and affairs were known to the public.

Treatment produced no change in her mental state. After her first injection she put on another patient's clothes and said that she was in hospital through some man and that she had disgraced herself in front of the public. No change subsequently was produced in her mental state despite a further course of electrical shock therapy. On 14.12.40 she was put on a year's probation, her people being anxious to try her at home.

4.4.40	(1)	5.0 + 5.0 c.c.	M
6	(2)	6.0 + 6.0	"
8	(3)	7.0	"
10	(4)	7.2	"
12	(5)	7.4	"
15	(6)	7.6	"
17	(7)	7.8	"
20	(8)	7.8	"
8.5.40	(9)	5.0	"
10	(10)	5.0	"
13	(11)	5.0	"
15	(12)	4.8 + 5.0	"
17	(13)	5.2	"
20	(14)	5.2	"
23	(15)	5.5 + 6.0	"
25	(16)	6.5	"
28	(17)	6.7	"
30	(18)	6.7	"
1.6.40	(19)	6.7	"
4	(20)	7.0	"
6	(21)	6.7	"
8	(22)	6.7	"
11	(23)	6.7	"

CASE 164. A.M. Female, aged 47 years. Single. Admitted 29.3.40, discharged relieved 31.5.40.

No history concerning the patient's earlier years was available. Some months previously the patient's mother had died. During her illness, the patient had had several specialists to see her mother but instead of taking the advice they gave she insisted in treating her mother according to her own ideas. After her mother's death the patient developed the idea that the death was hastened by an injection of morphia which the doctor had ordered for her and which she had been given a week before she died. The patient talked continually about this, blamed the doctor who ordered the injection and was constantly asking for assurances that her mother's death was not due to the morphia injection or to any neglect on the patient's part. She became more depressed and suggested that her brother should take legal action against the medical men concerned in the case.

On admission she gave expression to the same beliefs and appeared to be a case of mild depression with a little agitation. Her cardiac condition is referred to in the text of the thesis. Under treatment she progressed to the point of social recovery. Oral features in her case were marked in the stage of post-convulsion, particularly chewing the gag and spitting.

4.4.40	(1)	2.0 c.c.	M
7	(2)	2.0	S/C
9	(3)	2.5	"
11	(4)	3.0	M
13	(5)	3.4	S/C
16	(6)	3.4	M
18	(7)	3.0	S/C
13.5.40	(8)	3.8 + 4.0	M
15	(9)	4.5	"
17	(10)	4.5	"
20	(11)	4.5	"
23	(12)	4.5	"
25	(13)	4.6	"

CASE 165. J.M.W. Female, aged 60 years. Married. Admitted 15.3.38, discharged recovered 8.6.41.

A twin of the patient's was stated to be of a "very nervous" temperament. The patient was stated to have been a very bright child and companionable while at school. Later, she tended to be reserved and fond of books. During 1936 she was stated to have changed in character, to have become irritable and suspicious of people. About Christmas of the same year she began to sleep badly and to refuse her food. She would go to bed weeping for no apparent reason and occasionally burst into tears when spoken to. During the following year, she began to develop marked ideas of persecution, saying that her relatives were plotting to send her to an asylum. Gradually she became more agitated and would stand up on the couch, take off her shoes and twist them into peculiar shapes. At other times she bit her nails and had spells of moaning. She frequently refused to eat.

On admission she was very depressed, was monosyllabic in her replies to questions and frequently moaned as she lay in bed facing the wall. She said that she had damned her Maker. This depressed state continued until treatment was begun when after the first injection she began to show signs of improvement, taking an interest in her environment and conversing with her visitors when they came. Treatment was terminated owing to the occurrence of a fracture of the anatomical neck of the humerus. She soon relapsed mentally and after a course of electrical convulsion therapy during the fortnight preceding 29.10.40, she again improved and showed a gradual improvement to the point of social recovery.

6.4.40	(1)	4.0 c.c.	M
8	(2)	4.5	"
10	(3)	4.7 R.1	"
12	(4)	5.0	"
15	(5)	5.2	"
17	(6)	5.5 R.2	"

CASE 166. J.M.MacC. Female, aged 51 years. Single. Readmitted 8.12.39, discharged relieved 2.4.41.

Her first admission was from 8.12.38 to 18.1.39 and her menopause occurred three or four years previously. She was described as always having been a jolly girl with an attractive personality and one who made friends everywhere she went. She reacted to a sister's marriage by being slightly jealous though the patient herself subsequently rejected a proposal of marriage saying that she was more interested in her work which was that of dressmaking. She developed a marked attachment to her business partner (a female) and most of her friends remarked on the unusual intensity of the friendship: they lived together in the same house and, as was subsequently revealed, slept together. Her trouble on admission was said to be the culmination of a few years of growing friction between her and her business partner who eventually she came to regard with hatred and to accuse (unjustly) of having swindled her out of her share in the business. For the six months preceding admission the patient had been living alone and had "got into a state of complete chaos": the state of her room just before admission was an indescribable muddle, the floor of the room being littered with letters, cigarette ends and matches. Her diet in the weeks immediately preceding admission had apparently been mostly tea and cigarettes. Beyond the fact that she was distressed about the rupture with her partner she confessed to no worries, appeared to make a satisfactory adjustment and was discharged to undergo an operation for a uterine fibroid, but her mental state subsequently relapsed and she was readmitted. She was then extremely agitated and restless, pacing up and down, waving her fists, beating the table and crying. She could not give an adequate explanation for her behaviour. She agreed that her restlessness might be explained by her unwillingness to accept her obvious strong attachment to certain women: she said she was strongly attracted to persons of her own sex, in particular, big tall women like her mother (the business partner was one such), and said that her association with this partner had been to some extent perverted. Despite her acceptance of this, she remained in a tense unsettled state and was liable to paroxysms of distress, anger and resentment.

After a short course of treatment she showed improved behaviour, was more stable and reliable and said that she felt quite well. On 4.5.40 while out walking with her former partner, the latter collapsed and died: the patient was profoundly perturbed by this incident but it did not bring out any behaviour foreign to such an incident. A month later, however, she relapsed into her former distressed state which subsequently improved to the point of being allowed parole to the town. On 2.4.41 she went on pass for the day and telegraphed from Carlisle that she intended to visit her brother in Liverpool.

9.4.40	(1)	4.5 R.1	M
11	(2)	5.5	"
13	(3)	5.7	"
16	(4)	5.9	"

CASE 167. A.M.H. Female, aged 55 years. Widow. Admitted 3.4.40, died 28.6.40.

Nothing of note was recorded in her previous history. She married when she was 21 and had five children. Eight years before admission her only daughter died suddenly after a four days' illness of acute nephritis and the death came as a great shock to the patient who shortly afterwards underwent a gynaecological operation (nature unknown) and after which she suffered a brief spell of throat trouble. On getting over these troubles, she remained rather quiet. Two years before admission, her husband had collapsed and died suddenly on coming home one evening, a blow from which the patient never seemed to recover. She never again referred to the death until the morning of admission. In the intervening period she gradually became more and more abnormal, losing interest in her house, sitting doing nothing for hours on end and becoming untidy and dirty in her person. Sometimes she sat wringing her hands in front of the fire. In the few months before admission she took to accusing

the various members of her family of taking money from her, and at other times she mentioned that she was poverty-stricken and of no use to anyone. She drew her widow's pension one day and returned to the post office the day following and denied that she had ever received it.

On admission, the depressive element in her mental state was not marked and the irrelevant replies she gave together with her apathy was suggestive of a schizophrenic state. Her knowledge of and interest in her immediate surroundings was poor.

Treatment produced no change in her mental state. The day following her last injection she developed a bilateral pneumonia and died. In addition, at the post-mortem examination, there was a gangrenous volvulus about 2 and a half feet in length of the small bowel: she showed no symptoms attributable to this while she lived.

18.4.40	(1)	5.0 c.c.	M
20	(2)	4.5	"
8.5.40	(3)	4.0	"
10	(4)	4.0	"
13	(5)	4.0	"
15	(6)	4.0	"
17	(7)	4.0	"
20	(8)	4.8	"
23	(9)	5.5	"
25	(10)	5.7	"
28	(11)	5.9	"
30	(12)	6.0	"
1.6.40	(13)	6.0	"
4	(14)	6.0	"
6	(15)	6.0	"
18	(16)	5.0	"
20	(17)	5.0	"
22	(18)	5.0	"
25	(19)	5.0	"

CASE 168. R.J.W.C. Male, aged 53 years. Married. Admitted 17.1.40, discharged recovered 27.1.40.

A brother who was described as "peculiar" had "been at home for the past five years": he had not been working and has consistently refused to see a doctor. The patient was described as a sociable man who had always plenty of friends. He was stated to have had a "nervous breakdown" in 1931 and again in 1933: on both occasions depression was stated to have been the keynote of the breakdowns. His present illness began after he had received notice in September, 1939, that, owing to economic reductions, he would either have to give up his job or accept another post at a reduced salary. His present attack of depression dated from then.

He was mildly depressed on admission and confirmed the above saying that on the committee's decision regarding his job being made known "all my spirit seemed to leave me". Since then "I have developed a morbid tendency to drift and drift, nor caring what becomes of me. My indecision became marked. I was even unable to write a letter, to get sufficient concentration to do so ... I have no confidence in myself. I suppose I have not had it all along". He also said that his brain was withering at the expense of his appearance and hair - "At my age I should not look so young". (He was of youthful appearance.) "My hair should be going grey and bald". He went on to state how he thought his present illness was due to an attack of gonorrhoea contracted (and treated) in Valparaiso at the age of 17.

He showed a definite and gradual improvement as a result of treatment, gradually becoming more settled and the restlessness and agitation which had been present on admission disappearing. On his discharge, his insistence upon his physical and mental well-being were suggestive of a hypomaniacal state particularly when he threw his arms about in confirmation of his statements.

19.1.40	(1)	5.5 c.c.	M
21	(2)	5.7	"
23	(3)	5.7	"
25	(4)	5.9	"

CASE 169. E.M. Male, aged 60 years. Married. Admitted 14.7.37, discharged recovered 1.4.40.

No outstanding features in connection with his previous history are recorded. Physically, he was stated to have suffered from bronchitis and chest trouble every winter for many years previously. His physical state is referred to fully in the second part of the thesis. He was stated to have been in poor health since January, 1937, and an operation for "sinus trouble" the following month did not help him. He went off his sleep and began to say (untrue) that things had been taken from the mill in which he worked and that he was responsible for their loss: he also became convinced (again without foundation) that he had no money and that his family had been ruined by his stupidity. He said that he was the worst criminal on earth and that he was going to be hanged. Formerly, he had always been a friendly and genial person with a good sense of humour.

On admission he was a typical case of depression into which there entered an element of agitation. His conversation was coherent and rational, but he was full of self-accusations on the lines mentioned above and had some difficulty in concentrating on what was said to him because of this. He said "I have often wished myself dead, but I have never wanted to do it". Into this depression there gradually crept evidence that he was vividly hallucinating and that he was speaking in reply to either whatever he was seeing or hearing. This state was present when treatment was begun, at which time it was not possible to induce him to discuss his illness in a satisfactory manner.

Under treatment he made steady progress and on 13.2.40 he remarked of himself that (despite the feeling "he was away" every time he received an injection) he was feeling much better and that he "saw things more clearly". He still remained slightly depressed, however, and his belief of unworthiness was still outspoken. He stated that, were he to die, the weather would improve. On each occasion that he received an injection, he said that he felt his neck becoming thinner and thinner until he felt that there would be nothing left of his neck. However, he rapidly passed to the stage of being allowed

out into the grounds of the hospital and he had lost the visions and voices that were troubling him. He was ultimately discharged as recovered but his wife stated after the discharge that he was inclined to stay indoors as he did not want people outside to know where he had been.

He was readmitted on 5.6.40, a gradual deterioration showing in his mental state since dismissal, with the discovery of a knife beneath his pillow and, on the day of admission, an active attempt at suicide by throwing himself out of a window and thereby he sistained a fracture of the articular surface of the right tibia. A further improvement resulted with electrical shock therapy given by another physician between 7.9.40 and 26.10.40 with the production of 21 convulsions, but was followed by a relapse in which relapsed state he remains (3.9.41).

27.1.40	(1)	2.0 c.c.	S/C
30	(2)	2.5	"
1.2.40	(3)	3.0	"
3	(4)	3.5	"
6	(5)	4.5	"
8	(6)	5.0	M
10	(7)	5.2	"
13	(8)	5.4	"
15	(9)	5.6	"
17	(10)	5.8	"
20	(11)	6.0	"
22	(12)	6.2 R.1	"
24	(13)	7.2	"
27	(14)	7.4	"
29	(15)	7.6	"
2.3.40	(16)	7.8	"
5	(17)	8.0	"
7	(18)	8.2	"
9	(19)	8.4	"
12	(20)	8.6	"

CASE 170. D.MacD.M. Male, aged 56 years. Married. Readmitted 3.9.39, discharged recovered 9.4.40.

On his previous admission (from 8.11.38 to 7.8.39, when he was discharged relieved) it was stated that his eldest sister was obsessional and was at one time regarded as suicidal and another brother was described as excitable and vomited whenever he was upset. The patient was described as a very happy and genial person with plenty of friends, but that he had always been jumpy and extremely sensitive. Following an attack of neuralgia in his back and arm in January, 1938, he became gradually depressed, restless and nervous, and felt very tired if no opportunities presented for resting. He also complained about his bowels being in an unsatisfactory condition.

On his first admission, he presented the features of an agitated melancholia and paced about the ward in a distressed manner. He showed a gradual improvement with somnifaine treatment and was discharged relieved. He maintained his improvement until a few days before his readmission when his depressed agitated state again appeared.

He was typically a case of agitated melancholia which lasted until treatment was begun after which he showed a steady, gradual improvement which lasted until his discharge. He was moderately physically resistive to the first four injections which he said produced in him a state of terror owing to the sensation that he was going blind. On 27.2.40 he first admitted to an improvement and stated "I should have had this treatment long ago".

3.2.40	(1)	5.0 + 6.0 c.c.	M
6	(2)	6.5 R.1	"
8	(3)	7.5	S/C
10	(4)	8.5	M
13	(5)	8.7	"
15	(6)	8.7	"
17	(7)	8.9	S/C
20	(8)	9.5 R.1	M
22	(9)	10.5	"
24	(10)	10.5	"
27	(11)	10.5	"

29.2.40	(12)	10.5 R.1	M
2.3.40	(13)	10.5 R.1	"
5	(14)	10.5 R.1	"
7	(15)	10.5 R.1	"
9	(16)	10.5 R.1	"
12	(17)	10.5 R.1	"
14	(18)	10.5 R.1	"
16	(19)	10.5 R.1	"

CASE 171. C.M.C. Male, aged 37 years. Single. Admitted 4.4.39, dischargednot improved 29.3.41.

An elder brother of the patient's suffered from epileptic fits. At the age of four, the patient from having previously been a normal child, became very nervous and frightened through falling into a pot of boiling water, and at 13 years of age became "terribly upset" at the death of his mother from ? tuberculosis. He qualified as a minister but because of his unorthodox teaching got into disfavour with his fellow ministers and ultimately resigned on medical grounds. Details concerning him were scanty but he was admitted after having attempted suicide by throwing himself over a bridge.

On admission his affect was one of depression of a pronounced degree. He said that he had entered the ministry because he had seen a vision of Christ and the vision said "I love you. You must take up the Cross". He now felt that he had no future and that he had lost faith in God who had forsaken him. His sojourn in hospital was characterised by spells of elation and depression, in one of which latter (on 18.10.37) he unsuccessfully attempted suicide by taking, while out on parole, 100 aspirin tablets. Before treatment was begun he was so depressed that he was considered a definite suicidal risk.

His aura to each injection he described "like a great swell of water flowing over me" and after his first convulsion his progress was gradual and uninterrupted.

Oral features in his case were marked - holding tenaciously on to the mouth gag, sucking it, and as he did so he tossed and turned from side to side, uttering noises as if he were afraid of something, and his biting and sucking seemed to be a reassurance against the something of which he was afraid. Termination of treatment left him in a mild euphoric state, but a relapse occurred about 19.2.41 although he was still left on parole. He ultimately left hospital and refused to return.

20.2.40	(1)	6.5 c.c.	M
22	(2)	6.5	"
24	(3)	6.5 R.1	"
27	(4)	7.5 R.1	S/C
29	(5)	8.5	M
2.3.40	(6)	8.7	"
5	(7)	8.9	"
7	(8)	9.1	"
9	(9)	9.3	"
12	(10)	9.5	"
14	(11)	9.7	"
16	(12)	9.9	"

CASE 172. J.McG. Male, aged 50 years. Married. Admitted 19.2.40, discharged recovered 13.4.40.

He was described as having always been of a quiet, studious disposition and, although he never made any friends or took part in social activities, was at the same time capable of being quite jolly. Eleven years before admission he had an attack of depression treated for three months in a mental hospital. In May, 1939, he gradually again became depressed and came to "blame himself for the past" and talked of what he should have done. During August, 1939, he had drunk some liniment from a bottle in an impulsive attempt at suicide and for the few weeks before admission was again subject to the same impulses.

On admission he was in an emotional, excited state and shed tears when he began to describe his feelings which he did not want to mention but on my asking him (so abject and depressed was his appearance) if he felt that he had been cast out by God, he immediately said that that was his exact state in a nutshell and added that he felt sure it had to do with his masturbatory practices during his adolescence.

As a result of treatment, there was a progressive lifting of his depression and a moderate degree of a return of his lost confidence. As treatment progressed, he required less sedative to make him sleep: when he did sleep he lay quite still but despite the fact that his sleep during the night preceding the morning of 29.2.40 was described by the nursing staff as restless, he asserted that he had spent the best night since his admission. On 7.3.40 during the latent period, he kept on repeating without stopping "I am very sorry I sinned against Thee, but I will not sin again". He had always been a very religious man. He made slow, steady progress between the termination of treatment and his discharge when he expressed confidence in tackling the problems of the future.

20.2.40	(1)	6.0 c.c.	M
22	(2)	6.0	"
24	(3)	6.0	"
27	(4)	6.0	"
29	(5)	6.2	"
2.3.40	(6)	6.4	"
5	(7)	6.0 R.1	"
7	(8)	7.5	"
12	(9)	7.7	"
14	(10)	7.9	"
16	(11)	8.1	"

CASE 173. G.R. Male, aged 52 years. Married. Admitted 23.2.40, discharged relieved 26.4.40.

A paternal aunt was stated to have died in an asylum. His eldest sister was described as a hard, vivacious woman who had several illegitimate children. The next sister had been for six months in a mental hospital. A younger sister was a very unstable person and the youngest sister was separatedfrom her husband. All these sisters were, according to the patient's wife, on the verge of being called "moral imbeciles". A younger brother had "shifted from job to job": he had "ran away from his wife with another woman", leaving four children. The patient was stated to have been always reserved and to have had a nervous breakdown in 1914 which he got over quickly. Since then he had shown a tendency to become depressed and in 1928 was for three months in an excited, elated state, in a mental hospital. Two years later he took an attack of depression and was again in the same hospital for three months, to be again followed by the previous excited, elated state when he again accused his wife of having extramarital sexual relations, which was untrue: on this occasion he was for two years a patient. Since September, 1939, he began to go off his sleep and to lose weight as well as his ability to concentrate. He also complained of depression and on 13.2.40 stated that he could carry on no longer. He did not express any suicidal ideas but several times referred to the feeling he had of being very dirty, for which he took several baths. He frequently referred to abusing himself in adolescence. Before admission, in addition, he became very fussy and insisted on things being put in their proper place.

On admission the patient was fairly typically depressed and spoke of his curious feeling of being dirty mentally and morally as well as physically and of how he tried to counteract this feeling by taking baths. He readily gave expression to guilt feelings concerning masturbation in adolescence.

With treatment his progression was steady towards a marked alleviation of his depression. He soon got to know the days of the injections and usually on the night before the injections was quite agitated and asked

the attendants "Is it to-morrow?" On 5.3.40 when he required in all 34 c.c. of Cardiazol before convulsing, he passed into a frank panic of terror and had to be held forcibly down before a further convulsing injection could be given. Oral features in his case were noticeable, chiefly of sucking and champing with his lips. Recovery from unconsciousness was quick and the period of immediate post-convulsion amnesia was very brief. An attendant reported that he spoke a great deal about his treatment to some of the other patients, describing the terrifying feeling he had, and that towards the end of treatment when the injections were being given that he felt that the attendants and myself were diabolical figures. When treatment was terminated, he remained anxious and apprehensive for some time but this had passed when he was discharged relieved.

27.2.40	(1)	5.5 c.c.	M
29	(2)	5.7	"
2.3.40	(3)	5.9 R.1 + 6.9	M
5	(4)	6.0 + 7.0 R.3	"
7	(5)	8.0 + 10.0	"
12	(6)	10.5 R.1	"
14	(7)	10.5 R.1	"
16	(8)	10.5 R.1	"

CASE 174. M. Male, aged 44 years. Married.

Full particulars concerning this patient are not available. He was a gym-teacher who was typically depressed and could not envisage the possibility of his getting better. After a repeat dose on 16.3.40, which dose failed to convulse, he had a very violent reaction, jumping out of bed in extreme terror and ran out into the corridor where he clutched at a cupboard, trying to throw his arms around it and roaring, moaning and screaming. He could not be induced to return to his bed: indeed he appeared to be entirely oblivious of his surroundings and what was said to him. Circumstances

prevented my seeing this patient at times other than when I administered the injections which were stopped after the above occurrence. I was subsequently informed that this man passed into a state indistinguishable from a marked anxiety neurosis in which lack of confidence was very prominent.

4.3.40	(1)	6.0	R.1	M
10	(2)	7.5		"
14	(3)	7.3		"
16	(4)	7.0	R.1	S/C

CASE 175. A.H. Male, aged 39 years. Married. Readmitted 19.12.39, discharged relieved 28.5.41.

His first admission was from 16.1.22 to 8.6.22 and then his father was stated to be a sufferer from paralysis agitans with a superimposed paranoid condition. A maternal aunt died after being twelve years in a mental hospital. The patient was described as never having been energetic and always easily led. He gave up his medical studies on the first morning of his first lecture as he found his head buzzing and he was unable to take in what was being said. Thereafter he worried about his future, saying that he would become a tramp as he was no good for anything else. Two months before admission he expressed a belief that he would go wrong mentally. The day before admission he was reported as going white and making a noise with his mouth "like an epileptic fit" which lasted for 15 seconds. There were two such fits. He was admitted in an excited condition, was impulsive and his flow of speech was often suddenly interrupted as if his attention were suddenly wrested by hallucinations. He showed, in addition, fleeting katatonic features and perseveration. He showed a gradual improvement and was discharged relieved. Between then and his readmission, he had been fairly successful as a commercial traveller and had got married and was a fairly successful husband. About 1933, however, there was a history of an acute

breakdown. He lost his job at the outbreak of war in 1939 as a traveller for office stationery and only worked at another job he was able to secure for six days before "breaking down". He began suddenly to express such ideas that he was a member of the secret service and that he would win the war: he also expressed hatred towards the Freemasons which had been conspicuous in his talk during his previous admission. He accused his doctor of being a Freemason. On his readmission he was laughing to himself on account of voices saying such things to him as "How are you? It's bloody true". He said that a few weeks before admission he experienced a sensation of flapping in his ears and judged this to be a telepathic attempt of the British Lunacy Commission who were looking after him and watching this development for their own education. He showed a strong antipathy towards the Plymouth Brethren, the members of which he believed to cohabit and to exchange wives freely. This mental state continued until treatment was begun.

Under treatment he progressed to the point of social recovery save for a brief relapse after 3.4.40 when he began to speak of the H.Secret Service, but the improvement was reachieved with a further convulsion, immediately after which he beat himself with his fists. Thereafter his improvement, with loss of his gross schizophrenic symptoms, was maintained.

25.3.40	(1)	6.0 c.c.	M
27	(2)	7.0 + 7.5	"
29	(3)	6.5 + 8.0	"
1.4.40	(4)	7.5 R.3	"
3	(5)	8.5 + 10.0	"
12	(6)	10.0	"

CASE 176. V.W.S.C.C. Male, aged 31 years. Single. Admitted 7.3.29 and still in hospital.

He is the brother of Case 152 q.v. He was reported as being not keen on games and always disposed to lead a sedentary life, being rather shy in disposition and having no particular friends.

Until the week before admission his mental state never gave cause for anxiety. At this time he became unsettled, went to bed at mid-day with his clothes on (unusual for him) sleeping 6 or 7 hours, after which he became very lively, singing and playing music in a monotonous fashion, which kept the household awake until 2 a.m. He began to laugh without cause. In an endeavour to cure him his mother allowed him to sleep with her for two nights. On the morning of admission he did not seem to know his relatives. He endeavoured to put his hand in the fire.

On admission he knelt down before the doctor admitting, putting his hands in a praying attitude. While in this position he said "I am going to have a baby". He proved on investigation to be a typical case of dementia praecox and revealed considerable guilt feelings in connection with his practice of masturbation, saying that he had often wondered if he hadn't injured himself (i.e. his brain) in so doing. Since admission a steady progressive dementia characterised his course, until, before treatment was begun, he was mentally inaccessible. He lay all day covered up in a special bed prepared for him on account of his persistent habits of tearing all clothes near him and of soiling himself both with urine and faeces.

With treatment on 29.3.40 he was reported as no longer soiling the bed: he was accordingly then given an ordinary bed, but, on 1.4.40 his habits had returned and, despite further treatment, he relapsed into his demented, vegetative existence. His condition remains (3.9.41) the same.

23.3.40	(1)	6.0 c.c.	M
25	(2)	6.0 R.1	S/C
27	(3)	7.0 R.1	M
29	(4)	7.0 R.1	"

1.4.40	(5)	8.0	c.c.	M
3	(6)	9.5		"
5	(7)	9.0		"
10	(8)	9.0		"
12	(9)	9.0		"
23	(10)	9.0		"
25	(11)	10.0		"
27	(12)	10.0	R.1	"
30	(13)	10.5		"
2.5.40	(14)	10.5		"
4	(15)	10.5		"
7	(16)	10.5		"
9	(17)	10.5		"
11	(18)	10.5		"
14	(19)	10.5		"
16	(20)	10.5		"

CASE 177. W.W. Male, aged 22 years. Single. Admitted 17.2.37 and still in hospital.

His mother had a depression in early life from which she made a good recovery, but she subsequently became paranoid in her attitude saying that people were speaking about her.

No noteworthy points were given in the patient's previous history save that he did not get on well with his father to whom he worked as a nurseryman. He bought a motor car (he had always been over-interested in these) and in this he drove at great speeds through the country. For the year before admission he would remain mute for long periods and was obsessed with the idea of having his bowels opened freely. A few days before admission he got up during the night, making a strange groaning noise, and went into his parents' bedroom where he threatened his father. Later he stripped himself naked and stood on the doorstep, shouting at his parents "Oh, you two want to kill me! And you'll die for it!"

For the first few days after admission he would take no food except chocolate. He said that any other food would cause a twisting of his inside and an impairment of his judgment: he also said that he was the Son of God and had no need to bother about food as he could obtain nourishment by prayer. He soon settled down, however, but subsequently had a few spells of refusing food and of extreme excitement when he rushed about the ward. He showed no improvement on or after a course of insulin therapy from 25.7.37 to 9.9.37 and his mental condition gradually deteriorated. Before treatment was begun he had been in a stupor for several months and was inactive save for taking his meals (with persuasion) and continually masturbating. Beyond a few days when he became talkative (consisting chiefly of curses) restless and aggressive, treatment had no effect on his mental state. The same held for a subsequent course of treatment by another physician. At the present time (3.9.41) he was reported as being restless, and at times mischievous and impulsive: the nursing staff consider that he has been more difficult since the Cardiazol treatment was begun. His case is referred to in the text of the thesis.

29.3.40	(1)	5.0 + 7.0 c.c.	M
1.4.40	(2)	7.2	"
3	(3)	7.5	"
5	(4)	8.0	"
8	(5)	8.2	"
10	(6)	10.0 R.2	"
12	(7)	10.0	"
14.6.40	(8)	10.5	"
17	(9)	10.5	"
19	(10)	10.5	"

CASE 178. C.A.C. Male, aged 57 years. Married. Readmitted 9:10.39, discharged recovered 21.5.40.

His first admission was from 26.5.39 to 4.9.39, and his wife then stated that he first became ill on

4.4.38 over "business worry" when an excise man stated that a sample of the spirit the patient sold was weak. Until an action in court was brought against him six weeks later, he was irritable, refused food, vomited if he did take any, and was unable to sleep. He was merely admonished in court, but he did not "pick up" after the hearing, "sat about the place" not wanting to see people and complaining that he could not be bothered with things. He gave up his business on medical advice. He complained of having no strength or energy and of being easily exhausted. He made unprofitable speculations on the Stock Exchange. He began to make growling noises and said they attacked him like a hiccough, that he had to make them and that sometimes they were so bad that he became unable to control himself and threw his arms and legs about. He complained of difficulty in concentrating and would not read for that reason. He complained of depression on his first admission, and of aches and pains, especially in his back, and required reassurance about them. At one period he had had vague suicidal thoughts. His mental state did not improve despite a light course of somnifaine treatment, and, although mildly depressed and anxious to stay in hospital, was discharged at his own request on account of circumstances arising out of the war. He was readmitted in a worsened state, stating that his depression and anxieties had worsened and, in particular, his compulsion to utter growling noises. These noises irritated his wife very much, the wife whom he had stated in his previous admission to have been disappointed in as she had borne no children. He now admitted that he had strong feelings of hatred towards his wife but that he "crushed" these feelings because they were "wrong". He further admitted that he had had an affair with a girl shortly after he was married and that he had had sexual relations with her on several occasions. His condition persisted with only a slight improvement until after the second injection of cardiazol when he stated that his depression was beginning to lift and the growling noises disappeared for good. During the process of recovery, he showed a brief confusional episode of two days' duration, during which he complained of considerable difficulty in concentrating and understood with some difficulty what was being said to him. His depression eventually disappeared entirely and he felt full of confidence.

5.4.40	(1)	7.0 c.c.	M
8	(2)	7.2	"
10	(3)	7.4	"
12	(4)	7.6	"
15	(5)	7.8	"
19	(6)	8.2	"
23	(7)	7.0	"
25	(8)	7.5	"

CASE 179. G.C. Male, aged 48 years. Married. Admitted from another mental hospital on 10.1.19 and still in hospital.

There was a history of his having enlisted in November, 1914, and of an attack of dysentery on 29.9.17 while serving in Mesopotamia and of being reported on 5.11.17 as being dull and depressed and saying "I want to die": he was refusing his food. He was invalided to the U.K. and in D.Block, Netley Hospital, was reported as being very depressed and tearful, of speaking in a low voice, of being retarded in thought, of taking little interest in his immediate environment and was fearful lest something should be done to him. At the hospital before his admission on 10.1.19 he was reported as being extremely depressed and miserable and exclaiming at intervals "Dear God, what is going to be done to me?" In addition, he heard voices threatening to shoot him.

On 10.1.19 he was reported as refusing to speak in reply to questions and at times he refused his food. He was apathetic and disorientated, his habits were dirty and occasionally he was resistive and impulsive. He smiled to himself at times and was judged to be hallucinating. He was got up but no improvement resulted in his condition and between then and the beginning of treatment, his history was one of gradual and progressive deterioration. When treatment was begun he had been confined to bed for years and was now quite demented: any attempt at mental approach was met with a volley of oaths. All day

he lay in bed naked and was very destructive in his habits, tearing his bed clothes or (the favoured object of his attack) his pillow.

His convulsive reactions were very severe and were unduly prolonged. Sterterous breathing was very marked after each convulsion and lasted on the average for 15 minutes. On 23.4.40 his post-convulsion behaviour consisted of an oral attack upon himself - biting his right forearm. By 26.4.40 he had become more restful, not given to swearing and his affect was now one of marked depression. By 2.5.40 he was keeping on his pyjamas, and had given up his attacks on his bed clothes and pillows. For the first time in years, he was allowed up dressed and appeared to enjoy the sunshine in the courtyard outside. He began to talk of getting home and wrote his wife a poor scrawl to that effect. Small tasks given to him to do, such as sweeping the pavement of the courtyard outside, were completed in an expeditious and efficient manner. The improvement was but superficial, however: he talked of nothing but his war experiences and was under the belief that he was only a few weeks discharged the Army. The year, he said, was 1918 and he could not be persuaded otherwise. By 22.7.40, however, his condition had relapsed but he again improved to his previous state with further treatment (6 convulsions) by another physician. After this, he again relapsed and again responded to 3 further convulsions beginning 8.8.40. Yet another relapse occurred towards the end of the same month and responded to four convulsions. Since then, whenever he relapses, he can be brought back again to his previous level with a few convulsions.

12.4.40	(1)	5.5 c.c.	M
23	(2)	5.7	"
25	(3)	5.9	"
27	(4)	6.1	"
30	(5)	6.3	"
2.5.40	(6)	6.5	"
4	(7)	6.9	"
7	(8)	7.1	"
9	(9)	7.3	"
11	(10)	7.5	"
14	(11)	7.7	"
16	(12)	7.9	"
20	(13)	8.1	"
22	(14)	6.0	"

CASE 180. J.A.O. Male, aged 22 years. Single. Admitted 16.4.40, discharged relieved 3.9.40.

His parents were both of a nervous disposition, although neither had had a breakdown, and a maternal uncle had recently to give up his post on account of "nervousness". The patient, during the first few years of life, was always ailing and grew up into a nervous, fidgetty child with a habit of picking his nails. About 14 years of age, it was noticed that he became even more retiring than he had previously been and began to imagine that he had various illnesses. Between then and his admission it was observed that he showed a tendency to become depressed with one spell of excitability when he was not noisy but unable to concentrate and would fly off at tangents when speaking. A few weeks before admission, he gradually lost interest in his work as a poultry farmer and became unsettled, wandering off and ultimately being found by the police. He subsequently became excited and "spoke a great deal of nonsense".

On admission he lay in bed talking, shouting and whistling, looking about a great deal, sitting up and pointing at various things around him. He was incapable of consistently answering questions and said that he heard a voice shouting out his name and "Hurry up a pass, please".

Cardiazol treatment was begun a third time after being twice stopped because of a marked improvement shown. Treatment was complicated by the fact that his mother frequently visited him and she had a very definite adverse influence on him: she was reported by the nursing staff as habitually speaking to him as if he were a five year old child. Oral features in the post-convulsion behaviour were marked - holding on to the mouth gag tenaciously and sucking movements: on one occasion these movements were succeeded by ones in which, lying face downwards, he went through the motions of one having sexual intercourse. Treatment left him in a quiet, retarded state. A recrudescence of his pseudo-maniac, schizophrenic behaviour was treated by another physician with the same result and he was taken out on his parent's request. A subsequent admission with the same mental state was noted from 11.2.41 to 15.3.41 when he was again discharged relieved.

19.4.40	(1)	5.5 c.c.R.1	M
23	(2)	7.0 + 10.5	"
25	(3)	10.0 + 10.5	"
27	(4)	10.5	"
30	(5)	10.3	"
2.5.40	(6)	10.1	"
4	(7)	9.9 R.1	"
7	(8)	10.5 R.1	"
9	(9)	10.5 R.1	"
14	(10)	10.5 R.1	"
16	(11)	10.5 R.1	"
20	(12)	10.5	"
22	(13)	10.5 R.1	"
5.6.40	(14)	10.5	"
7	(15)	10.5	"
10	(16)	10.5	"
12	(17)	10.5	"
14	(18)	10.5	"

CASE 181. D.MacC. Male, aged 50 years. Single. Admitted 21.12.28 and still in hospital.

His physical state is referred to in the fourth part of the thesis. He was stated to have always been an introspective man, and, after being inducted to the Church in 1921, resigned in 1925 on account of his drinking propensities. He was also subject to vague paranoidal beliefs about people and to depressive attacks in one of which in 1924 he shot himself with a revolver.

On admission he was very depressed and talked in a low, disinterested tone and was frank in the expression of his suicidal intentions, requesting something to end it all. His depressed state continued but into it there crept a schizophrenic element and on 10.2.33 it was recorded that he was constantly hallucinating and talked to himself and appeared to be defending himself from the accusations and the actions of various people. Before treatment was begun he was confined to bed talking away

to himself, his talk being not understandable. He was very destructive in his habits and tore any clothes which were given to him: his bed clothes too were invariably disarranged, if not torn.

After his first convulsion, he was very quiet all day - the first time for years - and kept his shirt on without tearing it. By 6.5.40 he had improved to the extent of being allowed up wearing his artificial limb, previously taken from him because of the destructive attacks previously made on it. He kept himself neat and tidy in his appearance. He was given to misidentification, asking if it had not been me he had previously seen among his parishioners. Oral features were noted in his post-convulsion behaviour, smacking movements of the lips followed by spitting. He still spoke to himself and frequently nodded his head as if coming to a conclusion over some problem he was deliberating. He was, however, unable to sustain a conversation for any length of time.

His improvement was maintained until 17.7.40 when he showed signs of relapse, and a further course of therapy by another physician did not bring about any lasting improvement. His condition is now (3.9.41) as it was before treatment was begun.

25.4.40	(1)	5.0 c.c.	M
27	(2)	5.2	"
30	(3)	5.2 R.1	"
2.5.40	(4)	6.2 R.1	"
4	(5)	7.2 R.1	"
7	(6)	8.2	"
9	(7)	8.4	"
11	(8)	8.6 R.1	"
14	(9)	9.6 R.1	"
16	(10)	10.5	"
20	(11)	10.5	"
22	(12)	10.5	"

CASE 182. J.D. Male, aged 36 years. Single.
Admitted 29.4.40, discharged relieved 17.5.40.

Physically he showed a marked albuminuria. No information was forthcoming from relatives. The patient himself complained of "nerves", meaning that he felt "run down, shaky and weak", these symptoms having been present for a year previously and causing him to take to bed for two months, after which he tried working again but was unable to persevere owing to the weakness still present and to his inability to concentrate. This had the effect of making him depressed to the point of contemplating suicide as a way out of his difficulties. (Subsequently a history was obtained of him having been in another mental hospital from 1931-33 when he complained of people persecuting him and saying things about him.) He gave no trouble of any description and lay quietly in bed with his eyes closed and the sheet drawn up over him.

His treatment was brief and strongly objected to owing to the aura - "My limbs felt as if they were being torn from my body which was being oppressively crushed as if in a vice". He remained in hospital only on condition that he would not receive further treatment and was ultimately discharged at his own request.

2.5.40	4.0 c.c.	M
4	4.2 c.c.R.1	M

CASE 183. J.McL. Male, aged 24 years. Single.
Admitted 26.4.40, discharged recovered 17.6.40.

He was described as always having been of a very clever and industrious disposition and worked in a C.A.'s office for five years on leaving school. He then gave it up as he found it too heavy for him and began working in forestry for a change in order to build up his body. In January and February, 1940, his letters home began to alarm the family for he would write such

things as "I have ruined my life and am going nuts": he further stated he was becoming desperate, that his time was short and that he felt the impulse to commit suicide. He was accordingly brought home but no change resulted mentally despite resting and the course of Pelmanism which were prescribed. He was silent for long periods, occasionally breaking the silence to say "I have betrayed my people. It's too late". He gradually became worse and said he was losing the lower of all his limbs.

His depression was present on admission but it had little of the features of melancholia. He talked readily and said that "I have killed my human nature, killed the life force ... I have made myself inhuman and not part of this world: even the very dogs shrank away from me". These statements were accompanied by smiles. When asked if he had adopted any measures to make himself well he replied "I wore the same clothes the whole time... I had discovered the secret of eternal life, and that it would be an eternity of pain". He said every time he was seen on the Ward visit that a catastrophe was approaching him and he did not know how to prevent it.

After he was recovered from the effects of the first injection of treatment he asked "Is that stuff the elixir of life?" for he found that his depression had entirely gone and the only thing he now felt wrong with him was the post-convulsion headache. As treatment continued he showed, with one slight relapse of one day's duration on 19.5.40, a continual improvement with complete loss of his depression and bizarre ideas. He became a cheery, very helpful patient and professed treatment had "worked wonders" - "Wouldn't have believed it", etc. He had no insight into his past condition, however, beyond realising that he had been ill.

2.5.40	(1)	5.0 c.c.	M
4	(2)	5.2	"
7	(3)	5.5	"
9	(4)	5.7	"
11	(5)	6.0	"
14	(6)	6.5	"
16	(7)	6.7	"
20	(8)	7.0	"

CASE 184. R.McK. Male, aged 54 years. Single. Admitted 24.5.39, discharged not improved 25.6.41.

He was stated to have been always quiet but to have made friends easily and to have always been well liked. His twin brother died a month before admission from oesphageal carcinoma. They had been very devoted to each other. The patient thereafter began to complain of stomach pain and became agitated and thought he was suffering from gastric carcinoma.

On admission he was very agitated and excited and refused to stay in bed, running repeatedly out of the room in order, as he said, to meet his Saviour. He appeared to be hallucinating and would stand with his head to one side as if listening to voices. He slept very little and at times refused food, requiring to be tube fed on occasions. He said he had seen a vision of his dead brother.

Subsequently he proved to be a fairly amenable patient, was quiet and slept well. He took his food without persuasion. He was given, however, to expressing such beliefs that he was being influenced by electricity, that his body was full of holes. He was mildly aggressive at times button-holing one and asking "When am I to get out of here?"

After his first convulsion he became quiet and would converse in a pleasant, reasonable way. Previously restrainedly arrogant, he now became humble and his manner and habit of asking "When am I to get home?" fell into abeyance. After his first recovering consciousness he was of the opinion that his brother was still alive and said that immediately after receiving the first injection he had heard an attendant say to him "Do you see the Devil?" (untrue). His improvement was maintained until the end of treatment. His paranoidal ideas were still present, however, though more in the background: for instance, on 31.5.40 he stated that the wireless was still working on his privates though not to the same extent. A slight relapse occurred towards the end of July and a further course of treatment by another physician produced only a short improvement with early relapse. He was transferred to another mental hospital on his own request.

9.5.40	(1)	5.5 c.c.	M
11	(2)	5.7 + 6.7	"
14	(3)	7.0	"
20	(4)	7.2	"

CASE 185. J.H.B. Male, aged 34 years. Married. Admitted 8.5.40, discharged recovered 14.7.40.

A sister of the patient's was said to have suffered from epileptic fits when she was young. No details concerning the patient's previous history were available as his wife did not agree with his relations. She knew him for four years before marriage and towards the end of their courtship they practised coitus interfemori on his suggestion and it was only necessary for him to obtain the briefest of contacts before an emission occurred. After marriage he suffered from ejaculatio praecox of extreme degree and even then he practised coitus interruptus to avoid children of which, however, they had two "by accident". Apart from a quick temper during the first year of marriage, she found him steady, conscientious and dependable in every way. He was always inclined to be careful over money matters and was of a saving nature. Ten days after dismissal from hospital in December, 1939, after an appendicectomy, he complained of palpitations, a choking sensation in his throat, felt dizzy and broke out into a cold sweat. "All his will power went" and he became depressed.

On admission he felt he had let his wife and children down, and was typically depressed with a large hypochondriacal element. As a result of treatment he improved, feeling not so depressed, having more interest in things and feeling more active with a return of his lost confidence: his fear of suicide was lessened and he felt he could now walk along without experiencing the impulse to throw himself under a passing car. His feeling immediately after the convulsions was that of being dead and removed from his body which he found particularly

terrifying. On several occasions during the immediate post-convulsion period he, after glancing round the screens to ensure, as he thought, that he was not being observed, he went through, lying face downwards, the motions of one having sexual intercourse: these motions were continued for some minutes. He is referred to in the text of the thesis.

29.5.40	(1)	5.5 c.c.	M
31	(2)	5.7 + 6.0 R.1	"
3.6.40	(3)	8.0 + 10.0	"
5	(4)	10.5 R.1	"
7	(5)	10.5	"
10	(6)	10.5	"
12	(7)	10.5	"
14	(8)	10.5	"
19	(9)	10.5	"
23	(10)	10.5	"

CASE 186. J.R. Male, aged 47 years. Married. Admitted 4.6.40, discharged relieved 29.6.40.

He was stated to have always been quiet and "a man of a few words". During his 15 years of married life his wife had never known him to lose his temper - or even in the years before their marriage, for they had known each other since school days. Just after war broke out she lost all her hair through causes unknown and she thought that his worrying about this might have had something to do with his illness but it was not until just before New Year, 1940, that he became noticeably depressed after an attack of influenza, the depression gradually becoming worse. He began to give expression to such ideas as he "had not made the best of his life" and began to wonder if it were worth while carrying on.

His mental state on admission was of mild depression with lack of confidence and interest in things previously interesting. He had never had, he said, any

truly suicidal ideas. He said he had been upset by his wife's hair falling out and hid his feelings of disappointment at this from his wife. Latterly, if he read anything or heard anything, for instance, on the radio, he had a peculiar feeling that these things in some way concerned him.

Treatment produced a relief of his symptoms and, anxious to be discharged, he was discharged in that condition. As a rule, he was very restless in the immediate post-convulsion stage after each of his injections, tossing and turning from side to side and striking out with his arms and legs: roaring in apparent terror as he did so. Particularly was this behaviour present after convulsions produced with repeat doses. On one occasion when this behaviour had worn off, it passed into movements in which he repeatedly tried to fit his foot and leg into the pillow case, in the manner of one trying to fit the same into too large a stocking. On another occasion, he aggressive behaviour gave place to his lying face downwards and going through the motions of one having sexual intercourse.

5.6.40	(1)	6.0 + 8.0	M
7	(2)	8.0 + 10.5	"
10	(3)	10.5	"
12	(4)	10.5 R.1	"
14	(5)	10.5	"
17	(6)	10.5 R.1	"
19	(7)	10.5	"
21	(8)	10.5	"
24	(9)	10.5 R.1	"

CASE 187. C.H. Male, aged 27. Married.
Admitted 8.5.40, discharged 10.9.40.

Owing to the scarcity of materials in the distillery in which he was working as a labourer before the outbreak of war, he was discharged and decided to

join the Army of which two brothers in the regulars had given him a good account. He joined on 5.12.39 and on 16.1.40 while doing anti-tank training, his left arm got caught under a form which collapsed. X-ray examination revealed no bony injury but the condition did not clear up. Two weeks later it was put in plaster and subsequently he was sent to the Astley Ainslie Institute where it was treated with massage for six weeks. He was returned to his unit but had to be sent to Bangour Hospital and from there to Edinburgh Castle where the limb was again put in plaster. On admission to this Hospital, his hand was swollen to twice the size of its fellow, was hard, brawny and bluish purple in colour. He was quite unable to use it. As X-ray examination was negative and the electrical reactions of the muscles were normal, he was judged to be a case of hysteria. He did not think he had worried about the hand in any unusual way and was disappointed that it had not cleared up. In 1932, he had had an accident to his left arm and chest which caused swelling but responded to operative treatment, a surgical scar on the dorsum of the left forearm being present. Intellectually, he was dull, e.g., he was unable to give recent dates of incidents clearly in relation to each other. He was a non-smoker and non-drinker.

Despite repeated orders and suggestions to use his hand, he desisted, stating that any movement was impossible. Continual observation of this patient showed that, when he thought he was unobserved, he would produce in his left hand a mild form of passive hyperaemia by constricting the left forearm with his right hand, and habitually slept at night with his left arm hanging downwards and over the side of his bed. Generally he was a recalcitrant patient who continually displayed a negative attitude to hospital and any attempt at cure. Not only so, but he attempted to antagonise other patients to the hospital and to Cardiazol treatment which he received.

He received three injections of Cardiazol, each 5.5 c.c. and each productive of a major convulsion, and a quarter of an hour after the termination of the last one he was making masturbatory movements with his affected hand and, on an attempt to re-arrange his bed clothes in a normal manner, he resisted forcibly with the hand, not only pushing downwards against the force of the opposing

hand but also clutched the bed clothes in a normal fashion to pull them up. These latter movements were not isolated phenomena of brief duration but were persisted in for several minutes during the post-convulsion state. When normal rapport with his surroundings was regained, slight voluntary movements appeared in his hand. A few days later several small abrasions were noticed on the dorsum of the affected hand and it was considered that he himself was contaminating these abrasions with dirt, which suspicion, when communicated to him, he strenuously denied. A piece of "Elastoplast" was fitted over the affected area, but when next seen the "Elastoplast" was quite slack on his hand. He stated that it had fallen off of its own accord.

He was transferred to another hospital on 10.9.40.

CASE 188. J.D. Male, aged 21. Single.
Admitted 30.5.40, discharged 31.8.40.

Admitted on 30.5.40 with a hysterical limp of his right leg which had come in five months after he had had an attack of diphtheria. As well as the sensation of weakness in both legs (the hysterical limp was present in one leg only) he became aware of an undue breathlessness on exertion.

In his physical history, he stated that both his arms were broken in childhood and, as well as his diphtheria six months before admission, his T. and A. were removed ten days previously.

As a child, he had always been intensely afraid of the dark and had frequent anxiety dreams. After leaving school at the age of fourteen, he worked in many jobs in the capacity as a labourer and just before being called up was learning to drive a steam road-roller.

After exhaustive tests at Drymen Military Hospital it was decided that the weakness in his legs was of psychological origin and he was accordingly referred to Carstairs Hospital. In hospital, in addition to his hysterical symptoms, he proved to be dull and apathetic and complained of breathlessness on occasional palpitation. He proved to be unamenable to psychotherapy. No improvement following as the result of Cardiazol treatment, he was discharged on 31.8.40.

3.7.40	(1)	5.0 c.c.	M
5	(2)	5.5 c.c.	"

CASE 189. D.W. Male, aged 29. Married.
Admitted 6.6.40, discharged 19.7.40.

He was admitted on 6.6.40 with a history of having collapsed while home on leave on 13.5.40 and, failing to recover, was sent to Hospital in Forfar and then to a psychologist at Edinburgh Castle. He was unable to walk on account of violent tremblings of his legs, and his attempts to walk were characterised by exaggerated spastic movements. He stated that he had had occasional attacks of shaking turns in his legs during the past five years but none as bad as his present one.

He volunteered for the Army on 27.10.49 as he felt his financial position rather a strain. For many years he had been leading a tinker's life, doing basket work, horse dealing and occasional spells of farm work. At first in the R.E. he was transferred to the A.M.P.C. when he went to France on 9.12.39. While in France on St.Patrick's Day some of his comrades made him have a drink - a trick to make him vomit. A few minutes later he began to tremble all over, an orderly having to stay with him for five hours.

On arriving home from France on 1.5.40 he found his wife near the end of her pregnancy. After her

previous pregnancies she had had leg trouble, and on this occasion he had frequently to stay up all night nursing her as there was a threat of the leg trouble returning. On 13.5.40, he collapsed on the floor of the hut in which they lived, and which he had built himself, and was thereafter admitted to hospital.

His parents lived in a caravan and when he was 2⅛ years old he was put into an industrial school. When six years old he was boarded out with a family for nine months and up until that time suffered from both enuretic and faecal incontinence. The latter cleared up but the enuresis persisted until he was seventeen years old, a complaint which caused him much suffering in the industrial school to which he returned after his boarding out period. He ran away from school when thirteen years old and managed to find his family with whom he wandered. He stated that he had always been a "wicked dreamer" with dreams of falling over cliffs, fighting, being put into bottomless pits, from which dreams he would awaken with a fright.

The patient received two injections of Cardiazol on 10.6.40 and 12.6.40, both being 5.5 c.c. and each producing a major convulsion. On 13.6.40 he stated he felt better though his walking showed little improvement. He refused further treatment and his behaviour throughout his stay in Hospital thereafter (until he was discharged on 19.7.40) was unsatisfactory, psychopathic and hysterical. He also made it a (very successful) practice of warning each new admission against Cardiazol treatment, some of the more suggestible ones being persuaded that his spastic gait was actually the result of treatment.

CASE 190. J.A.H. Male, aged 18. Single.
Admitted 6.6.40, discharged 30.7.40.

He joined the R.A.F. before the outbreak of war and received a training as a wireless operator at Cranwell College and on the outbreak of war underwent a machine-gunning course. On a return flight from Norway while still seventy miles from the shore, the machine crashed into the North Sea. The pilot was killed, the navigator eventually lost both limbs, and the patient himself was knocked against the fusilage when the machine began to fall and he was rendered unconscious which was regained when he found himself in the sea. The fact that he was unable to swim made him terrified. They were picked up after an hour and a half in the water. Thereafter he became nervous and jumpy with occasional trembling and ultimately bad-tempered, not speaking to people and developed a strong dislike of flying. About ten weeks before admission, while on a flight ("on the oldest machine in the place") to Norway they were attacked by a Dornier aircraft when his gun jammed and he got into a panic and ran from his gun-turret, the pilot ordering him back and the patient was inclined to refuse at first saying that he was not going to be fodder for the German A.F. when he had nothing to defend himself with.

On his return, he was sent to Oxford and was passed as fit by a medical board and given orders to return to his (fighting) Station. While passing through Edinburgh on the way to this, he found everything go black and his legs give way and when he came to found himself in the hospital at Edinburgh Castle.

From there he was admitted to Carstairs Hospital when he was nervous and restless and disposed to worry about his past and his future. Sometimes he felt like screaming, sometimes like crying. He slept badly and had anxiety dreams about being in crashing planes. He was frightened about everything and started at sudden noises. His anxiety state continued and, on one occasion, a hysterical fit occurred. His appetite was indifferent. It transpired later that the patient was very unhappy about and very much attached to his mother whom his father had divorced while the patient was but a few years old. Recently the patient had got into touch with his

mother and a deep attachment had sprung up between the two. In his first history he gave, he had omitted to mention this, implying that his home life was happy and his parents living together.

He was convulsed with 5.5 c.c.Cardiazol on 10.7.40. There was nothing extraordinary noted about the convulsion. In the post-convulsion stage when asked the question "Why are you in bed?" he stated it was because he was not feeling too well. He refused further treatment but began to improve, the improvement being most noticeable in connection with his appetite. He was returned to his unit on 30.7.40.

CASE 191. K.W., Male, aged 33. Married.
Admitted 8.6.40, discharged 20.9.40.

Admitted with a history of headaches and cardiac pain. He was a barman in the Polish Navy and stated that on 4.5.40 his ship was bombed and sunk two minutes later. He was knocked out for a short time by the explosion, then was 45 minutes in the water before being picked up by a British destroyer. His wife and nine years old daughter were in Poland under German rule.

The headaches and cardiac pain which he suffered from after the explosion persisted. He showed little insight into the possible functional nature of his condition.

He received one injection of 5.5 c.c.of Cardiazol on 22.8.40 which produced a major convulsion about which there was nothing of especial note. He refused further treatment but in the last few weeks before his dismissal on 20.9.40 to a Polish Clearing Station, made improvement feeling that he could resume duty. The headache and pain had ceased to trouble him.

CASE 192. J.H. Male, aged 24. Married.
Admitted 24.6.40, discharged 29.7.40.

He volunteered for Army service on 15.3.40. His volunteering was of a compulsive nature. He dreaded being conscripted and volunteered "to get the thing off my mind". "I never thought much of it before and, to tell you the truth, I don't know what made me go and do it". He was so nervous during his physical examination that the doctors regarded him as ill, and, three days later, was confined to the sick room. Then followed a spell of hospital treatment in various hospitals (Fort George, Elgin, Edinburgh Castle, Bangour) before his admission here. He then complained of "heart trouble" which had been present for the past eight years and for which he attended his own doctor regularly once a month. This trouble took the form of his heart "starting racing" on the slightest exertion or excitement and its beginning was related by the patient to an attack of scarlatina when he was eighteen years old and for which he was in hospital for a period of twelve weeks. For a year thereafter he was off work (coach-building) and has been attending his doctor ever since: the latter diagnosed a mild myocarditis. Every year the patient was off work from two to four weeks on account of his trouble.

He stated that ever since he could remember he had always been of a nervous disposition ("even if a football came near me I was shaking in case it would hit me"), had a preference for his own company and sedulously eschewed crowds which invariably gave him a feeling of anxiety. He was brought up very strictly from the viewpoint of morality. He married four years before admission and described his married life as "very happy". Sexual intercourse was very infrequent and after the birth of their first and only child he began to suffer from a fairly severe degree of ejaculatio praecox which became progressively more severe until, one year before admission, intercourse was abandoned owing to an emission occurring before penetration. Invariably after intercourse he suffered from a feeling of exhaustion and an attack of palpitation. During the period of abstinence he felt very much better in his physical health. His wife (from the history he gave) appeared to be quite frigid.

His heart complaint (palpitation and "racing" on excitement or exertion) was but a part of an anxiety state which was present on admission.

On 3.7.40 he was convulsed with 5.0 c.c.of Cardiazol. For the first fifteen minutes of the half hour before he would submit to the injection, he had a semi-hysterical, semi-anxiety attack in which he paced up and down his room wringing his hands or twisting his cap, recalling as the tears streamed down his cheeks his past illnesses and insinuating that I was a cruel friend for wishing to impose on him who had suffered so much in the past. He also stated he was quite unfit for the Army and it was towards the end of the fifteen minutes that he first spoke pointedly about his heart and invited me to feel its tumultuous beating. He was then left, but fifteen minutes later stated that he knew he had acted like a baby and would I give him the injection now? There were no outstanding features in connection with the convulsion.

Throughout the remainder of his stay in Hospital (he was discharged on 29.7.40) he made no further complaints about his heart, but began to walk with a limp in his right leg stating that it was due to his boot chafing an unduly prominent oscalcis. This conversion symptom seemed to replace his previous heart symptoms.

He refused further treatment.

CASE 193. A.A.A. Male, aged 19. Single.
Admitted 28.6.40, discharged 2.11.40.

On admission he presented a hysterical aphonia which began as a laryngitis which resulted from a "chill" while waiting for a train to return from leave to his unit about the end of January, 1940. His throat felt quite raw and he could not eat. From 4.2.40 till 8.3.40 he was a patient for his complaint in Stobhill Hospital

His heart complaint (palpitation and "racing" on excitement or exertion) was but a part of an anxiety state which was present on admission.

On 3.7.40 he was convulsed with 5.0 c.c.of Cardiazol. For the first fifteen minutes of the half hour before he would submit to the injection, he had a semi-hysterical, semi-anxiety attack in which he paced up and down his room wringing his hands or twisting his cap, recalling as the tears streamed down his cheeks his past illnesses and insinuating that I was a cruel friend for wishing to impose on him who had suffered so much in the past. He also stated he was quite unfit for the Army and it was towards the end of the fifteen minutes that he first spoke pointedly about his heart and invited me to feel its tumultuous beating. He was then left, but fifteen minutes later stated that he knew he had acted like a baby and would I give him the injection now? There were no outstanding features in connection with the convulsion.

Throughout the remainder of his stay in Hospital (he was discharged on 29.7.40) he made no further complaints about his heart, but began to walk with a limp in his right leg stating that it was due to his boot chafing an unduly prominent oscalcis. This conversion symptom seemed to replace his previous heart symptoms.

He refused further treatment.

CASE 193. A.A.A. Male, aged 19. Single.
Admitted 28.6.40, discharged 2.11.40.

On admission he presented a hysterical aphonia which began as a laryngitis which resulted from a "chill" while waiting for a train to return from leave to his unit about the end of January, 1940. His throat felt quite raw and he could not eat. From 4.2.40 till 8.3.40 he was a patient for his complaint in Stobhill Hospital

where the hysterical nature of his complaint was recognised and he was treated with, among other things, an electrical collar which he found most painful - "if I could have shouted, I would have been pleased". From his dismissal from Stobhill up until just before his admission to Carstairs Hospital the Army seems to have lost touch with him and he, on his part, was in no hurry to apprise it of his whereabouts since the mistake was not his. During this time, he found the loss of his voice now aggravating to himself, e.g., he had to stop speaking (he could now manage it in a whisper) to anyone in the street when a car passed, and, when he became angry as when people at home teased him about his complaint "I could not let myself go and became all seething inside". He became more and more apt to lose his temper.

In his previous history he had been told by his (indulgent) mother how he had had a terrible fright when a wardrobe fell on him without, however, causing him any physical damage. He had been in bed for three weeks afterwards. He was solitary and shy, and apt to be dominated and bullied when at school. He had always been scared of things such as toy pistols. He did not go in for fighting and, in general, was backward and timorous. "I take it, I think, from my father". His mother was the dominant one in the household.

Physically, his health was indifferent - he had scarlatina and measles for which he was off school for about 1½ years. Since leaving school he had been in several jobs - in an office, warehouse, motor-mechanic, chauffeur, and butler. This latter job appealed to him very much - "anything domestic always appeals to me". He had no hobbies and when he had spare time he would stay indoors studying books which would help him as a butler.

He at first stated he volunteered for the T.A. on 26.8.39 in "a sudden moment of patriotism" but later stated "I did not think war would come" and his enlisting was intended to be "a time-saver" by which he would escape the calling up age when it came. He was called up on 1.9.39.

On the approach of his first injection of 5.0 c.c. Cardiazol on 3.7.40 and which produced a major convulsion,

the patient refused point blank to have treatment, his refusal becoming more and more vociferous until his voice almost rose to shouting pitch. After an interview with the C.O., however, he submitted with good grace. In the immediate post-convulsion state, he was aggressive, at first striking my arm and then went on to punch my right shoulder. He received his second dose of 5.5 c.c. on 5.7.40 with the production of a major convulsion. The same morning he had received an official letter from the Army Authorities stating that he was to be discharged the Army (the letter, however, was a mistake) which made him joyously excited and unable to settle himself. In the post-convulsion period, he denied ever having received such a letter and had forgotten it completely. His behaviour was again aggressive: at first he rubbed his face vigorously with both hands (as if to remove a layer of deeply-ingrained dirt) after which he savagely sank his finger nails into the medial aspect of his left arm and thereafter began to pluck several papules and postules on his neck and face. He then stroked my arm heavily after which he began punching my right shoulder. Further doses of Cardiazol were administered on 8.7.40 (5.5 c.c.) and 18.7.40 (5.5 c.c.R) on both occasions a major convulsion being produced. Immediately after the last of these convulsions he was asked, "Why are you in bed?" and he replied in a normal voice that he did not feel like getting up, but his aphonia returned after the first few words he spoke. On 20.7.40 he was given 2.0 c.c. and 2.5 c.c. which had an intended sub-convulsive effect and persuasion, suggestion and exhortation were employed without success. A further 3.0 c.c. convulsed him and again his hysterical aphonia returned after the first few words were spoken. Eventually, by employing sudden pressure on his chest as he exhaled in a whisper which was converted thereby into an explosive sound, he was convinced he could speak in a fairly normal manner. A further dose of 3.0 c.c. was then administered but this produced no detectable effect on either his mental or physical state. His voice when he left the treatment room had improved to the stage of a hoarse whisper. He was informed that that was all the treatment his voice required and that it would probably now steadily improve of itself. It did, and at a board on 2.11.40 he was regraded 'C' and returned to his unit.

CASE 194. R.H. Male, aged 32. Married.
Admitted 6.7.40, discharged 29.9.40.

Admitted on 6.7.40 when he presented a hysterical paralysis of both legs and a hemianaesthesia of the left side of his entire body: a shallow ulcer about the size of a 3d.piece was present in his upper left chest and it had resulted from an unsuspected burn from the tip of a cigarette on account of the anaesthesia. In addition to the hysterical symptoms, there were organic findings in the left leg - diminished tendon reflexes and a considerable degree of wasting. To all his symptoms, he displayed a complete "belle indifference" as he lay quietly and contentedly in bed.

Mobilised at the outbreak of war as a member of the T.A., he remained in good health until January, 1940, shortly after he was posted to Scapa. His trouble began with a sharp pain in his left instep. Despite massage and exercise, his complaint became worse until in March he had to take to bed being unable to put any weight on his foot. After being a patient for three weeks in Kirkwall Hospital and then a patient for five days on the H.M.H.S."Amarapoora", he was taken to the naval hospital at Kingseat, and by this time his arms had also become affected - he was dropping knives and forks and within a few days was unable to feed himself. After a time he was transferred to Monymusk Hospital and then to the Military Hospital at Edinburgh Castle. He stated on admission to Carstairs Hospital that his arms were beginning to recover and it is significant that he added that he had been boarded and had learned from his wife that she had his discharge papers.

On 18.7.40 he was given 2.5 c.c. Cardiazol (intended to be a sub-convulsive dose) and convulsed, immediately afterwards displaying a strongly negative therapeutic attitude. He was instructed to observe that he could now use his legs having drawn them up into the flexed position but retorted that I had placed them in that position, which was quite true as I had done so immediately at the termination of the convulsion and before he had recovered consciousness. Despite this attitude, however, or more probably on account of it, and very ill aspect, he was supported and forced to walk

around the ward (his frequent vomiting and pleas to be allowed to rest himself being ignored) until he was able to walk unaided. This state continued during the remainder of his stay in this hospital. He was discharged on 29.9.40 complaining then and for some time previously of pains in his shoulders for which nothing objective was discovered to account for it.

CASE 195. J.K. Male, aged 21. Single.
Admitted 11.7.40, discharged 12.9.40.

He was called up on 29.9.39 and went to France in January, 1940, and during the German invasion of France was involved in action with isolated units as, owing to his just having returned from leave, he was unable to find his own one in the disorder of the retreat. During his six days' march up to the line in an endeavour to find his unit, he was in the company of others repeatedly bombed and machine-gunned and had practically no food. Ultimately he came up with his unit and was sitting with his pal on a lorry when enemy aeroplanes came overhead. That was the last thing he remembered until he awoke in a hospital in Birmingham unable to speak, "pretty shaky" and unable to lift anything the first day and had to be fed as a consequence. His speech soon returned, but he found he was now speaking with a stutter (never previously present) and that his head was inclined to shake (a hysterical tic), the latter he attributed to a practice regularly indulged in by him in France - in order to escape from possible damage from enemy aeroplanes he dived into any convenient ditch drawing his head down as far as possible into his shoulders.

When 17 years old he had rheumatic fever for which he was in bed for about four months. (The description he gave of the attack was typical.) There were no recurrences of the symptoms until one day before he went into action and he was going to report sick but "we had to stand by, and the swelling went away". At the same

time, he became conscious of headaches originating in the upper region of the back of his neck and, less frequently, originating in the frontal region. Nothing abnormal was found in his early history from a psychological point of view save that he had no outside interests or hobbies and he seemed to have been lacking in normal desires towards the opposite sex.

Regarding his father - "He had something like this in the last war, my mother told me. He died through the effects of it, I think". Regarding his hysterical symptoms, he showed the customary "belle indifference".

Following one Cardiazol convulsion (dose 4.0 c.c.) his symptoms gradually improved and eventually he gave the deceptive appearance of well-being. On being informed, however, that he was being returned to his unit in London, he broke down completely and was as bad on the morning after he had been informed as he had been on admission.

After the convulsion above noted, he showed rubbing movements of one leg upon the other, this passing into cycling movements which got faster and faster. There were also sucking movements of the lips, followed by striking out with his hands at Sister and the Orderly.

He refused further treatment but eventually improved and was discharged.

CASE 196. W.B. Male, aged 34. Married.
Admitted 12.7.40, discharged 17.8.40.

He complained of pain which was like a needle running from the left testis to the top of the ilium on the same side. The pain was intermittent in character but when it came on it made him feel as if he "could cry" and that "it seemed to knock the breath from him". He was subject to attacks of trembling and felt short of

breath. During the attacks of trembling he felt hot and cold with sweats and palpitation. He felt giddy and felt his legs weak.

Apart from a recent "nervous breakdown" in a sister (the patient was the youngest of eleven of a family) he gave no history of nervous disorder in the family. At school, he described himself as "a brilliant scholar" though he was not considered a leader nor was he especially popular. He was rather shy and had few friends. When fifteen years old, he was shown how to masturbate by a man of twenty and subsequently he went to ask his doctor's advice on account of nocturnal emissions. He married when he was twenty-four years old. He suffered from a fair degree of impotence, not feeling like intercourse when his wife wanted him and having difficulty in obtaining an erection and "had to force himself". He imparted this information with a marked stammer and the accompaniment of a facial tic.

On 19.7.40 he was given 2.5 c.c. Cardiazol, repeated in a few minutes, (sub-convulsive) with suggestion and persuasion (which took the form of encouragement and telling him if they did not entirely disappear, he would require further doses), after which his stutter disappeared and the tic considerably improved, and thereafter for a few days, the improvement being most marked when alone with his comrades or talking to the nurses. After a few days, however, a tendency to a relapse manifested itself and he attributed this to the recurrence of nocturnal emissions which he said he found very weakening.

During his service as a soldier (he volunteered at the outbreak of war) he was under heavy combardment and machine-gunning after the German invasion of France and was heavily bombed at Dunkirk. He proved unapproachable from a psychotherapeutic point of view and was accordingly discharged at a board held on 17.8.40.

CASE 197. F.McL. Male, aged 35. Widower.
Admitted 14.7.40, discharged 25.8.40.

Formerly an assistant cook on the "Athenia" when, on the night it was sunk, was making to go out of the galley at the start of the second meal about 7.30 p.m. when he heard a noise below as if the bottom of the ship were being ripped open. He was thrown off his feet and over a potato tank, landing on the galley floor, striking his back heavily and his head coming into violent contact with the wall. He thought he was "out for the count for a short time" and, when he came to, everything was in darkness. He was eleven hours in a boat before being picked up by a destroyer. During these eleven hours he had a harrowing time apart from contending with the elements as frequently a hysterical woman had to be knocked out to keep her quiet. On his arrival in the Beresford Hotel, Glasgow, he was conscious of a dull feeling (his depression) having set in, a feeling which was quite alien to him. Since then (with the exception of a period of three weeks while he was on holiday in Ireland) the dull feeling had persisted. Headaches (of a neurotic character) began to make their appearance and, in November, 1940, he began to take what he described as "fainting attacks" which usually came on without warning though, at other times, beforehand he had the feeling that his "stomach was heaving and about to be tied in a knot". He usually passed completely unconscious and when he came to felt dizzy as a rule but was usually quite well orientated. In addition, "lumps" made their appearance at various times on his body (usually at the same time as the fainting attacks): each of these was about the size of a pigeon's egg, red in colour and not painful though sometimes itchy. They generally lasted about an hour when they disappeared without leaving any signs.

He married in 1930, his wife dying four years later, nine months after the birth of their second child, both of whom are females.

His mental state on admission was one of a mild depression occurring in one who hitherto had always been of a very happy and cheery disposition. He felt "tired and fed up" and "couldn't be bothered": people talking to

him irritated him: he was unable to concentrate and even the writing of a letter or the reading of a few lines of a newspaper was a task. He had gone off his sleep though his appetite had remained practically unaffected.

He was given 5.0 c.c.of Cardiazol on 12.8.40 when a major convulsion resulted. He refused further treatment on the grounds that it made his headaches worse. He gave the impression throughout his stay in Hospital of one "lying down" to his illness.

CASE 198. J.T.N. Male, aged 21. Single.
Admitted 17.7.40, discharged 12.2.41.

On admission, this patient presented the features of an anxiety state with tremors, starting at sudden noises, breathlessness, ready weeping. He complained of a "shaky feeling" which passed off when things were quiet, particularly when lying in bed at night: when asleep this was apt to be disturbed by battle dreams.

He was conscripted in October, 1939, and served in France and Belgium where he was under shell-fire, bombing and machine-gun fire. He was an unwilling witness of unpleasant sights such as children being killed: this made him mad because he could do nothing about it. His emotional responses made him feel self-conscious and on route marches on his return to Great Britain he found it impossible to hide his feelings, and when on guard he used to tremble. On the ship on the way back, he and others on deck were shelled and machine-gunned by aeroplanes: the noise was terrific. Bullets ricocheted all around the deck, many men around him being injured. Several had their feet blown off.

He gave nothing relevant of note in his previous history. After leaving school, he worked on a farm whence he was conscripted.

Exercise or excitement increased all his symptoms and even the rat-tat-tat of machine guns in a cinema news-reel was enough to worsen him.

He was begun on Cardiazol treatment on 9.11.40 with an initial dose of 6.5 c.c. and the production of a major convulsion. In the post-convulsion state, he was inclined to be peevish and childish, saying in the fashion of a child, "Go away! Go away!" Before the injection, he was extremely apprehensive and his apprehension obviously dramatised was very suggestive of a hysterical element in his make up in addition to his anxiety.

A slight, though definite, improvement in his anxiety state followed this first injection but a relapse occurred in a cinema above referred to - and a hysterical inability to use his legs was an immediate consequence. He was very bad for several days afterwards - up until his second injection of Cardiazol on 18.11.40 (5.5 c.c. with the production of a major convulsion) to which injection he submitted with great reluctance and only after considerable persuasion.

Again an improvement resulted - to his former level after the first one - but it was taken away from by an endeavour to have him take another one. He refused further treatment.

He did improve as a result of treatment but his anxiety symptoms were still very much to the fore.

CASE 199. J.G. Male, aged 20, single.
Admitted 22.7.40, discharged 17.8.40.

He complained on admission of headache and abdominal pain, the line of pain extending from the pubis to the epigastrium which "seems to bulge all the time as if it is pushing out". There was in addition a hysterical

partial palsy of his left arm, the hand being useless for gripping and the forearm and hand anaesthetic up to the elbow joint. The patient swayed continually as he stood. He also complained of a shooting pain in the praecordium.

He gave a history of having joined the T.A. three weeks before war was declared and landing in France on 28.10.39. On 18.12.39 an appendicectomy was performed and after a spell in a convalescent camp and a short leave returned to his unit and went into action at Brillon on the way to Brussels on the German invasion of Belgium. He was in the retreat to Dunkirk and near Ercelles was wounded (superficially) in the left arm by a splinter from an anti-tank shell. From Dunkirk he was transferred to Mount Vernon Hospital, Northwood, Middlesex, whence he was discharged after nineteen days with orders to report to his depot after fourteen days' leave (he expected 28 days). He went to his own doctor on the first day of his leave for dressings, and on the twelfth day of his leave his admission to Stobhill was recommended as, in addition to the feeling that he should have had 28 days' leave, his hand was turning blue and he was developing his present symptoms. From Stobhill the patient was admitted to Carstairs.

The patient was the only son and the youngest of a family of seven sisters, one of whom had had a "nervous breakdown" four years previously. His outside interests seemed to be non-existent: his occupation was that of an apprentice carpenter. He was "very slow at school".

On 26.7.40 he was given 2 c.c. Cardiazol (sub-convulsive) and suggestion and persuasion with respect to his symptoms, after which a further 2 c.c. were administered with the production of a major convulsion about which there was nothing of note. A dose of 3.0 c.c. was administered on 30.7.40 and after complaining of "things bursting in his head" convulsed. Suggestions were made to him as he was awakening, that feeling would be restored to his arm, etc., and when asked how he was feeling, replied, "Much better now". Several of his symptoms were removed by hypnotism and suggestion only, however, to be replaced by others. He proved to be

quite inaccessible therapeutically and was discharged at a medical board on 17.8.40.

CASE 200. J.N.W. Male, aged 20. Married. Admitted 23.7.40, discharged 23.8.40.

He complained on admission of blindness in his left eye which was stated to be permanent, though occasionally less severe and enabling him to distinguish light from dark. He also complained of headaches situated behind his eyes and in the occipital region: these headaches were constant with exacerbations. He also complained of seizures in which he fell down and was unable to move although there was no loss of consciousness. There was a preliminary aura of flashes of light before his eyes. These attacks lasted for 10-15 minutes, and a severe headache is left after each attack. The attacks were irregular in their occurrence and were getting fewer. All his symptoms dated from January - March, 1940 (when he was laid up with an atypical attack of Cerebrospinal Fever, in St.Ann's Emergency Hospital, Nottingham), with the exception of his headaches which began, as the patient said, as the result of the heat in a chemical factory in which he worked. For that reason he changed his job to that of a miner. He liked his work - it was "easy on" his head. He had no hobbies, did not read much, and was not interested in the cinema.

The patient proved exceedingly wayward since his admission, beginning by absenting himself without leave for eight hours. He displayed rather an insolent attitude towards the nursing staff. At times, when it was to his own advantage, he assumed a simplicity which was quite false.

There was no reason to assume that his complaints had other than a functional origin, and on 6.8.40 he received 5.0 c.c. Cardiazol with the production of a major convulsion. Immediately after he recovered

consciousness he complained of a severe, pulsing headache in the occipital region, but in a few minutes this disappeared and he remained well and free from headache for one complete day thereafter.

He refused further treatment and was eventually returned to his unit.

CASE 201. E.H. Male, aged 26. Single.
Admitted 24.7.40, transferred on 29.7.40.

He was conscripted in April, 1940, and ran away while still having to do two weeks of a seven weeks' training as "things were getting on my nerves and brain and I couldn't do the drills right". He again ran away after having been brought back by the police who arrested him and transferred him to hospital where he was ever since, until his admission to Carstairs. His behaviour and attitude (e.g. frequently smiling for no apparent reason) was very suggestive of schizophrenia, and, in reply to the question whether he heard voices, he replied that he did, and that he had first heard them about one month previously as he lay in bed one night. Since that time he had gone off his sleep and felt depressed in spirits. He said that he heard but a solitary voice which was a man's telling him to leave whatever job he was working on and to go to another one. Having done so, the voice would then tell him to leave that job and go to yet another one. It was a categorical voice, leaving him no option but to do as he was bid. In reply to further questions, it was elicited that he also had visual hallucinations, seeing very vividly, at times, bridges, trains and water. Asked if he could give any reason for these auditory and visual hallucinations, he replied that it might have been a punishment for his past sexual practices - masturbation from the age of eighteen onwards and frequent sexual intercourse. These things, he maintained, also brought about his present lack of strength and his difficulty in thinking properly - "my

mind seems to have clean gone". He remarked in addition that sometimes the voice was trying to torment him, and that sometimes he thought that his thoughts were being read. The contemplation of his mental state made him very depressed to the extent of feeling cast out and hopeless: it also made him inclined to be solitary and to refrain from joining in the conversation of his comrades as "They are bound to know there is something far wrong".

He stated that his mother had been subject to "heart turns" but on the nature of these being enquired into he went on to describe typical epileptic attacks.

Owing to the short interval in which he had begun to hallucinate it was decided to institute Cardiazol treatment while arrangements were being made for his transfer to an asylum, and he was convulsed with 5.5 c.c. Cardiazol on 26.7.40, there being no points of especial note about it or the post-convulsion behaviour. The following morning he stated without being asked that he felt much better and not nearly so depressed.

Transferred 29.7.40.

CASE 202. R.McI. Male, aged 28. Single.
Admitted 30.7.40, discharged 26.9.40.

Admitted on 30.7.40 complaining of insomnia, gastro-intestinal disturbance, depression and inability to concentrate.

He volunteered on 9.1.40 undergoing his training as a Flight-mechanic at Blackpool. Immediately on going to Blackpool he suffered from constipation (previously his bowels had been quite regular) and regulated his bowels on his own with medicaments.

For the month before admission (he was posted

after his training to Montrose about nine days before his admission to Carstairs) he had felt "out of sorts", the first sign of alteration which he noted being a weakness and nervousness, which he attributed to the strain of studying for his R.A.F. examinations and to the strain resulting from his contemplation of possible air raids. Although never in an air raid, he had heard the guns going which had a very definite unnerving effect on him as he was "always scared of the bombs coming down". This state passed into one in which he found he could only concentrate with difficulty and insomnia made its appearance. In addition, he felt that he had lost all his strength and was now disposed to worry incessantly about "the way in which the war was going to go" and about his parents who were very old and who lived by themselves at home.

He won the Dux Medal at his school.

With great reluctance the patient confessed that a sister, as the result of a severe pneumonia and pleurisy, had become very depressed and was found one day gassed in her room.

He was a fairly typical case of depression in which his fear of going insane loomed very large. These features were very marked in connection with his stomach which felt as if it were "on fire", and on one occasion when large purgation was employed he became alarmed when he "saw the food coming through him" and thought perhaps that the coating had come off his stomach. For this reason, he took little food as he had heard it said that when the coating comes off the stomach people were unable to digest their food properly. He was very grieved about his altered mental state and was dubious about ever getting better.

An improvement to the point of social recovery followed a course of Cardiazol treatment. A dose of 5.0 c.c. on 5.8.40 produced a major convulsion and in the post-convulsion confusion he again expressed his fear of going silly and, after a sleep of three quarters of an hour's duration, complained of his constipation and what measures he should adopt to combat this. Further doses of 5.5 c.c. and 6.0 c.c. were given on 7.8.40 and 10.8.40 respectively, on both occasions with the production of a

major convulsion. A complaint of pain in his back made its appearance, but X-ray revealed no fracture of the vertebra, only the signs of slight osteoarthritis.

CASE 203. G.H.L. Male, aged 31. Married. Admitted 2.8.40, discharged 5.10.40.

On admission he complained of stammering and nervousness. The stammer was very pronounced and often he would take as long as thirty seconds to say "no" and, to save himself the trouble of speaking, he habitually used gesture language when attempting to make any point. He re-enlisted in the regular army in June, 1938, and went to France in March, 1940. On the German invasion of the Low Countries, his company moved into Belgium. During the retreat he was overcome with fatigue and fell asleep in the cellar of a house only to discover on awakening that he was made prisoner by the Germans. The same night he made a successful get-away, dressed in civilian clothes, to the French lines. While being conducted along a trench therein, the whole of it was blown up by a shell and he remembered no more until he awoke in a French hospital unable to speak. Immediately preceding the bursting of the shell he felt very much afraid and wanted to run away but was restrained by the maxim that a brave soldier always sticks to his post and must not show fear. He did not visualise himself being wounded in any way but he did his being killed. He was transported to the U.K. about the end of May and was in a psychoneurotic hospital near Sheffield for a period of six weeks where his speech returned though with a marked stutter. On his return to his unit at Edinburgh he was sent to see a psychologist at the Castle and was thereafter admitted to Carstairs Hospital.

As a boy, he was troubled with nocturnal enuresis and was greatly afraid of the dark. Owing to his persistently playing truant from school (at which he was backward), he was sent to an industrial school when eight

years old and remained there until fifteen when he joined the Army overstating his age in May, 1924. He lost his lance-corporal's rank in 1932 for being absent without leave for five weeks. Coming out of the Army in June, 1933, he did various labouring jobs until his re-enlistment.

He was the elder of two brothers. His father stuttered at times.

He stated that he disliked the Army after what he had seen in France - "I do not think it right for people to go killing".

He was given 5.5 c.c.Cardiazol on 14.8.40, a major convulsion resulting and about which there was nothing of especial note. He refused further treatment and owing to the negative therapeutic attitude which he displayed, he was discharged at a medical board on 5.10.40.

CASE 204. G.H. Male, aged 26. Single.
Admitted 13.8.40, discharged 17.9.40.

Admitted complaining of urinary incontinence, nocturnal and diurnal.

He volunteered on 23.12.39 as a member of the Pioneer Corps and landed in France two days later, but even going across in the boat he "took bad" with a sore throat and "was fit for nothing". On his arrival he was sent to hospital for two weeks, after which he joined his unit but did little work as most of the time he was under M.O.'s orders. He was bombed for lengthy spells on four occasions, the bombings making him feel very nervous and he "seemed to get all trmbly, particularly about the hands and legs. His complaint began early in April and since then it had gradually become worse. He was seen at various times by various specialists on account of it and

on one occasion a V.D.Specialist remarked to him that he was "a hopeless case" and that he thought his trouble would stick with him all his life. He was evacuated from St.Malo on 15.6.40 and since his return to the U.K. had been in doctors' hands.

He was the youngest of a family of six. His father (killed in the Great War) also suffered from the same trouble as the patient, as also do two of his brothers. The patient himself had exactly the same trouble when he was young. "I can remember it. It is just the same as it was before. There is no difference in it". It went away when he was about nine years old, but reappeared for about a year when he was 16½ years old. When young he had many nightmares from which he used to awaken screaming. He was also subject to palpitations. At school he was rathed bullied and consequently always avoided fights whenever this was possible. He always preferred his own company, never making any endeavour to make friends, having "liked it quiet always".

On 16.8.40 he was given 5.5 c.c.Cardiazol which produced a major convulsion about which there was nothing of especial note save that afterwards he was a little excited as if afraid of something. He refused further treatment and absented himself without permission on 17.9.40.

CASE 205. J.D. Male, aged 42. Married.
Admitted 17.8.40, discharged 2.10.40.

Admitted on 17.8.40 with the complaints of numbness in the left leg, right shoulder and pain in the pumbar region. In addition, he carried himself in a grotesque manner, stiffly with shuffling steps and his body being contorted slightly backwards.

He was an old soldier, joining under age at 17, and, having seen front line service, was demobilised in

1919. Since then he had been in and out of various jobs with many spells of unemployment and as he was out of work on the declaration of war, volunteered and was put into an A.M.P.C. While in France during the cold spell of 1940, he had a fairly typical attack of cerebrospinal fever and during the first six days in hospital could remember nothing - it was as if these days had never been. He was told on awakening that he had had a lumbar puncture during these six days. When putting on his shirt three or four days after recovering consciousness, he found a numbness in his left leg and right shoulder. He was eventually sent home to the U.K. in June, by which time his nasopharyngeal swabs were negative, and on his arrival in another hospital had two further lumbar punctures. No improvement occurred in his condition between then and his admission to Carstairs Hospital.

He held as an unshakeable conviction that the three lumbar punctures which had been performed on him contributed to his (hysterical) condition. He was induced to take 5.5 c.c.Cardiazol on 9.9.40 with the excuse that it would slacken his muscles and make him walk much better and to recline in more comfort. Before convulsing, he was very apprehensive and spat vehemently towards the window and, after a few seconds, his apprehensiveness increased until eventually he sat up, apparently on account of the aura he was experiencing. In the half-sitting up position, he convulsed going a bright heliotrope blue in the face almost immediately (a phenomenon I had not so far witnessed). He tossed about after the convulsion with no signs of rigidity or affection of his back, left leg or right arm. Sweating was profuse shortly afterwards when he fell into a deep sleep, from which he could not be aroused, with tachycardia and continuance of the sweating. An improvement resulted but he refused further treatment. He displayed throughout his stay in hospital a negative attitude. At a medical board on 2.10.40 he was discharged.

CASE 206. J.B.R. Male, aged 21. Married.
Admitted 26.8.40, discharged 2.10.40.

On asking what he complained of he replied, "I have had no money for twelve weeks" and when told that was not the kind of complaint referred to, stated that he was "perfectly well except for my difficulty in walking". He walked with a hysterical limp, gross and grotesque, in which, with each step of his right foot, he almost doubled up in bending forward. He told how he had been perfectly fit when called up with the T.A. at the outbreak of war, and had remained so until an attack of appendicitis in October, 1939, for which he was operated on. After the operation, he had terrifying dreams of being in an operating theatre and of hearing the surgeon asking for his scalpel and forceps. Following the operation, he felt that something had been taken away from him. At first, he thought he could feel a sensation of the missing appendix, but later it seemed that something was missing in the front of his hip. On leaving hospital, he found he was having difficulty in walking with his right leg, the disability gradually becoming worse. The surgeon told him that a nerve had been cut and ever since then the patient had been trying to secure compensation. He even wrote to his M.P.

He was the youngest of a family of five and stated that he had always been nervous, having bed-wet until he was ten and having been a constant nail-biter. He was always intensely bound up in his mother and all his life he had had dreams of her being taken away from him, and, since his marriage, of his wife being taken similarly. Before his marriage he had always been a very shy person with hobbies he pursued by himself - photography, stamp-collecting and woodwork. Since his marriage, he had not been so shy of meeting people. He had always had an acute dread of being injured and avoided fights because of this, and, in the dark, always was afraid something would come out of it to attack him.

He was given 5.5 c.c.Cardiazol on 23.9.40 with the production of a major convulsion, after which he walked (supported) in a normal manner save that he was inclined to stamp his left foot. The same evening he was unable to sleep, for dreading another similar experience,

and he lay in bed sweating and with his heart thumping - in much the same state as he had been the night after his appendix operation. He refused further treatment and at a medical board on 2.10.40 was discharged.

CASE 207. G.B.C. Male, aged 22. Single.
Admitted 29.8.40, discharged 2.10.40.

When admitted he complained of being "jumpy and nervous". In addition, he complained of pain in touching the surgical wound of his hand (there was a recent surgical scar on the skin over the 2nd.metacarpal extremity of his right hand, his index finger being amputated) and of his not being discharged from the Army as he would be much happier at home with his father and mother. His sleep was sometimes broken by nightmares of falling, falling. Once, he said, when accused of stealing, he gave up his job on account of it, and whenever he heard an Army comrade say that some of his cigarettes were missing the patient felt as if he were accused of taking them. Occasionally he felt that people were staring at him and thought that some of his comrades were laughing at him. He felt that people noticed the loss of his finger and he wondered if they thought it was a self-inflicted wound.

He was the eldest of a family of five, the remaining four being sisters. He denied the presence of nervous traits in childhood, but after leaving school at 14 years was continually in and out of various jobs (five in number) with various spells of unemployment intervening.

He was conscripted in August, 1939, and went to France in April, 1940, and had been there five weeks when he sustained a shrapnel wound of his right index finger. He was evacuated to the U.K. and his finger was amputated in Stirling Royal Infirmary. On returning to his unit from sick leave after being eight weeks in hospital, he had a fugue and returned to his home about 200 miles away, and, on his father insisting on his returning to his unit,

did so, being eventually referred to Carstairs Hospital after a psychologist's opinion.

In hospital he had one period of great agitation and expressed great concern about his parents and had to be put to bed and sedative administered. The following morning he could not be induced to sit still but kept pacing up and down his room with exaggerated gestures as he talked. Later in the day, although he persisted in seeing me, he was unable to express himself in a coherent fashion. His concern about his parents was quite irrational. During the course of his remarks, he again referred to the idea that people thought the wound in his hand which resulted in a loss of his finger, was a self-inflicted one.

He was given two injections of Cardiazol, the first (on 18.9.40) of 5.5 c.c. with the production of a major convulsion after which I shook him by the shoulder to arouse him and he threw my hand off, then tossed his head violently from side to side, then, rubbing his head in a nestling fashion on his pillow. He then went off to sleep drawing the solitary white linen sheet covering him up over his head.

On 23.9.40 he was convulsed with 5.5 + 4.0 c.c., being very apprehensive after the first dose. After the convulsion, he again nodded his head violently from side to side on the pillow, this being followed by rhythmical movements of his legs after the manner of a cyclist. Then, as on the previous occasion, he turned on his left side, curling up in a foctal fashion, and drew the sheet up over his head when he went to sleep.

He refused further treatment and was discharged on 2.10.40.

CASE 208. O.W. Male, aged 25. Single.
Admitted 14.9.40, discharged 26.10.40.

He gave up a teaching post at Instanbul and was accepted as an Officer-cadet on 9.11.39, but not called up until April, 1940. After ten weeks' training as a private, he was sent on a 16 weeks' training course but reported sick at the end of eleven weeks, finding the work too much for him. He had increasing difficulty in concentrating and eventually felt he was sinking into a state of stupor. He had a peculiar feeling in his head - as if something were shutting off his capacity to think. He lost interest in everything despite great efforts to do the work required of him. The harder he worked, the less capable he became of working. Eventually he felt that the work was not worth doing. He became depressed and felt he was making mistakes and had a peculiar sense of watching himself doing things wrongly and cursing himself for it. In general, he felt as if mental decay had set in. In addition, he was subject to various obsessive-compulsive symptoms, e.g., he had to see if he had locked his kit-bag properly and liked to have things arranged in order. He was given fourteen days' leave from hospital but returned looking and feeling worse than when he went away. He slept badly and when he lay in bed half-asleep he had experiences which he does not know whether to ascribe to dreams or to waking thoughts - he sometimes imagined he was back in the barrack square and imagined he could hear orders being given or was back at Istanbul or even at school. He seemed to see people and hear them talking almost as if the scene were real. He seemed to be in a schizoid state.

The second youngest of a family of seven (the youngest being a sister), he always tended to overwork. He was imaginative as a child and much given to day-dreaming, and his capacity for identification was strong. By dint of hard work, he won a scholarship to Oxford University and graduated with 2nd.Class Honours in modern history and in September, 1938, secured employment as a master in the English High School at Istanbul.

He was given 6.0 c.c.Cardiazol on 19.10.40 and 6.5 c.c. on 21.10.40, on each occasion with the production of a major convulsion. There was nothing of note in

connection with the first: he lay quietly and went off to sleep. On the second occasion, before convulsing, he lay with a wrinkled, frowning and grimacing face, as if he were feeling something inside his head, then, after the convulsion, turned on his right side with a little kicking of his legs. He then smiled at the orderly and slowly stretched out his left hand as if to touch him. Then he turned face downwards in bed and made the whimpering noises of a child. When asked why he was in bed, he replied that he had gone on account of feeling tired and in reply to the question as to what was making him tired, he replied it was the weather.

His depression improved markedly as the result of treatment. He was discharged on 26.10.40.

CASE 209. C.McD. Male, aged 21. Single.
Admitted 20.9.40, discharged 5.10.40.

He complained on admission of dizzy turns and an affection of his speech, the latter being present for two months and the former for one month.

He described (all with a very marked stutter) himself as nervous when young, being troubled with nightmares from which he used to awaken sweating. He had a marked fear of the dark and even yet felt "uncomfortable" in it.

He was backward at school and always inclined to be solitary. He left school at the age of thirteen owing to an attack of "rheumatics" in his knees and never returned. His stutter began without ascertainable precipitating causes when he was twelve years old, and he often became speechless when he was excited. His stutter had been present intermittently ever since. When 15 years old, he began work for the first time, but, from his own account, he was rather shiftless and lacking in the energy and interest to hold the various jobs he was

employed in. Between these jobs, he had various spells of unemployment, sometimes for as long as six months.

Two of his three brothers stuttered in infancy and childhood, the ailment in their case vanishing when they left school. He had one brother who died from a drowning accident.

He was conscripted on 18.1.40. He was given seven days' leave in August after five days of which he reported sick with his dizziness, at first to his own civilian doctor and then on his advice to Stirling Castle when he was sent to Edinburgh Castle to report to the psychologist, after which he was admitted to Carstairs Hospital.

He was convulsed with 5.5 c.c. of Cardiazol on 23.9.40 - a severe convulsion with extreme cyanosis and reluctance to breathe at the end of it when, after he began to breathe, he was not rousable until after some time. He then kept on saying "Oh! Oh!" in reply to any questions asked of him, without any appearance of his stutter. Instructions were given to the ward orderly to speak to him while I was treating another patient: the orderly reported that the patient spoke, when he did speak, in a normal manner. He said "Yes" without a stutter when I saw him about ten minutes later, but he soon lapsed into it.

He refused further treatment. He was discharged on 5.10.40.

CASE 210. R.W. Male, aged 28. Married.
Admitted 20.9.40, discharged 12.10.40.

He was indefinite about his complaint stating that he was subject to headache "though not an actual ache" but "more a feeling of a headache". He was also inclined to waken up through the night feeling afraid

though not knowing what it was he was afraid of, yet at the same time very much filled with the fear that something was going to happen to him.

It was fairly obvious in the first few minutes of his first interview that he was depressed - all his statements were made only after considerable retardation and the great effort he made to recall such things as dates and the great effort necessary to him to concentrate his attention on any point were very obvious. He readily admitted these points and in addition complained of sleepliness and of indifferent appetite. About one year before admission he had entertained thoughts of committing suicide.

He gave a history of, as a child, nail-biting (a habit he still indulges in) and of nocturnal enuresis which stopped before he left school. At school he did not like school games nor had he many friends. He was not bullied by his fellow pupils, but, at the same time, was not engaged in any fights. His first attack of depression had occurred six years before admission shortly after a petrol tank on which he had been working had exploded and, also and ever since then, he has always since been frightened of something, but the exact nature of this something was unknown. During these six years, he had several bouts of depression each year. He euphemistically described to me these bouts of depression at first as "I then went off for a good holiday".

His mother was accustomed, like himself, to waken up through the night apprehensive and fearful. The patient himself was the eldest of a family of four, one younger sister suffering mentally in the same way as himself.

He enlisted in the Army after the New Year, 1940, believing "I thought it would do me good. I thought I might feel a lot better".

After a spell of mild depression in France (which responded to change of environment which he was able to effect), he remained well until the German invasion of that country. He was in the retreat to Dunkirk during which they were subjected to continual

shelling and bombing and, while taking cover at Dunkirk in a cellar of a brewery, two shells exploded almost at the same time at diagonally opposite corners of the rectangular building. Why this should have affected him to the extent it did and cause his depression, he did not know, but immediately went on to relate this incident to the explosion of the petrol tank previously referred to. His depression continued up until his admission to Carstairs Hospital.

He was begun on Cardiazol treatment with an initial dose of 11.0 c.c. (5.5 c.c. Re.1) and immediately after the resulting convulsion was very restless and aggressive in the way he threw his arms about. This passed on to a state in which he made a few masturbatory movements with his hands on his genitals.

He subsequently refused further treatment although he admitted to an improvement in his mental state with respect to the depressive component, though his poor memory for things and inability to concentrate was still much to the fore, .e.g., he used to come in for his interview with the points he wished to discuss neatly tabulated on a piece of paper. Throughout the remainder of his stay in hospital he continued to improve for, as well as his depression remaining absent, he was eventually able to concentrate better and his appetite and sleep had returned.

CASE 211. H.L. Male, aged 27. Married.
Admitted 5.10.40, discharged 26.12.40.

On persistent and detailed questioning, it was elicited that his basic complaint was one of depression of which his initial one of his stomach feeling "as if it were upside down" was merely a symptom.

After a spell of nine months' unemployment preceding April, 1940, and with no prospects of ever

being employed (as a cook) as long as the war lasted, he replied to an R.A.F. advertisement for cooks, was accepted and, after a short space, was posted to Sumburgh in the Shetland Isles. His state on admission to Carstairs Hospital began about two weeks after taking up his duties in the Shetland Isles after being an unwilling witness to an accident to one of the station's planes which after skimming the cookhouse in which he was employed, plunged into the sea. Thereafter, aeroplanes coming over, even although not enemy ones, began to influence him excessively: they began to give him headaches: then he went off his food which latter was followed by a feeling that his stomach was turned upside down. He then began to go off his sleep. He first reported sick two months before his admission to Carstairs Hospital and was given medicine which failed to improve him. Towards the end of August of 1940 he was admitted to Kingseat Hospital for a period of three weeks and was treated therein with medicine and "plenty of rest", to be followed by a period of fourteen days' sick leave. On his return to his unit on 27.9.40 he was put into the sick bay whence he was ultimately transferred here.

In his previous history, he stated that he had always been inclined to be nervous, particularly of such things as horses, cows, thunder and lightning. He had also been subject to nightmares, somnambulism and nail-biting, this latter practice never being given up. Despite his nervousness, he says it had never caused him to shirk company: he was quite sociable and liked company. Despite this, he had notmany real friends. He was never involved in fights while at school and would rather walk away than be involved in one. Since leaving school he had been in a succession of jobs, ultimately graduating to be a hotel cook for a period of eighteen months (after which he became idle) after serving as a kitchen porter for twelve months. His hobbies were chiefly swimming and playing the piano. He liked company, mixing well with it and as a rule was "cheery and bright and always having a bit of fun". Married four years before admission, having four of a family, two of whom were twins.

His father committee suicide fifteen years previously, when aged 50, as a result of his being dismissed from his employment at which he had worked a lifetime for

"sticking up for his rights". Of his six brothers and four sisters alive, one was stated to be very nervous.

His mental state was typically one of depression: his voice was very soft, toneless and at times almost inaudible. He sat in a constrained position, his only movements being to bite his nails. There was a considerable retardation in all his replies and his appearance was that of one dejected and miserable. In reply to direct questions, he admitted that a few weeks before admission he was troubled with suicidal impulses and was now passively suicidal, being indifferent to what might happen to him. He now avoided company. He was unable to concentrate. His appetite was poor: his sleep, although poor, was improving. He had a phobia of water, and mentioned how his journey to and from the Shetlands had made him feel quite terrified.

On 7.11.40 he was given 5.5 c.c.Cardiazol with the production of a major convulsion. He had the customary amnesia after it but this was peculiar in that he thought he had been given the injection on the previous day and that the intervening period had been a complete blank.

Subsequently he refused further treatment, and the subsequent slight improvement was maintained: his depression was in some measure relieved as judged by the complete absence of suicidal ideas.

The improvement in his case is perhaps not entirely attributable to Cardoazol treatment, as he showed signs of passing into an anxiety state beforehand with the development of such things as claustrophobia. As well as his associations centralising around this, they were in large measure attached to the home situation with his wife endeavouring to support herself and the four children in the face of the rising cost of prices, on £2.2/- a week.

CASE 212. J.M. Male, aged 39, married.
Admitted 7.10.40, discharged 22.1.41.

He was complaining of pain in the back of his head and down his spine. This present attack first occurred while on leave on his return to this country after being evacuated from St.Malo, France. Since then he had been under medical care, either out of or in hospital.

A member of the T.A., he was called up on 1.9.39 and sent immediately to France where he did railway construction work up until he was sent to reinforce the infantry after the German advance, and during the subsequent allied retreat was subject to much bombing and machine-gunning and once (on the Somme) very narrowly escaped being taken prisoner.

His complaint was typically hysterical in character and any attempt made to examine the parts affected evoked violent squirmings.

He says his condition started in December, 1939, with pain and swelling of the elbows, hips and feet. He was treated in No.4 General Hospital then and had been on light duty ever since.

Patient was the eldest child of a family of eight. He had diphtheria and measles in childhood. After leaving school, at which he was an average scholar, he entered an engineering works where he was employed for four years when he joined the R.A.F. in 1919 as a fitter, and was in Egypt for four years in that capacity and contracted during his service there sandfly fever and malaria. On his discharge, he joined the Seaforths and served with them in India until 1929 when, on his discharge and return to this country, he secured employment as a tram-driver with the Glasgow Corporation at which employment he has been ever since.

Several weeks after admission it was elicited that the anxiety symptoms (present as well as his hysterical ones) had originated, not in his war service, but in civilian life following two accidents to the tram in which he was driving. He felt "nervous" ever since, not

only about tram-driving but about things in general. It was after these accidents that he first felt his rheumatism coming on.

With some reluctance, this patient accepted 5.5 c.c.of Cardiazol on 6.11.40, a major convulsion being produced, and during the post-convulsion period he came downstairs and stated emphatically to Sister that he would not accept the injection he had already received. He steadfastly refused to have further Cardiazol treatment, although he continued to ask the intended-to-be rhetorical question: "Is there any treatment that would help me?"

This patient is referred to in the text of the thesis as the man who was subject yo a lifelong recurrent nightmare in which he was repeatedly and savagely assaulting an old lady by repeatedly knifing her, this nightmare giving place after his war experiences in France to battle dreams and these, after Cardiazol treatment, to nightmares associated with it - the affect in all these dreams remaining the same.

CASE 213. A.G. Male, aged 22. Single.
Admitted 15.10.40, discharged 20.1.41.

Complained on admission of inability to use his left arm properly (a hysterical paralysis) since he recovered consciousness on 5.6.40 in No.4 General Hospital, La Boule.

He was conscripted on 15.7.40 and after his training was completed went with the B.E.F. to France in January, 1940. His usual employment was as a company clerk, which job he carried out in an efficient manner. On the German advance in May, 1940, he saw action on the Somme and had to retreat to a cornfield. The last thing he remembered was the German infantry advancing over the brow of a hill towards them. He next remembers awakening

at No.4 General Hospital feeling very weak and with his left arm paralysed.

He was evacuated from St.Nazarre as a walking case on 19.6.40 and on landing at Southampton, being transferred from there to Stanmore Hospital for a period of six weeks with no improvement in the condition of his arm. He was then returned to his unit, recommended for two weeks' leave and regraded "C", the job allocated to him being that of a telephone runner in the battalion orderly room. On going on leave he was seized with a violent headache and had to stay three weeks in bed at home. On his return to his unit he was sent to Gleneagles Hospital on 17.9.40 where he was treated with massage and electricity. This treatment improved his arm a little. He was transferred from Gleneagles to here.

He gave no history of a similar complaint in the past. He gave a history of nail-biting dating since infancy, as also blushing easily, self-consciousness and shyness in company. Otherwise, there was nothing of note in his history.

For the two years before being conscripted he took up running as a pastime and seemed to have done fairly well at it.

Under $3\frac{1}{2}$ c.c. Cyclonal administered three days after admission, a considerable portion of his amnesic gap was filled up to the accompaniment of much abreaction. He told how he had been sent when the Germans were seen advancing as a runner to make for the battalion H.Q. in a wood at some little distance. Ultimately, he had fallen to the ground in another cornfield, tormented by thirst, hunger and terrified as he lay alone, beset on practically all sides with potential enemies. In this state of extreme terror, he called upon his mother in his loneliness and, believing that all was up, recited the Lord's Prayer. He could not remember further.

From that date until 21.11.40 he was treated along orthodox analytical lines six sessions, each of one hour, per week. These sessions revealed that the conflicts which gave rise to his present symptoms were deep seated and were concerned with his relations in infancy

with his mother and father. During that time, he was very reluctant to accept any interpretations save of a very superficial kind and had really achieved very little insight into his mental state. In addition, his mental age (as ascertained by the progressive matrices test) was below average, and his resistance to psychotherapy was expressed, among other things, in dreams, e.g. one in which he had to go through an operation (nature unknown) by a doctor (a composite picture of myself and his father) but was unwilling (refused) to do so. His resistance was also shown directly by his stating that he was not at all interested in filling up the amnesic gap - and it had been pointed out to him that there was a connection between the amnesic gap and his symptom.

He received three injections each of 5.5 c.c. of Cardiazol (20.11.40, 22.11.40, 25.11.40). On each occasion in the post-convulsion state, the range of movements performed under my instructions by his affected arm was normal and equally comparable to his unaffected right arm. The grips of both hands were equal. On normal support being secured with his surroundings, however, the condition soon reverted to almost the original state. He complained on 26.11.40 that his memory seemed affected - he had an amnesia for the mislaying of a bullet picked up in front of the Maginot Line, and he had for a whole fortnight completely forgotten to write home to his parents - the disappearance (for him) of two neurotic indulgencies and thus a sign indicative of mental improvement. At the same time, his hair, previously kept nearly parted and groomed, was now kept rather unkempt, tumbling down on either side of his forehead. He also mentioned how he was apt to misidentify people, and on 9.12.40 he complained that he was also apt to forget people's names. He refused further treatment. Only a slight improvement resulted in his condition: he was encouraged to persevere in the exercises prescribed for him.

He is referred to more fully in the text of the thesis in connection with the occurrence of circumscribed amnesia during treatment.

CASE 214. J.McG. Male, aged 31. Single.
Admitted 16.10.40, discharged 4.12.40.

Admitted 16.10.40 when he complained of frequency of micturition, diurnal and nocturnal. The nocturnal frequency was, however, a euphemism for enuresis which first began to trouble him when he was seven years of age.

He was conscripted on 13.9.40 and had been stationed at Peterhead all the time. Noticing blood at the end of micturition two months before his admission to this Hospital, he reported sick when his present complaint came to light.

He felt his position keenly and was anxious to be returned to his unit. He told how he had tried various remedies unsuccessfully, such as malt with cod liver oil, barley water on awakening, mining with his father and finally hotel work. At the latter, he did well and was finally promoted to the status of lounge waiter, from which occupation he was conscripted. In this occupation he was near the visitors' lavatory which he was permitted to use, explaining the frequent use of this on the grounds of his "nerves". By this time he had quite mastered his complaint within limits so that, for him, it came to cause him no social or hygienic trouble and never extended to the point of his soiling his clothes, either by night or day: he had, for instance, schooled himself to get up with clockwork precision each night at midnight and at 4 a.m. - so much so that while in movements during these times he was to all intents and purposes practically asleep.

He was the eldest child of a family of ten. His mother was described as very nervous. He left school (at which he was not a good scholar), at the age of thirteen on account of his complaint.

On 6.11.40 this patient received 5.5 c.c. of Cardiazol which produced a major convulsion. Beforehand, he showed a reluctance to take out his artificial teeth on the grounds that they had not been cleaned for days. This dose and reaction was repeated two days later. After both injections he stated that he felt much better: indeed,

for a few hours after each convulsion he passed into a state indistinguishable from a hypomania despite the fact that he experienced sore muscles as if he had been kicked all over the body then trampled upon.

As his local complaint remained quite uninfluenced it was decided to abandon treatment. He was regraded "C" and returned to his unit.

CASE 215. A.D. Male, aged 42. Married.
Admitted 26.10.40, discharged 12.2.41.

He complained of "nerves", by which he meant sleeplessness, anorexia, shifting headache, shaking turns particularly towards dusk, dizzy turns with blurring vision, shortness of breath and sweating. All these symptoms were made worse by stooping or by excitement.

He volunteered on 2.10.40 as a lorry driver and landed in France on the 14th.of the same month. He did well at his duties carrying on without incident until about the 5.5.40 during the beginning of the retreat when they were detailed to destroy lorries. In order to facilitate the burning of these, another private had thrown petrol, intended to be aimed at the lorry about to be destroyed, but the petrol missed its mark and landed on the patient as a result of which his face, right ear and hand became severely burned. He was enormously frightened and suffered from terrific pain which he described as if a roller were going over his face.

After his burn was dressed, he was admitted to No.5 General Hospital at Le Triport for a period of sixteen days during which he was unable to open his eyes. Then after two days in a convalescing camp he was returned to duty but owing to his nervous state which had now appeared he was given but the lightest of duties until about the 8.6.40 when he was evacuated from Cherbourg.

An attempt to resume his driving duties since his return to this country proved unsuccessful owing to the occurrence of acute anxiety attacks.

The patient was the youngest of a family of four brothers, two of whom were killed in the last war. Information was received indirectly that in civilian life he indulged much in alcohol.

Although the patient's mental state on admission appeared at first sight to be one of anxiety, there was a very noticeable degree of depression accompanying it but not of psychotic intensity: he had never felt the desire to end his life although he had a "lost-heart feeling at times when he felt fed up".

He submitted after a preliminary refusal to Cardiazol treatment, receiving on 18th., 20th., 22nd., 25th. and 27th. of November, 1940, 5.5 c.c. Cardiazol on each of these occasions when a major convulsion resulted save on 27.11.40, the dose then being sub-convulsive in its effects. There were no noticeable features about the convulsions nor of the post-convulsion behaviour save that rapport with his surroundings was soon gained after about two minutes' grunting as he turned on his side (apparently in an endeavour to find a comfortable position) his buttocks invariably projecting beyond the side of the bed. Then he would "come to" and light himself a cigarette.

Treatment produced an improvement in this patient, an improvement to which he readily admitted, stating that the fed-up feeling had gone, that he was sleeping better and that his appetite was improving. His anxiety features remained, however, and on 12.12.40 the beginning of a slight hesitancy in his speech was noted and attributed to a slight altercation he had had on that day with an N.C.O.

He was eventually discharged on 12.2.41.

CASE 216. A.S. Male, aged 21. Single.
Admitted 4.11.40, discharged 16.12.40.

Admitted on 4.11.40 when he complained of pain in the left foot and of spells of dizziness, the latter sometimes causing him to fall.

The history he gave was most inconsistent in parts, but the gist of it was as follows. He stated that he had taken 'fits' as long as he could remember but further enquiries as to the nature of these fits did not elicit further details. He denied being nervous when young but had always been a nail-biter and had suffered from nocturnal enuresis until he was about 5 years old. His upbringing by his father and stepmother was very harsh and not infrequently was beaten black and blue by them or shut up in a room for a whole day without attention: they were prosecuted a few times, he said, for this treatment of him. His stepmother used to go out with other men to dances unknown to his father. The patient had four or five tries at the qualifying examination, partly owing to an irregular schooling and partly, it was gathered, to mental backwardness. He joined the K.O.S.B. when 15 years of age but was discharged two months later on account of his 'nerves'. When aged 18 he acted on an impulse and enlisted in the R.S.F. but was discharged later as a case of flat-foot. His usual job was that of a motor fitter with six different firms. With each firm he "got fed up and wanted a change": the initiative to change always came from himself: he was never discharged nor had he ever been unemployed.

He joined the T.A. in June, 1939, and was embodied into the R.E. in September, 1939, going out with the B.E.F. to France after two months' training. In France he functioned as a lorry-driver and when the ultimate retreat came, took part in the moving of a large convoy to Dunkirk. He spoke of this journey with extreme reluctance and of the various sights he had seen therein - how women and children refugees were machine gunned from the air and "went down like corn", and how he had seen people with their legs blown off trying to get up. At one period while travelling along the road, a shell exploded immediately in front of his lorry with the result that he was blown out of the cab of his machine and the next thing

he remembered was wakening up in a French hospital with his foot in plaster. The hospital ship in which he was evacuated was sunk by a bomb and he was in the water for one and a half hours before being rescued. Between his return to England and his admission to Carstairs Hospital, he had been under medical care and attention the whole time.

The foregoing information was elicited with difficulty and only after much questioning. All the time, he was much preoccupied as if his thoughts were miles away and he clutched at certain topics (such as his home life) in such a way as to suggest that he was suddenly confronted with a vivid picture and felt compelled to describe it in every detail. Sister reported that he was "queer": some days he was solitary and reclusive and on other days very talkative and was then inclined to impart confidences which ordinarily one would keep to oneself. She strongly suspected him of confabulating as his accounts of himself were inconsistent.

His whole case was suggestive of an underlying schizophrenic psychosis. He was given 16.5 c.c. of Cardiazol on 27.11.40 (5.5 c.c. repeated twice) but this was sub-convulsive in its effects. He seemed to be experiencing extreme fear. This treatment had no subsequent effect on his mental state and he was transferred on 16.12.40 to a Mental Hospital for further observation.

CASE 217. W.S. Male, aged 27. Married.
Admitted 12.11.40, discharged 14.1.41.

On admission, presented a hysterical amblyopia of the left eye, only being able to perceive light, and deafness of his left ear.

Conscripted on 5.7.40 from his civilian job as an assistant foreman in an engineering works. Was drafted to a gas squad on account of his knowledge previously

gained while a member of the fire-fighting services in civilian life.

His complaints dated from three to four weeks previously when the aerodrome at which he was stationed (Montrose) was subjected to over an hour's bombing attack by a force of enemy aeroplanes. His making his way to the gas-station on the receipt of the alarm was interrupted by his being thrown by the blast of a shell into a pill box, wherein he remained for the remainder of the raid. During this period he had apparently been in a state of some apprehension, but successfully preserved a stoical air. The roll call after the raid revealed 22 people killed. He was thereafter detailed to patrol the area around an unexploded bomb.

He discovered a day or two later that he did not catch what people were saying to him and the same evening discovered on going out at night with his comrades that he was unable to see. On no improvement showing, he reported sick for the first time since conscription a few days later and was eventually referred to Carstairs Hospital.

He gave no history of a similar complaint in the past. Physically he had always been healthy save for slight heart trouble (unspecified) in childhood. Normal physically save for a slight strabismus due to a weakness of the right internal restuc muscle.

In his previous history, there was no indications of neurotic traits save that he was always disposed to walk out by himself and to avoid company: he was never involved in any school fights. He had no hobbies or interests save boxing, running or swimming, all of which he took up when 12 years old. Fought professionally in six or seven fights winning them all save one.

Family history (mental and physical) negative.

27.11.40 - 5.5 c.c.Cardiazol with the production of a major convulsion: nothing of especial note in the post-convulsion state save that with his left eye covered up his vision in the right was quite normal: covering up his right ear - could hear a whispered voice in his left. Refused further treatment on the ground that he felt it

would "put a crease in him", meaning that he would die.

Subsequently it was revealed that there was a source of anxiety in his family situation, his wife expecting a baby and having as her time drew nigh to give up her work in a spinning mill. The financial loss incurred thereby being considerable, and she was unable to make ends meet with his R.A.F. weekly allowance of 29/-. This proved to be the precipitating factor of his illness.

He revealed his conscious desire to be quit of the R.A.F. so that, returned to civilian life and in his previous job at £3 per week, ends could then be met.

CASE 218. W.W. Male, aged 36. Single.
Admitted 19.11.40, discharged 27.2.41.

He complained of pain in his back (lumbar region), epigastrium and the outer upper praecordium, all of which complaints were of six months' duration, together with shortness of breath. All these symptoms are made worse by exertion or excitement.

He was a member of the T.A. and was mobilised on the outbreak of war, landing in France just after the New Year. (He was a mental defect with an M.A. of 7 years and was unable to tell the exact date.) Between that period and the beginning of the German push he had reported sick only on one occasion with swelling of both ankles and pains in both knees - ? an atypical attack of rheumatic fever. They were in the thick of the fighting and in the course of the retreat and in the region of the Albert Canal made a counter attack. All this time they were continually subject to bombing attacks from the air and at one period he stated he was thrown for perhaps seven or eight yards. Although quite conscious and only slightly dazed following this, he stated he was completely blind for two hours following. He made for the nearest dressing station where he was given some stuff to drink

and thereafter regarded as a casualty being shipped further and further back by ambulance to the base and in the process became more and more conscious of the painful back of which he complained on admission. The onset of the pain in the epigastrium occurred one month previously and he attributed it to bad drinking water. Since his evacuation by hospital ship from Dunkirk, he had been in doctors' hands and was treated as a case of strained back (with adhexive strips) after being X-rayed. During one of his sick leaves he was twice lifted by the police for being drunk. He was eventually seen by a psychatrist at Edinburgh Castle whence he was admitted to Carstairs Hospital.

Physical examination was negative save that the 1st.sound at the mitral area was dull, slightly prolonged and slightly accentuated while the second sound was short, sharp and slightly intoned. B.P. - 145/90 m.m.Hg.

He gave a history of nail-biting and blushing easily when young. His parents were of a roving disposition, after the fashion of tinkers, and the patient never went to school until nine years of age and repeatedly played truant. "I was never really much at school altogether" and he left when twelve or thirteen years old and has been employed ever since with a scrap metal merchant.

He was a case of mental defect with symptoms of the effort syndrome and there was in addition a large psychopathic element in his mental make-up. On one occasion, he absented himself without leave. He was quite unapproachable psycho-therapeutically and was accordingly given 5.5 c.c.Cardiazol on 14.1.41 as a psycho-therapeutic measure. During the convulsion, he dislocated his jaw but it was easily reduced at the termination of the convulsion. Cyanosis was severe but not excessively so. It was noticed that his semmet was buttoned up but it was not very tightly so. The breathing afterwards was rather gasping in character and his chest was filled with rhonchi. Two hours later a rash appeared, stated to have begun as a dark crimson blush on the malar prominences and spreading therefrom over the entire face. There were very numerous petechiae in the same area and the blush and petechiae had also extended from the face down to the

neck, a little of the shoulders and over the clavicles on to the chest in an oval fashion centred at the supra-sternal notch extending vertically downwards for $5\frac{3}{4}$" and horizontally outwards on each side for a distance of $7\frac{1}{2}$". The whole appearance resembled a case of traumatic asphyxia I have seen. At the same time, two hours after the convulsion, he complained of spitting blood. The Stumpelheede, syphygmomanometer, pin-prick, and sternal percussion tests were all negative - as also was X-ray examination of the chest and throat and nose examination save for slight congestion of the nasal mucosa. The physician's opinion was that the slight haemorrhage had come from the latter.

There is nothing of further note concerning his case.

CASE 219. W.C.O. Male, aged 34. Married.
Admitted 19.11.40, discharged 27.3.41.

Admitted on 19.11.40 from Edinburgh Castle with the complaints of depression, anxiety, gastric symptoms and insomnia. All these symptoms followed the German occupation of Jersey and, since then, he had heard nothing of his wife and children who were living there.

He volunteered for Army service in January, 1940, when his employer told him that work would probably be uncertain. A stone-mason to trade, he went into the R.E., feeling quite happy while in France with them. During the retreat, he kept complete control of himself, showing no signs of undue anxiety even although blasted on a few occasions. The loss of contact with his family was the blow which he thought upset him. A few days after returning from France he went off sleep and became terrified of aeroplanes. Gradually he found that he could not concentrate on reading and writing, nor could he keep a belt on because of the feeling of irritation it gave him in the stomach. At times he felt his thoughts clouded, wanted to be away from everyone and on more

than one occasion contemplated suicide. For a week at the beginning of his depression he could scarcely eat and subsequently took food only because he felt he ought to.

He denied nervous habits in childhood though he stated he was always very shy from his schooldays onwards. When about 16 years old, he had a period in which he was often acutely anxious lest his heart should stop, while a year or two later he had the curious sensation that he was becoming bigger. At the same time, he often woke up, feeling as though he had lost touch with his body - that it was out of voluntary control. He had always been a very serious-minded person who regularly attended church and, since his attack of depression developed had derived a great deal of consolation from attending church.

His eyes readily filled with tears, and he showed the marked slowness in his speech and thought typical of the depressed patient. He continued to complain of depressive symptoms in connection with his stomach.

He was given Cardiazol on 31.12.40.

He had been on the barbiturate medinal for sleeplessness and this is the most probable reason why he required 16.5 c.c.Cardiazol before convulsing. In the latent phase there was a whining soft moaning like a person experiencing a nightmare. In the post-convulsion phase oral features were marked; he made sounds like a person clearing his throat before spitting, these sounds being very frequently repeated. His aggression was also displayed in his general movements - striking out with his arms at myself and the nurses.

He refused further treatment but was considerably improved as the result of the solitary treatment he did receive.

He was discharged on 27.3.41.

CASE 220. G.B. Male, aged 35. Married.
Admitted 21.11.40, discharged 20.1.41.

Returning from leave about ten days before admission, the train in which he was was involved in a crash. He was aware in the crash of a box hitting him in the face and of being knocked through a window sustaining a superficial scalp wound. Although feeling dazed, he rendered active assistance in the rescue of other passengers before being removed to Carlisle Infirmary where he was detained over-night and sent on to his unit the following day. The M.O. gave him two days' rest and then light duties. When he began the latter he felt sick and went off his food and sleep. His M.O. referred him for a psychologist's opinion after which he was admitted to Carstairs Hospital. He complained of feeling dull and slow-witted and wakened frequently during the night. He thought frequently both during day and night of the accident, particularly of the man sitting opposite him who was jammed against the roof of the carriage while a woman nearby was killed. The cries of two children who sustained broken arms particularly affected him.

He was the eldest of a large family and described his childhood as very happy with no nervous habits or unusual anxieties. When aged nineteen he enlisted in the R.A. and served in India, being on the reserve list on the outbreak of war when he was mobilised, since when he has been stationed in the U.K.

During his stay in Hospital he continued to be depressed with spells of brightness until after the administration of 5.5 c.c.Cardiazol on 31.12.40 he improved to his old self and was returned to his unit on 20.1.41.

CASE 221. J.H. Female, aged 21. Single.
Admitted 2.12.40, discharged 15.1.41.

On admission she presented an inability to walk, through having no power in her legs, which was hysterical in origin. She gave a history of, while being in the third week of a wireless training course at Bawdsey Manor, having tripped on April 12th. over an obstruction over which people were always tripping, and of coming down on the concrete floor. She remembers falling but nothing else until she came to in the sick bay to discover that it was her third day therein and was also told that during these three days she had come to from time to time. She remained in the sick bay for a month until May 12th. owing to the fact that she could not stand when she tried to get up out of bed, and even had faints when she sat up: there was also the complaint of dizzy turns. Between then and her admission to Carstairs Hospital, her history was one of invalidism which included 21 days' leave (under a nursing escort while travelling) most of which she spent in bed. Upon her transfer to Drone Hill R.A.F.Station, near Coldingham, she was only there a few days when she had a prolonged faint and after fainting again the day following, was admitted to the Bruntsfield Hospital for Women, Edinburgh. There it was suspected that she had sustained a subluxation of the third intervertebral joint in the cervical region and was treated on this assumption - lying on her back with sandbags round her neck and head for three months and when the time came for her to begin getting up the old difficulties in standing and walking reasserted themselves. Her discharge to Drem Station on 31.10.40 was followed by her being again sent to Hospital as unfit, the diagnosis of subluxation was revised and she received massage and electrical treatment at Bangour Hospital and transferred thence on 2.12.40. In addition to the symptoms already recorded, she had suffered from pain in the back of her head and neck and from a "stunned feeling" in the crown of her head. She had also been subject to periodical fits of weeping. She appeared to be free from anxiety and her condition seemed to cause her little concern.

The patient was an only child, her father dying when she was two years old, and her mother marrying

again 2½ years later. She stated her relations to her stepfather and stepsisters and stepbrother were the best. She denied any nervous habits and fears in childhood. She was a good scholar and athletic at school, leaving at 18 years. She took up nursing for two years but gave it up, feeling she could not go back, after the death of her grandmother whose spinal column was fractured in two places as the result of a motor car accident: during the fortnight she lived thereafter, she was clearly conscious and suffered intense pain. In her first history, she omitted to mention that her stepfather had also been killed in a motor car accident about a month after her grandmother's death. On this significant omission being remarked upon, she stated that, like her mother, she tried to dismiss her stepfather's death from her mind. Nevertheless, she admitted that at home, and even a year afterwards, she would often think he was about to come into the room when she heard movements outside the room. She also made a slip of the tongue when in speaking again of her grandmother's accident, saying that she stood beside her bed (her grandmother's) but said "beside my bed".

One was suspicious of a schizophrenia underlying her hysterical symptom of inability to walk - her secretive suspicious attitude in general and, under cyclonal narcosis, her grandiose talk concerning her mother's fourth footman. The tentative diagnosis was subsequently confirmed.

Her inability to walk was removed by one Cardiazol injection of 5.5 c.c. productive of a convulsion on 17.12.40, and she walked unaided the same afternoon to the hospital gates and back (approximately a total distance of 600 yards), but, again confirming a diagnosis of a basic schizophrenia, she was quite oblivious of the fact that she had been unable to walk before, and, after she had had a sleep, that she had been walking that same afternoon.

A few days later, in place of the inability to walk, there developed a persistent hysterical vomiting which yielded slightly to a further convulsion, produced by 6.0 c.c. on 13.1.40, but, the basic diagnosis of her condition becoming clear, she was transferred to a hospital for psychotics on 15.1.41.

CASE 222. A.R. Male, aged 27. Single.
Admitted 16.12.40, discharged 4.2.41.

Admitted on 16.12.40 with the complaint of a stutter present since the age of twelve. The stutter was so bad that it was impossible to take a history of the patient until under 3½ c.c. Cyclonal it completely disappeared when the following particulars were obtained. Left an orphan at the age of four years, he was put with his only brother into a Church Home where he remained until he was twelve years of age, at which time he was transferred to Dr.Barnardo's Home. At this time, his stutter appeared although the patient did not associate the two in any way. He had no frights or any emotional upsets at the time, he said. He said, with respect to nervous traits when young, that he was all right save for a self-consciousness and shyness in company, and that he was inclined to bite his nails. Apprenticed as a boot repairer while still in the home, he had to give this up as he was unable to grasp the machine work required for the job. On coming out of the home when 18 years of age, he worked as a handyman in a hotel until a year before joining the Army when he took up motor driving. He enlisted in August, 1939, served in France and his stutter became much worse after the retreat and his return to this country.

With regard to the stutter, he said how this usually resulted in people pushing him into the background. It prevented him speaking in reply to officers, commissioned and non-commissioned. As the effects of the Cyclonal were beginning to wear off, his expression changed to a rather worried one and he said that the stutter would be sure to reappear when the effects of the drug would have passed off. An endeavour was made to counteract this belief by suggestion and persuasion. For about an hour afterwards, he remained stutter-free and when it did return it was not nearly to the same extent. He was given a further dose of cyclonal a few days later with still more effect and he was returned to his unit much improved only to return six days later with his stammer as bad as ever. He had the additional complaints of a left-sided frontal headache and of "feeling awfully dizzy and tired".

On 28.1.41 he was given 5.5 c.c.Cardiazol with the production of a major convulsion. When he recovered consciousness he was quite free of the stutter and said that he was in bed because of the headache he was experiencing. Three quarters of an hour afterwards he was still sticking to the same tale, and, in addition, remarked that he was not going to have the injection and when told by sister that he had had it, remarked, "Oh! that's fine!" Even at this period he was talking without any evidence of a stutter.

He was discharged on 4.2.42.

CASE 223. W.C. Male, aged 21. Married.
Readmitted 31.12.40, discharged 27.2.41.

He was called up with his age-group on 15.9.39 and after five months' training went to France. While in training, he was in hospital three weeks with ? gastric ulcers, and stated that he was subject to stomach pains for three years before conscription and was treated for these pains. He was in heavy fighting in the Moselle and Somme fronts and while sheltering in a house in France with his comrades, the house was entirely blown up, he and a lance-corporal being the only survivors. Soon after this occurrence, he fell "unconscious" (? a hysterical fugue) and was thereafter admitted to hospital in France for a period of two weeks. He stated that then his state was as it was on his first admission - of "nervous apprehension", particularly on hearing the sound of aeroplanes. On returning to England, he was in Stanmore Hospital, Middlesex, for four weeks, was given a week's leave and was taken ill while on it and was then sent here.

After making some progress during his first admission, he became depressed and suffering from headaches. He continued to be very anxious over aeroplanes. He proved to be unapproachable from the psycho-therapeutic

angle although he, of his own accord, asked if his experiences coming back to him and his discussing them could give him headaches. His depression lifting, he was regraded 'C' on 18.9.40. During this admission, he had received leave on one occasion for the non-existent death of a relative.

Following an air-raid on Grangemouth six weeks after leaving hospital, he had a relapse, although he was stationed about ten miles away, and his headaches became worse. I asked him if there was any truth in the rumour I had heard from other sources that he was determined to get back into Carstairs hospital. He became rather flustered and stated that he was "not trying to work his ticket", stating that he was quite happy in the Army, stressing these points later in the afternoon to the accompaniment of copious tears. The following morning he told, in the course of his talk, how when he had been home on a previous occasion he had seen his former employer who told him he could give the patient over £5 a week at his previous job (that of a boot-maker) and that his employer had applied for his release from the Army.

He betrayed a very childish attitude, unmistakably showing evidence that he wished to be indulged and pampered. It was inferred that he was abnormally dependent upon his wife although he reversed this relationship as he talked of her, and during his talking of her (and during other conversations as well), he at every interview kept putting off and on a ring he wore and which his wife had given him when they had become engaged.

He was given 5.5 c.c.Cardiazol on 14.1.41, a major convulsion resulted after which the first thing he said was "I have got fivepence" and here he put his right hand down by his side as if to put it in his trouser pocket to convince himself of the truth of his own statement. I asked him "What 5d.?" and he replied "For cards". He then went on to speak in an incoherent way of winning 8/- at cards which later he changed to 10/-. It was at this point that the patient began to, as he spoke, finger his genitals and on my asking him "Why are you in bed?" he replied "I am not, I have just got back from P.T." and, on my insisting "But you are in bed!" replied, "I am not,

I am walking about". He spoke to me as if there were other people in the room as well as ourselves, including the nurse. Apparently he was confronted with a very vivid picture of himself playing cards for money stakes with Army comrades whom he frequently looked around to see, but failing, on regaining rapport with his surroundings, he asked "Where are they? Oh, they're gone".

Throughout the whole of this period, he acted and spoke very much in a psychotic manner (as if acting in accordance with hallucinations) yet normal rapport with his surroundings was quickly achieved and approximately half an hour later he was up and dressed and making his rug in the occupational class.

The improvement showing after his treatment being maintained, he was discharged on 27.2.41.

CASE 224. T.F.B. Male, aged 29. Married.
Admitted 4.1.41, discharged 22.4.41.

Admitted on 4.1.41 complaining of smirring of vision and of a green cloud before his eyes.

He was an only child of parents who were alive and well. He was not spoiled by them in his upbringing. At school he was above the average: he indulged in no fights or sports although he had no particular dislike for them. He was very conscientious and was always mindful of the school motto "Nothing but the best is good enough". From the age of 12 he was determined to be a butcher at which he worked after leaving school at the age of 14 until he was 21, when he was paid off owing to slack times. At the age of 17 he was able to take complete charge of the shop. After a period of five and a half months' unemployment, he secured work as a lamplighter with the Manchester Corporation with whom he has been working ever since. Although he gave up "the butchering business" for which he had a passion, he never

felt any pangs of regret at having done so or experienced any yearnings to return to it. He married on November 8th., 1939, and had a happy married life in so far as the Army life permitted it. He had no hobbies or similar pursuits save cycling or a daily visit to the local Conservative Club for ½/1 hour daily or to attend the local St.John's Ambulance Assoc. which gave him an outlet for his forgotten animal anatomy by transferring his interest to the study of the human frame.

The same interest led him to join the R.A.M.C., T.A., on 25.4.39, from which he was embodied on 1.9.39 and ultimately landed in France on 16.4.40 where he was attached to the 127th.F.A. with which he was all over France and Belgium. He said that after the German break through things were very much of a slaughter, but that as he had been a butcher to trade, it had no effect on him. He mentioned with some pride how the men under him had not the same dispassionate reaction to slaughter as he himself. They ultimately came in for still heavier bombing when they reached Dunkirk deficient in all medical supplies to treat the wounded. He was in the act of lifting a wounded major when a bomb exploded with a blinking flash 15 yards away. The major, who wore a green band on his arm, was killed.

The patient first became aware of the mistiness before his eyes on the 2.6.40 on his return to England but it passed off in four or five days. A few attacks developed between that date and his admission to Carstairs Hospital three weeks before when he also became aware, on passing from light into darkness, of a green cloud coming before his eyes hindering his vision still further.

It is difficult to convey in words the sense of detachment with which the patient related the details of his life and the various battle incidents he had figured in while in France. There was a complete lack of emotion and his talk resembled that obtained at times from a frank schizophrenic.

On 28.1.41 he was given 5.5 c.c.of Cardiazol which produced a major convulsion during which he dislocated his lower jaw which was reduced during the fit. Before the actual convulsion he had asked "Will I put in

the gag?" and, when the convulsion was over, was most reluctant to let the gag slip out from between his teeth when I pulled at it. When I had got it free and laid it at the side of his head, he took it up again of his own accord after several determined efforts to secure it and put it back into his mouth. No sooner had he done so, however, than he grasped it lightly in his hand and carried it thus beneath the bed-clothes towards his genitals. He then made aggressive movements with his hands, both towards the arms of the ward sister and myself as we stood one on either side of the bed. Then grasping sister's arm, he massaged it heavily up and down with, ultimately, his fingers probing and poking in an aggressive manner into her left axilla. Then, still holding her arm, he made the forearm revolve quickly in the circumference of an imaginary circle and, while doing so, uttered the words "Cheuch, cheuch, cheuch" after the fashion of an infant playing at trains, the performance being so commented on by Sister. He then became more settled and when I asked him "Why are you in bed?" replied "Because I'm sick of the hospital". Three quarters of an hour later, the immediate post-convulsion amnesia was still present and stated he recollected he was for an injection but was unwilling to have it. He believed that his post-convulsion distress resulted from hearing a fellow patient cry out when he had had "the needle" before him. On hearing this cry, he said "I immediately flew back to France" and he attributed his post-convulsion distress to the forceful recollection of "morphia needles" administered to the injured and mutilated, who, he said, as a consequence "jumped about" meaning that they behaved in a delirious fashion, and, on hearing his fellow patient's cry, he was afraid the same might happen to him. Allowing for the post-convulsion state, there was as on previous occasions in his talk no release of any affect. He refused further treatment which was replaced by psychotherapy exclusively to his improvement which permitted his discharge on 22.4.41.

CASE 225. D.L.D. Male, aged 19. Single.
Admitted 4.1.41, discharged 4.2.41.

Admitted on 4.1.41 from the Western Infirmary, Glasgow, with a history of being admitted to that Infirmary on 30.12.40, the history being that at Renfrew Ferry he collapsed and complained of severe pain in his penis. He was also said to have exposed himself in an indecent way. His behaviour in that hospital was grossly disorderly. He writhed about in bed, covered his face with his hands and made complaining noises. Although correctly orientated, his conversation is stated to have been rambling and almost incoherent. He said he thought he might be suffering from hydrophobia, and made rambling remarks about a doctor taking out his brain. He accused himself of being a traitor and that the Government were after him because his mother might be a German.

On his admission to Carstairs Hospital and with reference to the incident above referred to that while about to cross Renfrew Ferry he suddenly felt a choking sensation with thumping of his heart. He said he fainted with exhaustion (but did not lose consciousness) and was taken to the Western Infirmary where he had been raving a lot e.g. about Hitler.

He had no idea who his real mother was, having been boarded out when he was two. Three years after leaving school, when aged 14, he joined the R.A.F. and in this failed to make progress and ultimately worked as a teleprinter. At times he felt very nervous and sometimes felt as though he would be drowned. He felt everyone was against him. All his statements were rather vague and his affective responses were not related to the content of his ideas. A few months before admission he was charged for rape but was not convicted, adding that it was not his fault as he could not control his feelings. He was troubled by sex feelings and the men in his unit tormented him a great deal about this. Many of the men had used him for sodomy. He was very religious, attending an evangelistic hall regularly. Often he had had messages from God.

Physically, he showed a labile, vaso-motor skin with ready flushing and cyanotic tinging of the

extremities. He had a notably scanty beard growth.

The expression of schizophrenic ideas continued after admission to be followed after about a week by a confusional state in an attempt to allay which he was given 5.5 c.c.Cardiazol on 30.1.41. A major convulsion resulted but about this there was nothing of especial note, and, when it was over, he curled on his right side and went to sleep.

His schizophrenic features continuing, he was transferred to a hospital for psychotics on 4.2.41.

CASE 226. H.G. Male, aged 23. Married.
Admitted 7.1.41, discharged 27.2.41.

Admitted on 7.1.41 complaining of a (hysterical) inability to use his right upper limb which was blue and cold (particularly at the extremity) as compared with its healthy fellow. It began the day before he went to France after he had carried a case for an officer with a rifle and ammunition some little distance to a station. He was afraid to change his carrying arm on the way lest people should remark on the occurrence, the patient being a tall, healthy-looking specimen. Next morning he awoke with a feeling of weakness in his right arm. At first he did not worry about this and when told there was no sick report that morning he went on to embark with his unit for France but reported on the boat, his M.O. telling him to carry on. After eight days in France they left Cherbourg, having been in no action. Since his return to this country on he had been continually under medical care, either in or out of hospital, and was treated among other things, with electricity and massage. On admission to Carstairs Hospital he advised me in a friendly way that his faith in doctors was quite shattered save in the one who had diagnosed his condition as a "brachial neuritis" and had said to him "That will get worse and will take a long time to get better". The

correctness of this doctor's pronouncement was obvious on his arrival at his sixth hospital where, he was convinced, treatment would also be ineffective. I would be well advised, therefore, to spare myself the task of noting the particulars of his case and himself the trouble of relating them for the fiftieth time. (This was not quite so very much the exaggeration that it appeared: altogether he had been seen by 22 doctors and had been in five hospitals.) Here he made a forward movement of his right shoulder to call attention to his paralysed member and to bring into evidence its dusky blue colour as compared with the normal healthy colour of its functioning fellow.

This man proved to be fundamentally a case of paranoid schizophrenia. He habitually used the major portion of his interviews to unburden himself of phillipies concerning the matron who, he said, had insulted him personally by offering his comrades in 'G' Block Red Cross cigarettes, the brand of which was not liked. Her every action and utterance were alike construed by him as a personal insult. (He was considering writing to the War Office about it.) She also was the source of certain misgivings he now held with respect to women in general, and, he hesitated to mention it, with respect in particular to his wife and his own mother whom he didn't care if he never saw again. He also wondered if pain he was experiencing at the back of his head and side of his neck was influencing his brain in any way and often felt when he came in for his interviews as if he were doped. He had to be handled with undue care as he was quick to take offence at certain words, e.g., when I used the word "opinion" but was quite mollified when I changed the word "opinion" to "belief". He also had a nightmare in which he felt very nauseated as if about to take "a turn". He called for sister to help him but no one came. The next thing he knew he was in Larbert where he was told he had taken a turn in the previous hospital and had been transferred while in that state. He awoke from this nightmare with the cold sweat pouring off him. It was a very noticeable fact that the name Larbert figured prominently in many of the patient's conversations.

Under 3½ c.c. Cyclonal on 21.1.41 it was demonstrated to him that he could now turn over the pages of

his pay-book and to tie his tie with the hand he had previously thought to be almost useless, the effect was transitory.

While this was being administered he laughed at the amusing sight (? hallucination) of his mother cooking the dinner. He also abreacted certain (imaginary) experiences in France when, actually, he had been in no fighting - "I have killed him - give him the bloody bayonet, man; what you've been taught to do .... James (a friend), you're dead - I will get my revenge - I am swimming in their blood, James". At this point the patient asked for a light for his cigarette and on my coming near him with a lighted match started back frightened as he exclaimed "Take it away! That's a time bomb". I then gave him the matches to strike a light for himself and he again became very frightened and again threw it away before lighting his cigarette saying : "That's a time bomb".

He was convulsed with 5.5 c.c.Cardiazol on 30.1.41 and immediately after coming to said in reply to the question "Why are you in bed?" answered "Because I haven't the heart". ("For what?") "To get better". I gave him the towel to wipe his face with, which he did with his "paralysed" hand, the colour of which was now exactly the same as its fellow.

He improved and was discharged on 27.2.41.

CASE 227. G.B. Male, aged 22 years. Married. Admitted 1.6.41, discharged 9.7.41.

He was admitted with the history of having been found wandering by the civil police in the streets of Glasgow at 2.30 a.m. the morning previously, and, from a pass in his possession, 14.30 hours overdue his return to duty. He was unable to give any account of himself and was unable to recognise the people in photographs found in his possession.

On admission, he said nothing spontaneously, and, with considerable retardation, replied "I don't know" in an almost inaudible voice and with a sideways shake of the head on any questions asked him. Persistent questioning elicited the fact that he was confused and disorientated as to time, place and person and that he had a complete amnesia save that he was of the opinion he ate and slept normally. Nothing physical in the way of signs of cranial trauma was found to account for his mental state, and ordinary clinical examination was negative save for a soft systolic bruit, not conducted, at the mitral area.

His memory was recovered fully after one injection of Cardiazol and he appeared normal in every way. He was unable to account for his amnesia (attacks of which he had never had before) but, in reply to direct questions, admitted that he had had a serious row with his wife over the fact that he did not visit her first when on his two day leave, and, when he left, was still "not speaking to her". This was the most probable precipitating factor in his amnesia that could be discovered. The last thing he was able to remember was being seen on a 'bus for his return to duty by his father. His mind was quite clear at the time although the same morning he had had a little drink which he indulged in to a moderate extent. His amnesia, however, was uninfluenced by treatment while in hospital. He was returned to duty but subsequently readmitted after absenting himself without leave. Several facts which he had previously concealed now came to light. At the age of 11 he was sent to a special school because of truancy. He enlisted with the K.O.S.B. in March, 1937, and was twice charged with stealing cars and on the latter occasion in June, 1938, was discharged the Army. Six months before the outbreak of war he was sent to Borstal for stealing and pawning blankets and was prematurely released on the outbreak of war. His present period of service of eighteen months in the Army was punctuated with absences without leave, for one of which he had served a period of 56 days' detention in Barlinnie Prison awarded by F.G.C.M. He was discharged on 9.7.41 as a psychopath.

6.6.41	(1)	5.5 c.c. + 6.5 c.c.	M
10.6.41	(2)	6.5	"

CASE 228. L.B. Male, aged 25 years. Single. Admitted 3.5.41, discharged 9.7.41.

This man was seen on the last day of his leave by his civilian medical practitioner from whom he was admitted with a note to the effect that the patient complained of persistent insomnia of ten weeks' duration and was "inclined to do himself bodily harm".

On admission, he said that "there seems to be no life in me for the past eleven weeks. I've got no interest in anything". He attributed this state to frequent and heavy bombings at Portsmouth as a result of which he began to suffer from insomnia ("in fact, sleep to me now is an impossibility") and a depression of spirits so severe that he often wished he would not wake up when he did sleep, though he never actually contemplated suicide. There were also the complaints of headaches in the occipital region, a sickly feeling, dizziness and weakness in his legs.

He said he had always been of a nervous temperament, was markedly afraid of the dark, had phobias in connection with water and travelling in fast moving vehicles, and was unaggressive when at school but took part in various sports. Asked to describe himself, he said that he was quiet, honest, straight, not a believer in bluffing, a decent lad, "my motto always was if you do a thing do it properly" and never believed in fooling around ... "I don't want to shirk anything. Believe me I've gone through misery this last month. Believe me, I'm not speaking idle, I'm speaking the truth". In all his remarks, he was very ingratiating and it was difficult to assess the reliability of many of his statements concerning his complaints. There appeared to be a large element of conscious motivation present. He was reported by the ward orderlies to be sleeping well.

An improvement resulted in his condition as a result of treatment; his complaint of insomnia disappeared and he professed himself better in every way, but the dissociation of affect which he frequently demonstrated pointed to an underlying schizophrenic state. He was rather childish in his behaviour and was given to laughing over the least thing. He was discharged on 9.7.41 as a

psychopathic personality, schizoid type. After his first injection on 13.6.41, he was much afraid of the aura and cried piteously. After the convulsion following upon a further dose, he was very noisy, continually screaming at something of which he was afraid. The continuance of this state necessitated his being confined for a period of three hours in the small ward for refractory patients. After the convulsion following upon his first injection on 10.6.41, he indulged in masturbatory movements.

10.6.41	(1)	5.0 c.c.	M
13	(2)	5.6 + 6.5	"
17	(3)	7.0 + 7.5	"

CASE 229. H.S. Male, aged 30 years. Single. Admitted 12.6.41, discharged 9.7.41.

On admission he said nothing spontaneously and was silent, save on repeated questioning, to any question asked him. Even then he would reply in a whisper, necessitating a repetition of the answer. At first, his general attitude was suggestive of depression occurring in a schizophrenic but his frequent and continued sighing and employment of histrionic gestures and attempts at weeping which produced no tears, pointed to a hysterical state as a more likely diagnosis. Confirmatory evidence of this was forthcoming when, no approachment of any kind being made to him and the possibility of establishing such seemed non-existent, he overheard me instructing the admission ward to prepare an injection of Cardiazol. He became more histrionic than ever, starting up from his chair and stating that he was for no injection, that he had seen the results of one, that his mother was in an asylum and that he was afraid lest he should go likewise. He would not dilate on any of these points or yield any further information and the injection of Cardiazol was proceeded with (productive of a convulsion) despite the presence of albuminuria and marked glycosuria. Otherwise, he revealed no abnormalities on ordinary clinical examination.

The following day he talked spontaneously and gave a fairly coherent account of himself with an absence of sighing, gesturing and attempts at weeping. He stated that since joining the Army eight months previously he had been continuously beset with worries, including a persistent preoccupation with the question whether or not he should marry: the marriage was fixed for approximately one month ahead. He wondered whether his wife would come up to his expectations (he had been courting her for fourteen years and would thus have had abundant opportunity of forming an opinion about her) in the way of looking after his father who was an invalid from a stroke. It was noteworthy that he did not consider any feelings of hers on this and other matters; indeed he did not mention them, including the possibility of any children of the marriage being mentally afflicted through the tainted stock from which he came. His mother had been in asylum ever since he was born, two brothers and himself having had previous "nervous breakdowns". The compulsory dropping of his father's business (which business the patient ran and with which he was much identified, all the more so since it Had to pass to him on his father's death) was his major worry and pursued him into the army where, on his father's protesting he was unable to carry on, the books of the business were sent on periodically to the patient to complete. He said he had always been of an acutely sensitive worrying nature, and was specially sensitive concerning his name "Sugar".

He continued to improve with treatment but any sudden threat to the new adjustments which he had built up (such as a mentioned transfer to another ward) he became very hysterical, histrionic and pseudolachrymose.

He was discharged on 9.7.41 as a case of psychopathic personality with temperamental instability.

14.6.41	(1)	7.0 + 8.5 c.c.	M
17	(2)	7.0 + 7.5	"
20	(3)	8.0	"

CASE 230. A.G. Male, aged 39 years. Single.
Admitted 14.6.41, discharged 18.12.41.

On admission he was quite maniacal and his mania was revealed proponderantly in his conversation: he was very locquacious, circumstantial and flitted from one topic to another with great facility. His "push of conversation" prevented him giving a coherent logical account of himself unless continually reminded of the point at issue. Even then, his account was largely coloured by delusions to the effect that he had a nephew, Frank Lawson by name, a detective in America and head of the Federal Bureau of Investigation and to whom everything concerning the patient was reported - as it also was to the British Intelligence Service. He frequently referred me to the latter for the verification of many statements he made. Asked how he was feeling, he replied: "I'm quite all right now - in a normal state of mind". In going out of the room and in an endeavour to please, he replaced an empty tea-cup on a tray.

He was a small, thinly-nourished man of sallow, sebaceous complexion who gave a history of having had chorea in childhood and of having been paralysed for four and a half years following a fall on his side. Fourteen years before admission he said he had been a patient in Coney Hatch Mental Hospital where they, he said, had attempted to poison him and had expressed great surprise at his being alive the morning following the attempt.

A sergeant who had known the patient since joining the Pioneer Corps at the outbreak of war, stated that the patient had at first alternated between rational periods and attacks of the condition for which he was admitted.

Treatment produced no more than a temporary alleviation of his hypomania, but, even in these periods when he was at his best, there was still a marked push of talk with a marked tendency to flight of ideas. Further treatment by electrically induced convulsions had the same effect - improvement after treatment and relapse when treatment was terminated. In the wards he was restless, interfering and at times noisy: sustained effort was beyond him in any task he was asked to perform. He was

untidy in his dress and careless in his habits. He began to express delusions that he was going to marry the woman M.O. of the hospital and was quite lacking in any insight into his condition. He was certified and transferred to a mental hospital. Before convulsing, in the latent phase, he used to say on each occasion: "Oh mother! Oh, mother! Oh, doctor! I love you doctor!" His post-convulsion behaviour was characterised by determined masturbatory movements during very violent behaviour - throwing himself about and out of bed, and attempted restraint only served to make his movements more violent than they were.

17.6.41	(1)	5.5 R.1 c.c.	M
20	(2)	7.0	"
24	(3)	7.2 + 8.0	"
1.7.41	(4)	8.0	"
11.8.41	(5)	7.5	"
15	(6)	7.7 R.1	"
19	(7)	8.0	"
22	(8)	9.5 R.1	"
25	(9)	10.0 R.1	"
29	(10)	10.0	"
28.9.41	(11)	10.0	"
30	(12)	10.0	"
3.10.41	(13)	10.0	"

CASE 231. C.I. Male, aged 34 years. Single. Admitted 26.5.41, discharged 16.7.41.

He was a moderately well-nourished man of somewhat plethoric complexion and a mild acrocyanosis of the limb extremities.

He stated he had volunteered eight months previously, seeing in this course a means of escaping from the perpetually nagging tongue of his father continually reminding him (the patient) of his inability to hold any job (labouring) for any length of time and his

long spells of unemployment (usually of six months' duration) between jobs. The officer commanding his unit stated that "from the commencement, this soldier was found incapable of carrying out normal duties satisfactorily, was dull mentally and thoroughly lazy". The patient was very vague about his complaints on admission but when pinned down stated that noise upset his head, which became painful, that he felt exhausted and unable to concentrate for any length of time, that he "just can't be bothered doing anything" and that he suffered from a degree of depression, but had never at any time contemplated suicide. With regard to his past life, he said he had always "had plenty of ideas but never seemed to realise them" and was much given to day-dreaming about what he wanted to be: on enquiry being made, it transpired that he had never made any endeavours to fulfil his ambitions (such as a desire for a good education - "you get on better if you've an education") but spent his time in idle pursuits. He had little in the way of sexual feelings towards the other sex. His father was a drunkard, his mother was subject to epileptic fits, one of his four sisters (the patient was the eldest of the family) was "troubled with her nerves", and two other sisters had died, one from diabetes mellitus and one from ulcerated stomach.

When it was mentioned to him that he would be given treatment that would help his condition, he became very apprehensive and asked what sort of treatment it was, leaving no doubt in my mind that he had previously heard of the treatment from other patients and was afraid of its terrors. On my telling him that it consisted of injections, he became still more apprehensive and asserted that he was convinced he would improve without them. After four Phrenazol convulsions, he stated that he definitely felt better and that he had "had his lesson" - referring to treatment - but was reported by the nursing staff as being an idle, untidy patient who had periods of agitation. He was discharged on 16.7.41 as a case of psychopathic personality and temperamental instability.

20.6.41	(1)	5.5 + 6.0 c.c.	M
24	(2)	7.5	"
27	(3)	8.0 + 9.0 c.c.	"
1.7.41	(4)	9.0 + 9.5	"

CASE 232. A.F.B. Male, aged 20 years. Single. Admitted 15.6.41, discharged 5.12.41.

On his admission slip, it was stated "He is unable to keep pace with his fellows and has resented their 'kidding' him. He has begun to feel that they are up against him, and that people in the street are looking and talking about him... there is a suspicion that he has been hearing voices ... During his first night at Dunblane (rehabilitation centre), he tried to dress at 1 a.m. saying he did not like the place... On admission, he confirmed the above, stating that he felt a misfit ever since conscripted three months previously, and that he had become thoroughly "browned off" by the perpetual leg-pulling and practical jokes of his Air Force comrades, such as getting him to sign spurious forms assuming responsibility for petrol supplies and purloining petrol books which he had in his keeping. He "broke down" under the constant strain and felt "that everything was upside down", "imagined a terrible lot of things" and "everything went against me". He admitted to no hallucinations and his general affect was one of depression (though not to a suicidal degree) and he frequently broke into tears as he talked. His previous history revealed that he had been a spoiled, indulged child, was shy and sensitive and was nicknamed "boaster" when at school at which he was above average as a scholar. During the recital of the above details, he spoke in a lisping, lalling voice and was much given to the employment of such sentences as "We must all do our bit".

He had three convulsions with no real improvement in his mental state. After the third convulsion he complained of girdle pains in the lower thoracic region where X-ray revealed a compression fracture of the 5th. thoracic vertebral body. (A history of a severe strain to his back in civilian life was subsequently reported.) Before a plaster jacket was applied, his mental state rapidly deteriorated with extreme garrulousness from his holding conversations with imaginary people. He frequently wept. He became confused, untidy, noisy and generally troublesome. Despite a course of Somnifaine narcosis, his mental state remained unaltered and he picked and tore at the plaster jacket to such an extent that in a few days it ceased to fulfil any useful function and it was

accordingly removed. He gradually improved during his stay in hospital and was ultimately discharged on 5.12.41.

20.6.41	(1)	6.0 c.c.	M
24	(2)	6.2	"
27	(3)	6.4	"

CASE 233. J.D. Aged 26 years. Unmarried. Admitted 7.6.41, discharged 10.10.41.

He was referred by his R.M.O. for keeping to himself in a day-dream and proving an inefficient soldier.

He stated on admission that he was constantly subject to visual and auditory hallucinations for two to three years previously: he "saw" such things as a swan jumping on to a wall and a man jumping about a big, tall building. He heard voices calling him "bastard" or telling him to do certain acts such as to abstain from taking his food. He found considerable difficulty in thinking clearly and in concentrating, had ideas of reference, and was subject to funny thoughts and reminiscences constantly intruding into his consciousness, at which times he was impelled to laugh. He often had difficulty in putting two thoughts together, got confused and was unable to express himself verbally.

There was a history of a fractured right ulna on 5.1.35.

He improved slightly with convulsive therapy in that he became more sociable and better able to express himself verbally, but he still remained hallucinated. He began to touch all door knobs which he passed, saying on being questioned that he did so in order to stop himself vibrating: similarly he frequently fell at intervals on to his knees for, he said, if he did not do so the floor would rise up. He soon showed, however, a worsening in his condition, and, before insulin therapy was begun on

25.8.41, he was markedly deluded and hallucinated. He complained that he was being tortured by needles and showed disorientation for time, place and person. He was confined to bed from which he would impulsively jump to attempt to kiss other patients. He masturbated freely and on one occasion made an attempt to eat his own faeces.

With insulin therapy he showed a marked improvement with regard to his habits. He became clean and tidy, which he had not previously been, he worked well in the ward but still remained hallucinated: he heard the voices faintly but unless he listened very intently he could not tell what they were saying. He was discharged to the care of his sister on 10.10.41.

20.6.41	(1)	6.0 c.c.	M
24	(2)	6.5	"
27	(3)	8.0 + 9.0	"
1.7.41	(4)	7.0	"
5	(5)	7.5	"
8	(6)	7.7	"
11	(7)	8.0	"
15	(8)	8.2	"

CASE 234. S.W. Male, aged 27 years. Single. Admitted 11.6.41, discharged 10.9.41.

He was admitted to another hospital on 1.5.41 for blistering and sloughing of the skin of his feet and ulcers of the right tibial region following a route march. Healing of the ulcer was slow and following a thrombosing injection for an underlying varicosity of the veins he became "depressed" ... "was worried about his brother being lost on the Hood ... was very silent and would not speak ... refused food, trembling, very nervous ... now says he has no brother on the Hood ... thinks his mother buried in the cellar of the hospital and hears his aunt talking upstairs" ...

On admission on 11.6.41 he revealed a marked degree of mental deficiency, was simple and facile and it was difficult to obtain a coherent, rational account of himself on any one topic. He said that he heard voices speaking to him saying that he was a spy, swearing at him and that he was obliged to repeat aloud the oaths heard. He had heard a voice saying to him that it was going to shoot his mother after which the patient was to be sent to Barlinnie prison to get a hair cut.

There was nothing of especial note concerning his treatment (which progressed to the point of social recovery) save that a slight relapse occurred after his third injection but he improved again with a further injection with complete disappearance of psychotic symptoms and he was ultimately discharged recovered.

18.7.41	(1)	7.0 c.c.	M
21	(2)	6.5 + 7.0	S/C
25	(3)	6.7	M
8.8.41	(4)	7.0	"

CASE 235. J.R. Male, aged 22 years. Married, but separated.
Admitted 14.6.41, discharged 10.8.41.

The M.O., Military Hospital, Gibraltar, from which the patient was sent, stated ... "Admitted with a history of attempted suicide ... very slow cerebration ... but coherent. Everyone 'down on him' ... melancholic and violent in turn ... depressed, dull, apathetic, avoids company of others, seen to imitate actions of other patients, speaks in rigid monotone in monosyllables after a long pause ... habits dirty and destructive" ...

On admission, 14.6.41, the same mental state prevailed: cerebration was very slow on account of thought blocking and it was not possible to obtain a coherent, connected account of himself. He did not speak spontaneously and the replies to questions asked him were

frequently irrelevant. At times he seemed unappreciative of remarks and questions made to him. He was given to repeating words said to him. He was very secretive concerning the existence of voices speaking to him and that, in crossing in the boat from Gibraltar, he saw "horrors - big things coming at me - funny (i.e. strange, peculiar) shaped things". He believed that his mind was being read when he was "looked in the eye". He said "I keep thinking I've done more wrong in the world than anyone else: I don't know that I've done anyone any harm but I keep thinking I have".

He was resistive immediately before his first injection of Cardiazol and asked, as he struggled, if he could not be put up against the wall and shot instead. A noticeable improvement occurred after his third injection: he said he could now think much more clearly and did not feel nearly so depressed as he did on admission: he was also able to express himself much more clearly and to the point. He stated he had always been of a nervous type, and, in his childhood, was always shy, solitary and sought no company: he was subject to nightmares when he shouted in his sleep, was a nail-biter and was very much afraid of darkness and dogs. Regarding previous breakdowns, he said that in May, 1940, he had been a patient for one week in a C.C.S in France suffering from "shell-shock": this had taken the form of great apprehensiveness and trembling of his body: he did not then suffer from hallucinations. Until his dismissal from hospital, he continued to make steady progress, showed an increasing interest in his environment, and was described by the nursing staff as being well-behaved and a willing worker. After his fifth injection he "felt his imaginations gone" i.e. he was no longer hallucinating and felt quite well and that he could be responsible for himself. He lacked insight, however, into his past mental state which he attributed to "stomach trouble" he had had ("always vomiting, headaches and diarrhoea") immediately before and for which he was confined to hospital, the confinement in which became depressing and his mental symptoms began to show.

24.6.41	(1)	5.5 c.c.	M
27	(2)	5.7	"
1.7.41	(3)	6.5	"
5	(4)	7.0	"
8	(5)	7.2	"

CASE 236. H.I.B. Male, aged 32 years. Married. Admitted 26.6.41, discharged 23.7.41.

The Psychiatrist to whom the patient was referred from his unit and by whom he was admitted to Bellsdyke Hospital stated ... "can give no very clear or reliable account of himself ... appears he has never been able to read or write ... satisfactory worker in civil life and in the Army able to do good work on fatigues until seven months ago when he became depressed and homesick ... mother taken to a mental hospital leaving his paralysed father alone ... unable to co-operate in any intelligence test but I consider he is feeble-minded or even imbecile ... says he suffers from fits" ...

On his admission, I could obtain no satisfactory account from him. He sat sniffing and groaning until he was told to stop doing so. He continually stated that he was separated from his wife and home: he was surly in his attitude and expected to be treated like a spoiled child. He was, at least judging from his answers, an imbecile, but I had the impression that some of it was assumed. He said there were ten pennies in a shilling, four and a half crowns in a pound, twenty-four days in the year, seven months in the year, five days in the week, that pennies were made of gold, shillings of tin and half-crowns of lead. In addition to continually referring to his separation from home, he continually referred in a whining voice to the fact that he was unable to read or write as if this were a sufficient reason for special compassion to be shown to him.

He was improved even as a result of one convulsion with a disappearance of his Ganser-like syndrome, said that his depression was gone and he now could give a much better account of himself. He said that he had always been subject to depressive attacks, and it appeared that he had definitely been a misfit in Army life and felt the separation from his wife very much more than the normal individual. He had a whining, self-pitying attitude and continually tried to exploit symptoms of his mental deficiency (his inability to read and write) to win sympathy for himself. He was discharged on 23.7.41.

1.7.41	(1)	6.0 c.c.	M
5	(2)	6.5	"
8	(3)	6.7	"

CASE 237. E.A.M. Male, aged 24 years. Single. Admitted 25.6.41, discharged 3.10.41.

The officer commanding his unit stated that the patient was "very slow in his work, although he tries and often practises by himself ... known to wander off ... on Sunday, June 22nd. ... had no idea where he was and seemed to think he was in some strange lines and had never been there before ... never got into bed before 12.30 a.m. as he has a kit inspection of his own nightly for fear someone should have stolen his kit ... often rises at 05.30 hours and is then never ready for parade and has to be dressed by other men ... always goes about by himself and hardly ever leaves camp" ...

On admission to hospital, he was not confused but was unable to give a coherent logical account of himself. He frequently smiled without apparent cause and his replies were often irrelevant - perhaps due to the fact that his stream of talk was determined by associative rather than chronological links, e.g., on enquiry about his stepmother, he went on to tell how and where she worked and how Sanatogen (in the manufacture of which she was concerned) was "ideal with cocoa". On direct questioning, he admitted at first to hearing noises in his ears, but immediately went on to deny this and he became secretive and suspicious when further questioning was persisted in.

He received two convulsions in a course of treatment before it was discovered that his blood Wassermann reaction was strongly positive. The clonic stage of the first convulsion was prolonged to three minutes, the first 3 c.c. he received being inadvertently administered subcutaneously. A further convulsion followed half an hour later without consciousness having been regained in the interval. The clonic stage lasted four minutes when it was abruptly terminated by 10.0 c.c. Cyclonal intravenously. A further injection was given on 3.7.41 with no untoward effects. Treatment was stopped on receipt of the report W.R. + ve. The convulsions had no effect on his mental state. Subsequent C.S.F. examination showed the C.S.F. W.R. to be strong + ve, the protein 80 mgm.% and the colloidal gold reaction 554320000. Malarial therapy was accordingly begun.

Following upon nine malarial rigors, he made a complete social recovery and was discharged home on 3.10.41, his Army form V 15 completed and in it he was instructed to report to St.Bartholomew's Hospital, London, for tryparsamide and any other treatment judged to be necessary.

1.7.41	(1)	3.0 + 5.0 c.c.	M
3	(2)	6.5 c.c.	"

CASE 238. G.S. Male, aged 22 years. Single. Admitted 3.7.41, discharged 24.12.41.

The mother of this patient said that he had arrived home on a seven days' privilege leave feeling very depressed. He lay in bed and hardly spoke to her. She thought that he "must be hearing voices" because often he replied to unspoken questions as it were. He was an only son.

On admission he was dull. His affect was one of depression: he was retarded in his replies and frequently had to have questions repeated to him. Frequently he was on the verge of tears although he did not actually weep. He was unable to give a good account of himself as he seemed unable to appreciate what was required of him.

He said that for the three or four months preceding admission he was very worried and depressed on account of "rumours" to the effect that he had "got his ticket" to enable him to enter the secret service. For the same period, he felt confused in his own mind which latter he felt was being influenced but in what manner and by whom he was unable to say. Regarding the question of suicide he said: "It's just a thought like - I never let it stay there".

He said he had always been shy and blushed easily, was backward at school and always a nail-biter.

On leaving school he had worked as a general labourer with frequent spells of unemployment, and had done well since volunteering for the R.A.F. two and a half years before admission.

Save for a chest markedly pigeon-shaped in type, he revealed no physical abnormality.

Superficially, he appeared to make an improvement under convulsive therapy in that his depression disappeared and he was prepared to talk on ordinary subjects in a freer manner, but he still remained delusional. It was not until insulin therapy was given him that he admitted to the presence of hallucinations, voices which told him that he was going to be a nursing orderly and which had previously told him he was going to receive promotion. Under insulin therapy he continued to improve and took part in such sports as organised boxing. Ultimately he progressed to the point of social recovery and was discharged on 24.12.41.

5.7.41	(1)	6.0 c.c.	M
8	(2)	6.7	"
11	(3)	6.7	"
15	(4)	6.2 R.1	"
18	(5)	7.5	"
21	(6)	8.0	"
8.8.41	(7)	6.5	"
11	(8)	7.0	"
15	(9)	7.2	"

CASE 239. H.D. Male, aged 22 years. Married. Admitted 2.7.41, discharged 11.7.41.

He was admitted from a hospital for psychoneurotics where he was stated to be "becoming increasingly difficult to manage ... obsessed with thoughts of getting home and asks continually when he will be dischargedfrom home and asks continually when he will be dischargedfrom the Army. He is very unco-operative in his attitude being negative and resistant. He is a bad influence on other

psycho-neurotics" ...

In his first interview with me, he began by asking when his discharge from the Army would be forthcoming. He gave a history of becoming "nervous and panicky" whenever sirens went and of how he used to sleep in air raid shelters or alternatively slept with his clothes on to be ready in case the sirens should sound. In addition, he was worried about his wife who was seven months pregnant.

He was in the R.A.M.C. and since his return from France with the B.E.F. was attached to the medical inspection room of a prisoner-of-war camp where he was constantly getting into trouble (he says the sergeant-major had a spite at him) and had been on charges on several occasions, e.g. 168 days' detention for refusing to obey an order, 14 days' C.B. for breaking camp, 2 days for insolence, 7 days for staying one day over leave.

He was backward at school and gave a history of a long history of temperamental instability, e.g., in many labouring jobs and sacked, e.g. because of indulging in sunbathing on the roof of the factory when he should have been working.

Save for a deformity of the left outer clavicle (there was a history of fractured left clavicle in the summer of 1940 while serving with the B.E.F. in France) he revealed no abnormality save tubular breathing and bronchophony at the right apex posteriorly. Two of his seven sisters had died from chest trouble, one from pleurisy and one from pneumonia. One of his five sisters alive was stated to be very nervous and hysterical and had been treated for one month for her nervous state in a general hospital. He stated his mother was very nervous and given to fainting easily.

Even after one convulsion, he began to maintain that he now felt all right and that he was very anxious to be returned to his unit (there was no doubt that this was to avoid further treatment) and as there were no medical reasons why he should not have been so disposed of he was returned to his unit on 11.7.41. I told him before he went that I had given instructions to his M.O. on the

A.F.B. 178A to return him to this hospital for a further course of treatment should a relapse occur. The patient was convinced, however, that these instructions were unnecessary as he would remain quite well.

5.7.41	(1)	5.5 c.c.	M
8	(2)	5.7	"

CASE 240. A.I. Male, aged 28 years. Married. Admitted 1.7.41, discharged 3.9.41.

He was a private and referred from his unit on account of peculiar behaviour, e.g., the sergeant of the platoon stated that some time after giving the patient instructions for going on guard that the patient was "sitting on the floor with all his kit around him and had made no progress with the cleaning of his kit".

On admission, he gave a very circumstantial, verbose and circumlocutory account of himself, the account being determined by associative, rather than chronological, links. He stated that he had been troubled with auditory hallucinations for years, the exact number being uncertain. He heard a voice, usually that of a man, telling him e.g. to deviate from his original intention of making for a certain point in a town by saying "go down this street". He invariably found it advisable to follow the behests of the voice as he invariably found it to be right. He also suffered occasionally from visual hallucinations, e.g. wild horses approaching him. He said that the men in the unit were against him on account of his "showing too much", his "creed all the time - (being) love". From descriptions he gave, he seemed at times to have passed into states of exaltation and ecstasy.

Concerning his previous history, he said he had always been shy and solitary and indifferent about company. He had always been abnormally preoccupied with his own bodily sensations and given to introspective,

unprofitable lines of thought.

There was nothing of especial note in connection with his treatment: his psychotic symptoms gradually disappeared and he revealed himself in every way as a pleasant patient to deal with, was a willing and conscientious worker and readily joined in the organised games of the hospital. On his dismissal, however, a marked schizoid state was still present with persistence of his circumstantial, verbose and circumlocutory method of talking.

5.7.41	(1)	5.5 c.c.	M
8	(2)	5.7 + 6.0	"
11	(3)	6.2	"
15	(4)	6.4 R.1	"
18	(5)	7.5	"
21	(6)	8.0	"
25	(7)	8.5	"
8.8.41	(8)	9.0	"
11	(9)	9.5	"
15	(10)	9.7	"

CASE 241. S.R. Male, aged 35 years. Married. Admitted 3.7.41, discharged 5.8.41.

He was a gunner in an L.A.A. battery and the M.O. of his unit stated on the day of the patient's admission that he "reported sick to-day with a story of having fainted on parade yesterday ... appears very agitated ... is incoherent ... impossible to get any rational statement from him. Every now and again appears to fall into a short faint" ...

His manner of delivery on admission was very histrionic and hysterical, every now and again leaning far back in his chair as if in a faint: he ultimately desisted when he saw I paid no attention. At first he complained of fainting attacks and gave a typical

description of such, beginning since he was at school and precipitated by any strong emotion. Each attack was heralded by a feeling of weakness in his legs, dizziness, buzzing in his ears and "hearing a host of (imaginary) voices". This led on to his confessing that for the three weeks preceding admission his nights had been made sleepless by the sound of a man's voice calling him a maniac. It called him so on account of his excessive proclivities in and preoccupations concerning his sexual activities and, owing to the separation entailed by his Army service, the absent opportunities of so indulging. It was, he said, the absence of opportunities (he had not had extramarital intercourse) which had produced in him his present mental state. He had frequently absented himself without leave to be with his wife to whom he had frequently rushed home to "tear every ribbon off her" before copulating. He was now afraid of meeting "any decent girl" lest he would lose control of himself and rape her. On account of all these things, the voice called him a maniac. He was depressed as a consequence though never to the extent of contemplating suicide.

He had a bad previous history - always nervous, suffered from nightmares, was terrified of the dark, of death, of water and animals: he had always been why, solitary and retiring and had practically no friends. He was backward at school and was a lifelong nail-biter. His father was a chronic invalid from sleepy sickness: it "affected his head" and he had been for lengthy periods in various hospitals and at home.

The patient had had pneumonia twice during his schooldays, and, at the age of 14, suffered from rheumatic fever with recrudescences since, the last being one year before admission when he was in bed for one month with fever, pain and swelling of his joints. Cardiac examination was normal as also were the other systems.

He felt much better after his first and only convulsion and said "I feel happier in a way I can't explain". The voice he had heard calling him a maniac had quite disappeared; he did not attribute the disappearance to treatment but to the fact that he had told me about it, thus "getting it completely off my mind". At this time, he was reported by the nursing staff as being

very nervous and emotional and that before his discharge from hospital he had lost much of this nervousness and emotionalism and seemed more confident of himself in every respect. He was showing initiative in his work, was of good behaviour and very clean and tidy in his appearance.

8.7.41 (1) 6.0 c.c. M

CASE 242. P.F. Male, aged 21 years. Single. Admitted 28.6.41, discharged 2.8.41.

He had been notified by his civilian medical practitioner as a case of illness occurring while on leave and the M.O. of the military hospital to which the patient was first sent stated ... "notified to us by his civilian doctor as a case of encephalitis lethergica. He has been lying at home in a lethargic condition for some four days ... I find him stuperose ... N.A.D. physically ... He complains of noises and voices - head - case of psychosis" ...

On admission, the appearance of the patient suggested mental deficiency (and indeed it subsequently transpired that he was below the class average while at school and never passed his qualifying examination) but he was able to give a good account of himself without hesitation, although leading questions had to be employed to elicit information. He stated that since the age of 12 he had suffered from visual hallucinations which took the form of "big shapes and shadows" advancing to and then receding from him: at the same age he also suffered from auditory hallucinations which consisted of voices shouting at him. Thenceforth the visual hallucinations remained (and never handicapped him much at any time) though the auditory ones disappeared until 25.6.41 when he was on leave when they returned: however, in addition to hearing the voices he heard the imaginary sound of guns firing. In addition, there appeared a hysterical tic of his head.

He said he was very nervous when he was young and had phobic anxieties concerning darkness, sudden fright and heights. He attended a cripple school on account of rickets until he was twelve years old and thereafter a normal school. On leaving school, he worked for one year as a message boy and thereafter as a general labourer with frequent and lengthy spells of unemployment e.g. 2 years.

After the first convulsion of treatment, the hysterical tic of his head was not so pronounced and he stated that his hallucinations had disappeared. The tic disappeared after his second and last convulsion. Throughout the remainder of his stay in hospital, he remained dull and took little interest in his surroundings. He employed himself in light tasks under supervision. There was no reason to believe that this was other than his normal state.

5.7.41	(1)	5.5 c.c.	M
8	(2)	5.7	"

CASE 243. J.F. Male, aged 23 years. Single. Admitted 9.7.41, discharged 22.9.41.

He was a mental defect (very backward at school and never passed his qualifying examination) and it was only with difficulty that he was made to appreciate the information required of him. He was very anxious, tremulous and apprehensive as if he were continually expecting to be sharply spoken to. He said he had always been of a nervous temperament (he had been a sleepwalker, nail-biter, was shy, had specific phobias in connection with water, heights, dogs, travelling in cars, and of open spaces) and his habitual nervousness had become worse after his service with the B.E.F. in France: he attributed this to the fact that his battalion had a new S.M. on their return to the U.K. and that this S.M. had his knife in him, accusing him of keeping back the whole company on

account of his slowness due to his inaptitude at picking things up. He had served two periods of detention for overstaying his leave and had been on minor charges for such things as being unshaven on parade and keeping his rifle in an unclean condition. Before admission, he had been on leave and had to take to bed on account of insomnia, nervousness, "jumping in the ear and stomach" and hearing an imaginary voice saying to him "the Army will be the finish of you". He had first heard this voice in civilian life telling him to cheer up over his gambling losses as perhaps to-morrow he might be more fortunate and win sufficient to take him to a Rangers' football match. He also stated that he was occasionally subject to visual hallucinations which took the form of his reseeing some of the experiences he had undergone while in France.

His mother was stated to be of a nervous disposition and often afflicted with insomnia. One of his seven sisters was stated to be very nervous and a sleepwalker. A paternal uncle had committed suicide and another had been in an asylum for a period of eighteen months.

Under treatment he improved to the point of being a social recovery. After the fifth injection (of which he was very afraid) he stopped hallucinating but until his dismissal from hospital he tended to have outbursts of excitement on account of which, on one occasion, he had to be removed from the dining hall: as a rule, however, he was easily controlled with tactful handling. He tended to be untidy in his dress and resented being corrected by the nursing staff. On his dismissal, he had no insight of any kind into his mental illness for which he had been admitted.

11.7.41	(1)	6.0 c.c.	M
15	(2)	6.5 + 6.5	"
18	(3)	7.5	"
21	(4)	8.0	"
25	(5)	8.0 R.1	"
8.8.41	(6)	8.5	"

CASE 244. J.C.M.H. Male, aged 23 years. Married. Admitted 11.7.41, discharged 27.8.41.

He stated on admission that he had always been nervous and mentioned in support of this how for about a year after he had been involved in a motor car accident when he was ten years of age he could only venture abroad in his mother's company and would scream even then if a car passed them in the street. He was always of a moody, brooding and hypersensitive nature, e.g., if someone laughed at him, he would brood on this and "it seemed to mount and mount until it seemed that the whole world was laughing at me". He had phobias in association with horses, water, closed spaces which he felt were "coming down on him", was a sleep-walker and used to, in that condition, according to his mother, "dig for treasure" in the bottom of his bed, was enuretic until 11 or 12 years, was shy and blushed easily, unable to make friends and preferred his own company. He bit his nails as a habit.

From ever since he could remember, he had periodically the alarming feeling that he was swelling up to the point of bursting: he was successfully able to ward off this feeling by concentrating on some task such as reading. This feeling became progressively worse on each occasion that it occurred and progressively more difficult to ward off. The Army into which he was conscripted fifteen months before admission did not make matters any better: he made no friends and "just used to carry on from day to day sort of style", until eight months before admission he became "scared" by the stories his M.O. told him concerning the possible consequences of not having his right inguinal bubonocele operated upon (the patient had a phobia concerning operations) and he went absent without leave for a period of eight months, eventually giving himself up one week before admission when he was placed under detention. While in detention he had plenty of time to ruminate on the change that had come over him during the two or three months previously, namely, "I couldn't get my mind all to myself. I had no control over it". At times he felt that there were two minds inside him. He eventually reached the stage while in detention of "nothing mattered any more and everything was lifeless". In this state of mind he had gone into

his pocket for a pencil to write with and had come across an old razor blade. He was again acutely conscious of his unreality feeling and of the fact that he had two minds, one conscious of all that was happening and struggling against the other mind which eventually was successful and caused him to transversely incise the palmar aspect of his left wrist in an attempt at suicide. He was subject to a visual hallucination, often seeing a cat dash across the floor when there was none there.

His mother suffered from diabetes, was nervous and much given to worry. One of his four sisters (the patient was the youngest of a family of seven) had been for a period in a mental hospital.

His reaction to treatment is given in detail in the text of the thesis. His unreality feelings and hallucination disappeared after his fourth convulsion - see text. His post convulsion behaviour was predominantly oral with, after his third convulsion, some masturbatory movements and, after his fifth and sixth convulsions he soon sat up in bed and, holding the cylindrical mouth-gag in his right hand, sucked at it at intervals in the manner of a child sucking at a stalk of candied rock.

15.7.41	(1)	6.5 c.c.	M
18	(2)	6.7	"
21	(3)	7.0	"
25	(4)	7.5	"
4.8.41	(5)	8.0	"
8	(6)	8.5	"

CASE 245. H.B. Male, aged 28 years. Married. Admitted 28.7.41, discharged 1.10.41.

He was admitted with the brief history of having been admitted to a camp reception station four days previously suffering from loss of memory and no particulars were obtained from him other than those on

his identity disc.

I could obtain no information from this man on admission. He was very dazed and confused and was apparently suffering from loss of memory. His replies, when they were forthcoming, were very retarded and all the information that was obtainable from him was that he did not know where he was or what had happened to him. He could not give his name, rank, number, address or any relevant details and did not seem to appreciate the information required of him. The amnesic attack was cut short by two Cardiazol convulsions and he gave the following account of himself. He said that before he actually received the two injections he felt himself "coming to", and that he had been subject to such attacks two or three times a year since, he thought (he was a mental defect and uncertain of dates), a short time after his marriage when he was just over twenty years of age. His wife nagged him about these attacks and eventually left him a few months after the marriage saying that he was too unreliable on account of them. Before the attacks came on he "got crabbit" and "can't be bothered with anything", "got kind of queer", "shivers and my teeth chatter", ("you would think I had the cold") and he suffered from frontal headache. This prodromal period lasted two ro three days on the average. Then "everything seems to go blank". "You feel something heavy when you're in them. It'll no lift. You can't sleep when you're in them". He came round gradually from these attacks by getting hold of a fact (e.g. such as he saw a light) and building up on this fact gradually with other facts. It usually took him a day or two before this process was usually completed and he felt himself again.

Since his conscription seven months previously he had been twice charged with absence without leave as a result of having had two amnesic attacks. In addition, he had twice received hospital treatment, each of a fortnight's duration, for symptoms of the Effort Syndrome, for which he had been given permanent light duties which left him with much spare time on his hands with the result that he worried and became depressed, though not to the point of ever having contemplated suicide - "You'd think I wasn't satisfied unless I was worried and depressed".

Concerning his previous history, he said that he had been brought up in a home, had never seen his parents and knew nothing about them, and, since leaving the home at the age of 14, had tramped the country doing odd jobs as they came along with very frequent and lengthy spells of unemployment, the longest spell lasting three or four years.

In infancy and childhood, he had marked phobias, associated with darkness, water, heights, dogs, closed spaces if alone, uncomfortable when travelling in buses, was why, blushed easily even in the company of his own sex, was always solitary and preferred his own company, was subject to enuresis and nightmares in which he was falling over a cliff, was a very bad scholar when at school, and had always a very short temper.

His elder and only brother had an even shorter temper and was always subject to epileptic fits.

In view of his previous history and the possibility of future recurrences of amnesic attacks (the whole clinical picture being suggestive of epilepsy), he was considered unfit for further military service and discharged to the care of his mother-in-law (who had a very good word for him and who confirmed his entire history) on 1.10.41.

1.8.41	(1)	5.5 c.c.	M
4	(2)	6.0	"

CASE 246. F.O'H. Male, aged 19 years. Married. Admitted 29.7.41, discharged 10.9.41.

The documents accompanying this soldier were to the effect that he was incapable of picking up the instruction necessary to his becoming an efficient soldier, was judged to be a mental defect and was in the process of being disposed of as such, but the development of

psychotic behaviour (such as eating rose petals) made a period of hospitalisation advisable.

He told me on admission that for a considerable number of years (the exact number was uncertain) he had been subject to visual hallucinations which took the form of seeing huge monsters as big as buildings and that, since an attack of diphtheria since joining the Army, he had been subject to auditory hallucinations, hearing voices telling him to do such things as to eat the petals of flowers, flies and paper. He invariably obeyed them. He further told me that he had married three months before admission but that the marriage was never concummated as he regarded the sexual act as "dirty": his wife left him a few days after the marriage after she had witnessed his masturbatory activities. These activities had begun when he was fourteen years of age on his own initiative and had continued daily ever since: his glans penis was quite swollen as a result of these activities. Asked how he had met his wife, he replied "a chap gave her to me" (three weeks before his marriage) as he (the chap) was finished with her. He further said that he was very backward at school, never being able to acquire the rudiments of knowledge.

Physically, no abnormality was detected in any of the systems save the swollen glans penis noted above, a fairly severe degree of pes equinus varus, and a number of purple-coloured spots over his body (particularly his legs) suggestive of ichthyosis, but he stated that he had recently been treated for scabies.

Treatment produced a disappearance of his psychotic symptoms after his first convulsion to the injection preceding which he was very resistive physically and it required the assistance of five orderlies before it could be given. He was not physically resistive to the succeeding ones but very afraid of them: he reacted each time by the withdrawal of his arm when the injections were about to be given. Although his psychotic symptoms disappeared, he remained an intractible patient from the behaviour point of view - he still masturbated though not so frequently, was unstable, unreliable, mischievous, interfering with other patients and was in need of constant care and supervision.

4.8.41	(1)	5.5 + 6.5 o.c.	M
8	(2)	6.0	"
11	(3)	7.0	"
15	(4)	7.2	"
19	(5)	7.5	"

CASE 247. J.E.R. Male, aged 20 years. Single. Admitted 4.8.41, discharged 3.10.41.

He was admitted on account of his behaviour - he had thrown stones at a sergeant and had been heard enquiring for ammunition.

My initial question as to what he felt wrong with him was answered by a prolonged outburst of laughter, somewhat subdued, which was frequently repeated throughout the interview. I then questioned him concerning the presence of hallucinations and he told me that since he was aged 5 years, he had heard various voices talking to him usually in a very deprecatory and abusive strain. He was given to attributing these voices to any bystander and as a consequence was subject to transports of ungovernable, blind fury and attacked the person whom he thought was so maligning him. He so explained the attack on the sergeant. The voices also occasionally told him to commit suicide and thus he had asked to be given ammunition. For the few days preceding admission he had been suffering from visual hallucinations, e.g. he had seen goats and sheep tumbling about on the wall. He was suffering from a considerable degree of depression. His replies to questions were often irrelevant and there was a slight tendency to echolalia.

In connection with his earlier life, he said that he was always shy, solitary, backward, and had really no desire to associate with people, was a life-long nail-biter, had enuresis until 12 years of age, was abnormally attached to his mother, had specific phobias in connection with darkness, heights, water, and was very

backward at school.

With treatment, there was a complete disappearance of his gross psychotic symptoms but was reported in the wards as being "a useless, untidy, garrulous, quarrelsome, individual, a source of annoyance to other patients". He was surly and sullen when checked by the staff but worked well under supervision. In view of his previous history, the nature of his illness newly-recovered from and the disposition which he showed, it was considered inadvisable to retain him in service and he was discharged home on 3.10.41. He had, save for realising that he had been ill, no insight into his condition.

8.8.41	(1)	7.0 c.c.	M
11	(2)	6.2 R.1	"
15	(3)	7.2 R.1	"
19	(4)	7.5	"
22	(5)	7.5 R.1	"
25	(6)	8.0 R.1	"

CASE 248. G.C.L. Male, aged 21 years. Single. Admitted 12.7.41, discharged 10.9.41.

He was admitted from his unit with a history of repeated absences without leave and for "rowdy behaviour" during his twelve months' service. On admission, he gave a history of a childhood in which psychopathic traits were marked - enuresis, nail-biting, shy, blushed easily, was solitary and preferred his own company, had specific phobias in connection with darkness, water, heights, was a sleep walker, backward at school, so much so that there was once talk of sending him to a special school and was there nicknamed by his fellow pupils as "Mental". His mother had died of causes unknown: the patient was the youngest of five brothers and three sisters: three of these brothers had died from tuberculosis and, for the seven years preceding admission, he had heard the voices of his three dead brothers and mother saying to him

"Come on! Come on!" meaning that he was to make an effort on his part to join them. Consequently, he sometimes felt impelled to commit suicide, or alternatively wandered off in pursuit of the voices. In addition to hearing them, he said he could sometimes see his mother and brothers wandering ghost-like around the room. In addition to these auditory and visual hallucinations, he was fairly frequently subject to spells in which he became oblivious of his environment and wandered off. The first of these spells occurred three years before admission, and as a result of taking them since conscription, had fallen foul of his superior officers. He was informed by an Army comrade that during one of these attacks he had to be forcibly restrained from determined efforts to shoot himself with a rifle. On admission, he was considerably depressed and much preoccupied with the thought of committing suicide. Before treatment was begun, this depression had lifted slightly but he was still hallucinating.

His hallucinations and depression disappeared entirely with two convulsions and thereafter he proved a very pleasant patient to deal with: he was a willing and conscientious worker, took a pride in being clean and tidy, conducted himself well and was helpful to his less well fellow patients.

8.8.41	(1)	6.0 c.c.	M
11	(2)	6.2 R.1	"
15	(3)	6.5	"
19	(4)	7.0	"

CASE 249. A.J.F. Male, aged 29 years. Married. Admitted 30.7.41, discharged 22.9.41.

He was admitted from Inglis Street Hospital, Dunfermline, to which he had been admitted the day previously "in a very dazed condition. He was suffering from loss of memory to a certain extent and his cerebration

was slow ... remembers being here previously" ... During this previous admission (from 14.6.41 to 29.6.41, for which he was sent as suffering from dyspepsia and vague headaches) he was reported as being very depressed with an inability to give a coherent history ... "the history was that on returning from a visit to London, he 'collapsed'. On arrival in London, he found that some members of his family had been severely injured in air raids ... appears to be the cause of his state of mental apathy" ...

My first interview with this patient was interrupted after a few minutes by his asking for water to drink and then becoming very drowsy as he broke into a generalised sweat. There was an element of the histrionic in this turn apart from its organic features. Although he kept his eyes closed and had shallow and not too rapid breathing, he was not unconscious but responded to stimuli (verbal and tactile) and with his eyebrows screwed into a frown. Before this incident he complained of nothing save beating in his forehead, was apparently suffering from an amnesia, was retarded in his replies and seemed unable to grasp what was required of him. He mentioned how he was worrying about his brother Tobie (who had committed suicide by hanging and whom, the patient said, would not have done so had the patient remained with him), of Rosie, his sister, and his wife, Maud. On subsequent interviews before treatment was begun, he proved similarly remote and practically inaccessible and was quite unable to give a connected coherent account of himself. No additional information was gathered save that he said that his inability to concentrate was due to his continual brooding about his family, that he had been married for 10 years, that his only child was 8½ years old and was healthy, and that a brother "with his mind gone" was in a mental hospital at Epsom for some years.

With treatment, he admitted to improvement saying that he "felt better within himself" and was able to think more clearly. His general attitude to me, however, was negative and what little additional information was forthcoming had to be dragged out of him: he was continually given to misinterpreting questions or gave answers not to the point. Regarding his amnesias and periods of confusion, he could give no additional

information beyond the fact that his attacks appear to have been precipitated in the first instance by a sister having been killed in a bombing raid and his sister Rosie, already referred to, having lost a leg as a result of the same raid. He brooded on these things until he no longer knew what he was doing. He was discharged on 22.9.41.

8.8.41	(1)	6.0 c.c.	M
12	(2)	6.2 R.1	"
15	(3)	6.5	"
19	(4)	6.5	"
22	(5)	7.5	"
26	(6)	8.0	"
29	(7)	8.5	"

CASE 250. L.N.L. Male, aged 21 years. Single. Admitted 7.7.41, discharged 24.9.41.

He was referred for inefficiency as a soldier. Questioned about this on admission he said that he had been on several charges (e.g. untidiness on parade) since his conscription approximately two years previously and that he was awarded 112 days' detention for the last charge of refusing to obey a sergeant's order to report for duty elsewhere than where he was working. The patient would give no reason why he did not report elsewhere. No information was obtained from this patient save in answer to leading questions. He was reserved, secretive and suspicious, denied that there was anything the matter with him and denied the existence of previous psychopathic traits. His general aspect (abrupt in delivery save in answer as to whether he was hallucinating when he broke into a broad smile which he attempted to smother) was very suggestive of a schizophrenic state. This impression was further added to by the discovery of his almost complete dissociation from reality: for instance, he did not know the nature of the hospital he was in and expressed the opinion that the other patients

were talking and behaving quite normally: he was not at all perturbed at his own being in hospital despite his conviction that there was nothing wrong with him; he did not ask to be allowed out. In subsequent interviews before treatment was begun, his attitude remained unaltered. He said he passed his time reading newspapers (which fact he subsequently denied) but was unable to tell me of anything he had read. The nursing staff reported that he was uninterested in his surroundings and personal appearance, was very suspicious and unreliable, lacking in initiative, taciturn, and was often to be observed smiling to himself.

He improved to the point of social recovery with treatment but beyond realising that on his admission he had been "confused and depressed" he had no insight into his illness newly passed. A letter from his mother is referred to in the text of the thesis in which she refers to a previous breakdown which he had had and which the patient confirmed when he had again made his social recovery. He was as unable to describe his previous illness as he was his present one.

8.8.41	(1)	6.0 c.c.	M
11	(2)	6.2	"
15	(3)	6.5	"
19	(4)	7.0	"
22	(5)	7.5	"
25	(6)	8.0	"

CASE 251. A.F. Male, aged 22 years. Single. Admitted 12.6.41, discharged 3.10.41.

The notes accompanying his admission said that he was "stated to have periods of depression. In the past few weeks he has heard voices that tell him he is discharged from the service. He is unclean and untidy in his habits and is a persistent disregarder of authority".

He revealed himself on admission as a mental defective and his poor school record was confirmatory. His account of himself was most unsatisfactory and all information had to be obtained by the employment of leading questions which had frequently to be repeated. He frequently smothered a smile and admitted that funny thoughts frequently came into his head but he denied hearing voices speaking to him. He did admit that "rumours were going around" that he had to be discharged from the service but would not elaborate further. He said that his mother was nervous and lost her temper easily.

He was reported after a period of observation in the wards as being "a simple-minded individual. Will not converse except when spoken to and often smiles for no apparent reason. Does not take any interest in his surroundings. Only works under supervision". On 10.7.41 he admitted that for the past 4-5 years he had heard two or three voices speaking to him: they murmured softly to him and at times called him names. He also said that he saw shadows moving when there were actually no objects there to cause them.

Treatment was then begun and its termination was accompanied by a disappearance of his psychotic symptoms and an improvement in his general attitude and behaviour. He worked well in the ward under supervision and became more clean and tidy in his habits: he appeared brighter and came to take an interest in his surroundings. With no insight into his condition newly passed he was discharged to C/o.G.P.O., Glasgow, on 3.10.41 as he was unable to return to his ordinary home in the Channel Islands. He wrote me three days later from a common lodging-house in Glasgow, saying, "I am writing to tell you that is my address above, in case you want to know if I have an address at present. I am staying here temporarily. Do not torture the girl or girls with the R.A.F. or Forces". (I am unable to determine the exact meaning of the previous sentence. Perhaps he meant that should I have female military patients I was to spare them the treatment referred to in his next sentence.) "But also don't think of giving them injections or the needle as you call it. But let them carry on as they are. If I don't stay in Glasgow, I won't touch the girls or bring them in, or ask them to take something on should my life be in danger".

(I am also unable to determine the exact meaning of this sentence: during his conversations with me he had made no references of any description to girls.) "I am writing to the Citizens' Advice Bureau to get in touch with my sister, should I leave Glasgow or anything happen. That is all for now". Here the letter ended abruptly: he had previously given his number and name with his address at the head of his letter.

8.8.41	(1)	6.0 c.c.	M
11	(2)	6.5	"
15	(3)	6.7	"
19	(4)	7.0	"
22	(5)	7.5 R.1	"
25	(6)	8.0 R.1	"
29	(7)	8.5 R.1	"

CASE 252. D.B. Male, aged 31 years. Married. Admitted 5.8.41, discharged 22.9.41.

On admission he was very retarded in his replies, given much to repeating questions asked him and was seemingly unappreciative of the information required of him. Mobilised at the outbreak of war, he served in France from 26.9.39 to June, 1940, during which time he saw no action. He was in a hospital in France for the month of January, 1940, for what appears to have been a functional gastric complaint. Since then he had continually reported sick and was in Hairmyres Hospital from 20.8.40 to 5.11.40 stated to be suffering from some pulmonary fibrosis of the left upper lobe which was not confirmed by a subsequent X-ray at this hospital to which he was admitted under the diagnosis of anxiety neurosis and mental deficiency. While there was no doubt concerning the latter, his mental state was devoid of anxiety features. His only complaint was of pains in the interscapular region ("I think it's my lungs") which began in civilian life three years before admission: he did not attend a civilian doctor for treatment. There was little doubt that

these pains were functional in origin and X-ray examination of the spine and lungs was negative. His mother, he said, died of consumption and both his sisters were afflicted with tuberculosis. He stated in connection with his previous history that he had always been nervous, e.g., about travelling fast in a car, of darkness, deep water, heights, dogs: that he was shy, blushed easily, preferred his own company and was very backward at school.

As a result of treatment, his complaints entirely disappeared and he professed to feel perfectly well. The mild depression which had been present on admission disappeared and he conversed spontaneously. He said he was "frightened to death" of the treatment on account of the sensations he experienced immediately after receiving the injections - he saw stars, "felt like going under chloroform" (which he had never at any time had administered to him) and "heard all sorts of noises" which he said were indescribable. In addition, he had a terrifying sensation in his head of "bubbles - wough - wough - wough". He was unable to enlarge on that description. So afraid of the injections was he that he asked to be returned to his unit in order to have them stopped.

11.8.41	(1)	6.5 c.c.	M
15	(2)	6.5	"
19	(3)	6.5	"
22	(4)	7.0	"
25	(5)	7.5 R.1	"
29	(6)	8.0 R.1	"

CASE 253. C.E. Male, aged 25 years. Single.
Admitted 6.8.41, discharged 8.10.41.

On admission he had completed five months' service. He had been seen by a psychiatrist shortly after his conscription, who had diagnosed him as a medium-graded feeble-minded man and had recommended his transfer to the Pioneer Corps. This transfer was, however, not

effected and since then he had been "a source of continual trouble to his unit": he had been absent without leave on several occasions and, following one of them, had been sentenced to 56 days' detention. On admission, he was under close arrest for a further similar offence and was awaiting trial.

He was a frank mental defective and all information had to be dragged out of him. Since childhood, he said, he had suffered from frontal head pains and amnesic attacks, the attacks coming on suddenly and lasting 3-4 days during which time he "wandered around" and always "came to feeling very hungry. He attended his civilian medical practitioner for them. It had been while in these amnesic attacks that he went absent without leave. In addition, he said he had heard voices whispering to him while he was still in "civvy street", saying that when he was called up again (he had previously been a regular and was discharged after three months for a "nervous breakdown", re-enlisting at outbreak of war and discharged following a period of hospitalisation after drinking a bottle of varnish) he would be "of no use": they (the voices) also told him "what to do and what not to do". He had also suffered from ? hallucinations in which he saw his dead father and mother: his father had died aged 58 years of ? apoplexy and bronchial asthma.

In connection with his previous history, he stated that he had been very hot-tempered since childhood when he had marked phobias in connection with darkness, water, heights, cows, was shy and blushed easily, an occasional nail-biter and nocturnal enuretic until 14 years of age, was subject to nightmares and somnambulism, and preferred his own company.

Before treatment was begun, he was reported as refusing to work in the ward and of attempting to influence the other patients to do similarly. He was "untidy in his dress and at times makes himself a nuisance with the other patients, interfering in their games, etc. Constantly needs correction. Will only work under supervision".

With treatment, there was a disappearance of his psychotic symptoms and a slight improvement in his behaviour. He was discharged home on 8.10.41 as unfit for

further service.

15.8.41	(1)	6.2 R.1	M
19	(2)	6.5	"
22	(3)	6.5	"
25	(4)	7.0	"

CASE 254. E.P.B. Male, aged 23 years. Single. Admitted 9.8.41, discharged 29.10.41.

He was reported as having previously been a good soldier during his two years' service but that recently he had "lost all interest and behaved oddly ... He has excused himself all (soldiering) duty. He paraded in serge because he preferred it ... mildly confused and can give no accurate details of himself but complains of lassitude and says his 'neck feels loose' ... admits feelings of unreality and confusion of thought ... describes a similar attack three years ago - treated in a London Hospital but cannot say which one ... possible that he hallucinates but no definite evidence of this" ...

The same state was present on admission and little information was forthcoming. He was often incoherent and his replies to questions (which were often irrelevant) were always cut short, apparently resulting from his inability to concentrate. He realised he was ill and that he could only think with great difficulty. While admitting to the presence of auditory hallucinations, beyond stating that he heard voices speaking to him, he would not explain further, but it was gathered that he associated these voices in some way with thoughts that came into his head for no apparent reason. He frequently used the word "thoughts" throughout the interview. He had forgotten several of the incidents mentioned as having happened at his unit; for instance, he had no recollection of appearing on parade in civilian clothes, nor, he said, had he ever before been in hospital for an attack of the same trouble.

He rapidly improved with treatment in that he stopped hallucinating and could give a fairly coherent and connected account of himself. He said he could now think much more clearly. His replies to questions were now relevant. He said he had been hallucinating for the past four years and that even before this he had had a previous attack which responded to a bottle of medicine given him as an O.P. at a London Hospital - name unknown.

About 30.9.41, however, he relapsed into the state he had been in on admission and was obviously hallucinating both visually and aurally, confession as much, but his incoherence prevented him from dilating further on these. He would interrupt his incoherent replies to answer either the voice or mumble in conversation with himself. He again improved to the point of social recovery with further treatment, begun on 30.9.41, this time the improvement being maintained. He felt his old self again and full of confidence. He was discharged 29.10.41.

12.8.41	(1)	6.0 c.c.	M
15	(2)	7.0	"
19	(3)	8.0	"
22	(4)	8.5	"
24	(5)	9.0	"
26	(6)	9.5	"
29	(7)	5.5	"
30.9.41	(8)	6.0	"
3.10.41	(9)	6.5	"
7	(10)	6.5	"
10	(11)	7.0	"

CASE 255. R.R.M. Male, aged 30 years. Single. Admitted 14.8.41, discharged 29.10.41.

He was admitted with a history of having been always very excitable especially during the two months preceding admission after he had undergone tonsillectomy. Following this operation he became rambling in his

conversation and prone to engage in fisticuffs.

On admission he stated that when the Nazis came to power he gave up the study of medicine in Germany when aged 23 years and went to Denmark, where he took up farming for several years, but returned to Germany in a fit of nostalgia and spent about six weeks in a concentration camp. Finally, he landed at Leith in April, 1939, and worked as a cattleman until interned in June, 1940. He volunteered and was accepted in the alien section of the P.C.

He said that since he was a medical student he had been continually preoccupied with the idea of obtaining power from animal matter in a manner analgous to the method whereby electrically charged bodies can attract or repel one another. Attraction in the biological sphere was evidenced, he said, by the agglutination of incompatible red blood corpuscles, but so far he had been unable to find an example of repulsion. He had not yet worked out the details but he was convinced that if such attraction and repulsion could be utilised (e.g. various corpuscles attracting and repelling in balls of agar jelly) then this would be the source of immense power, and the repulsion could be utilised, e.g. to supply the motive power which would impel ships throughout the depths of space. This power would also be utilised to solve the Jewish question, though he could not say in what manner, by bringing about a return to all Jews to Palestine. He himself would be the President of this community. He realised the ridiculousness of this belief in his present circumstances but saw no reason why it should not come to pass although he stated almost in the same breath that all he wanted was a farm with twenty milking cows. A fortnight before admission, he had had a very vivid dream in which he had heard Christ speaking to him, saying "For as much as ye do unto other people ye do unto Me".

Allowing for the fact that English was not his native tongue, his story was quite coherent with no circumstantiality or circumlocution. With regard to his affect, he stated that he felt as he did "when I was a small boy and expecting my Xmas presents in a day or two". A marked degree of dissociation of affect was present: he was profoundly perturbed about the Jewish question and

about the conditions he had seen existing in the concentration camp in Germany, yet when he spoke of these things it was with the accompaniment of very frequent smiles and laughs. He was reported in the ward as being "an untidy, argumentative, restless individual. Altogether unreliable. When corrected for anything he just stands and looks with a silly grin on his face. Resents hospital discipline and delights in causing trouble among other patients. Stands grimacing to himself and bursts into laughter for no apparent reason".

With treatment, a distinct improvement resulted in his mental state, even after two convulsions, when he was prepared to admit that the beliefs he had previously maintained might be ridiculous. He confessed to a previous similar breakdown of five to six months' duration in a mental hospital in Denmark. The tenacity with which he held his beliefs gradually diminished but on 15.9.41 he had an acute psychotic episode: he believed (erroneously) that he had been given cascara against his will and that its action was the source of a smell emanating from his body: he further believed that everyone in the hospital was in the pay of the Nazis and that he himself was suspected of being a Nazi spy. After this episode of approximately two days' duration, he rapidly improved to the point of social recovery and was discharged on 29.10.41 as unfit for further military service to the care of an uncle, a British subject.

19.8.41	(1)	6.0 c.c.	M
22	(2)	6.2 R.1	"
26	(3)	7.0	"
29	(4)	7.5	"
2.9.41	(5)	7.7	"
5	(6)	8.0 + 9.0	"
9	(7)	10.0	"

CASE 256. V.D.C. Male, aged 22 years. Sindle. Admitted 21.8.41, discharged 3.3.42.

The M.O. of his unit stated on the admission notes accompanying the patient that the latter "answers questions slowly and unwillingly and seems to have difficulty in co-ordinating ideas and expressing himself. Of late he has been increasingly morose and gloomy and keeps apart from his comrades. He has never been a satisfactory soldier, being at all times slovenly in appearance and dirty in his habits. On recent occasions he has shown signs of uncontrollably bad temper and has become threatening in his attitude to others. His mental condition seems to be deteriorating ... "

On admission the patient was very suspicious and denied that there was anything wrong with him, that there had been anything abnormal about his behaviour or that he was subject to fits of temper. He could give no reason when questioned (he did not speak spontaneously) as to why he should be in hospital. Asked what sort of hospital he was in (he was a private in the R.A.M.C.) he began to talk about shaving and asked what was the sense of a barber shaving one if one had a razor of one's own. He denied the existence of any neuropathic traits in childhood. He frequently tilted his head and eyes sidewards as if listening to voices and very frequently his lips moved as if in answer to them, though he denied hallucinating and said that his lips were moving because he was thinking. It was noteworthy that when the presence of hallucinations was first enquired into he said "I beg your pardon", wanting the question to be repeated. He did not do so when other questions were put.

The mental condition of the patient did not improve with treatment nor with subsequent insulin treatment which produced 41 comas. He remained very suspicious and remained continuously on guard when asked questions. He did not speak spontaneously. His replies were very often irrelevant. At the termination of one interview I asked him to send in another patient, mentioning this patient's name, the present patient became very agitated and said, on my asking him why he was so agitated, that he thought I had been using a code and was referring to another man who was "against" the patient.

The following letter to a married sister gives a good idea of his mental state:

"Dear Mrs.W - , Thanks for letter. Plea'st to now that baby'. John'. get cow milk. Fear'. Not'. Thank God'. Nothing'. but. Mrs". don't send Vic? cake & Beryl dont make gloves geuv'. to poor. ex heand Mrs, say hope to Gy uble to come & see Mr.' and Mrs.' B.H.'R' & W -, B. & S'. at Christmas. Sorry not written before but Fear? Not? Vic? experience of others. That all for this time hope thank? God. That all are well att home sead George. Well Vic', send Doctor, told fat and Will. best of lock and nest hard forrn Dad?"

He was discharged on 3.3.42 to the care of his relatives.

22.8.41	(1)	6.0 c.c.	M
26	(2)	6.5	"
29	(3)	7.0	"
2.9.41	(4)	7.5	"
5	(5)	8.0	"
9	(6)	8.5	"
12	(7)	9.0	"
16	(8)	9.5	"

CASE 257. T.H. Male, aged 29 years. Married. Admitted 8.8.41, discharged 8.10.41.

He was referred with a history of having been admitted to a hospital dealing with medical cases from 31.5.41 to 20.6.41 with symptoms of cough, dyspnoea, headaches and worry. He was treated with expectorant mictures and sedatives. On his discharge he was sent to a convalescent hospital till 15.7.40 when his complaints were still present: he was then referred for psychiatric investigation as he was on a draft to go abroad.

He stated on admission on 8.8.41 that he had

had a nervous breakdown 6 or 7 years previously which began by his being found wandering and was taken to the mental observation wards of a general hospital in which he was a patient for 2 - 3 months. During this time he said that he was occasionally put into a straight-jacket on account of his restless state, and that he was then suffering from auditory and visual hallucinations. When dismissed hospital he was depressed, lacking in confidence to the extent of being "afraid to go out for a packet of cigarettes" and he made a half-hearted attempt at suicide. Continuing his history in his very soft and at times almost inaudible voice and with no change on his expressionless and somewhat childish features, he said that since then he had been troubled "off and on" with recurrences of the auditory and visual hallucinations. The former consisted of voices mumbling indistinctly and the latter of indefinite shadows: he found them equally disturbing after he was conscripted and he worried greatly about them, wanting to know what the voices were talking about and what the shadows signified: the latter were particularly troublesome. Since conscription, he couldn't stand, he said, the shouting of the N.C.O.s as it made him flustered and unable to do anything, and "the more I tried the worse I became". Apart from that, he couldn't pick things up, partly because he had no interest in the Army and kept to himself as he thought his comrades were talking and laughing at him.

He said in addition that he had always been nervous, shy, solitary and preferred his own company, that in infancy and childhood he had had phobias in association with darkness, water, heights and animals of every description, that he was in the habit of biting the skin around his nails, was subject to nocturnal enuresis until 10-11 years, wouldn't play with other children as they called him "dunderhead", and that, at school, he actually was very backward and was always being threatened by his teachers that he would be put to a special school. In detailing his history, he made much of his mental deficiency.

He progressed to the point of social recovery with treatment concerning which there are no outstanding points to record.

29.8.41	(1)	6.0 c.c.	M
2.9.41	(2)	6.5	"
5	(3)	7.0	"
9	(4)	7.0	"
12	(5)	7.5	"
16	(6)	7.8	"
19	(7)	8.0	"
23	(8)	9.5	"

CASE 258. F.R.W. Male, aged 35 years. Married. Admitted 25.8.41, discharged 16.3.41.

He was admitted from a prisoner-of-war camp with a history of having the day previously attempted suicide by cutting his wrist with a safety-razor blade.

He said on admission that he had been threatened by his fellow internees with awful things when they all returned to Germany on account of his failing to scuttle his ship (on which he was a pumpman) when it was intercepted by units of the Royal Navy. As they left ship, his companions discovered among his possessions a book containing a key to a code and subsequently accused him of being a German spy acting on behalf of the British. (I was unable to determine whether this latter part of his story was delusional or not.) Since being in the P.O.W.Camp, he had been constantly threatened as a result of which he became depressed and made an attempt on his own life. Until treatment was begun, he suffered from a continuance of his depression and marked insomnia. In addition, he revealed paranoid traits, saying, for example, that all the admission papers brought in with each new admission in the ward in which he was, were concerning him and the awful punishments which were in store for him. He endeavoured to give a fellow patient his wedding ring and a picture of his wife, asking them to be sent on as he was convinced he would never see her again. He made a further and bizarre attempt at suicide since admission by biting his right wrist: there was present the recent linear

transverse wound on his left wrist from his recent attempt in the P.O.W. camp.

There was present an extreme fear of treatment, so much so that before his third and last injection which was given him, he attempted to escape from it by diving through a wooden door which happened to be locked. Treatment was abandoned on account of this excessive reaction shown. It produced an improvement in that his paranoidal ideas and beliefs disappeared, but he revealed himself as a mental defective who was subject to auditory hallucinations. These he did not find troublesome nor did they interfere with his conduct in the wards. He proved to be a well-conducted, well-behaved patient, was ultimately given parole and did not abuse the privilege in any way. During the last month of his stay in hospital he repeatedly asked to be returned to his comrades at the P.O.W.camp. As it was considered ultimately that further treatment would not substantially help him, this return was ultimately effected with a recommendation for repatriation.

29.8.41	(1)	6.0 c.c.	M
2.9.41	(2)	6.5 R.1	"
5	(3)	7.5 R.1	"

CASE 259. M.S. Male, aged 20 years. Single.
Admitted 1.9.41, discharged 10.12.41.

He was admitted, after having done four days' service with the R.A.F., with a history of having attempted suicide the day previously by cutting his throat with an open razor: he cut through both sterno-hyoids, the thyroid cartilage protruding.

He said on admission that he had always been nervous and that in infancy and childhood had phobias associated with darkness, water and heights, that he was a nail-biter, that he was always very shy, blushed easily and found it very difficult to approach people being so

self-conscious, definitely backward at school (his M.A. - 7 yrs.6 months) after leaving which he worked as a labourer at whatever work was available. He had never had, he said, any happiness in his life owing to his mental disposition. When he was eighteen years old, he first heard an imaginary voice speaking to him calling him such names as "bastard". He had always been previously subject to feelings of "fed-upness", but since the advent of the voice he became subject to attacks of acute depression in which he was troubled with suicidal impulses which, however, he was always able to "work off". He had dreaded going into the R.A.F. (or any form of military service) as he knew his mental disposition would prevent him mixing with his comrades or in any way able to enjoy service life. He was in such a depression when he was conscripted and slashed his throat with an open razor in a lavatory. He did not lose consciousness and stumbled out, was seen by a comrade and taken to the M.O.

He improved to the point of social recovery with treatment and was then discharged. He worked well in the ward during gradual recovery but was lacking in initiative and self-confidence. Ultimately he came to mix freely with other patients and took an active part in the ward recreation. His treatment was terminated by two convulsions electrically induced.

23.9.41	(1)	6.0 c.c.	M
26	(2)	6.5	"
30	(3)	7.0	"
3.10.41	(4)	7.0	"

CASE 260. J.B. Male, aged 20 years. Single. Admitted 2.9.41, discharged 22.10.41.

Notes accompanying him stated that he had been admitted on 21.9.41 to the Military Hospital, Dingwall, as an asthmatic and that mental symptoms (unspecified) present on admission had greatly increased. He was stated

to have "complained of thoughts running through his head and of aural hallucinations".

On admission on 2.9.41 he was noisy and restless, and sang and shouted. He masturbated while he was being bathed and repeatedly continued the practice on his return to the ward. When I saw him, he was in the midst of an acute asthmatic attack and frequently paused in his disjointed talk to recover breath. His replies to questions were irrelevant and all information had to be derived from the employment of leading questions. His asthma had begun at the age of seven and he had had frequent attacks ever since and was backward at school owing to his frequent absences on account of it. (His mental age was 11 yrs.5 months.) His daily practice of masturbation had begun at the age of 18. He had done only eleven weeks' service out of eleven months: after the eleven weeks on volunteering he had been repeatedly in and out of hospitals on account of his complaint of asthma. He denied the presence of hallucinations of any description but his behaviour was very suggestive of a psychosis: when he was asked to open his mouth to allow an inspection of his teeth he began a nasal humming of "The Stars and Stripes", walked over to the fireplace to illustrate his civilian occupation as a tiler and, when I asked him to let fall his shirt to his waist for the purpose of examining his chest, he pulled off his shirt altogether, saying that it would be better so, and throughout the examination turned his head to admire his naked body in the mirror and had a semi-erection while doing so. He again made to take off his shirt when subsequently I made to test the reflexes of the upper limb. He did not appreciate what type of hospital he was in and appeared to be slightly confused.

Despite his acute asthmatic attack, he was convulsed with treatment and immediately afterwards displayed much pulmonary oedema and his post-convulsion behaviour was masturbatory movements and starting up three times, putting his arms up as if about to be struck. There was a noticeable improvement after his third convulsion in that he had stopped masturbation, appeared brighter and was rational in his conversation. He did not recollect what like he was on admission or anything concerning it. He still showed a tendency to be irrelevant in his replies. His asthma had improved. In the wards, however, he was

reported as making a general nuisance of himself, being aggressive towards other patients and abusive towards the staff whose discipline he resented and to whom he constantly addressed obscene language. He showed a gradual improvement to the point of social recovery with further treatment with a loss of these antisocial features and a complete disappearance of his asthmatic symptoms and, the improvement being maintained, he was discharged.

4.9.41	(1)	6.0 c.c.	M
5	(2)	6.0	"
9	(3)	6.0	"
12	(4)	6.2	"
16	(5)	6.7	"
19	(6)	7.0	"
23	(7)	8.5	"
26	(8)	9.0	"

CASE 261. T.P.A. Male, aged 30 years. Married. Admitted 22.7.41, discharged 22.10.41.

He was referred for "behaving in a peculiar manner": he "became withdrawn", refusing to speak to his comrades, to go on parade and to wash and shave himself. This state had been present since he was recalled to duty one month previously. He was conscripted in October, 1940, but transferred to the reserve for six months (4.1.41 to 4.7.41) on account of his civilian occupation as a railway clerk. His wife told me that during these six months he had been exceptionally busy as a relief clerk: overburdened with work which he had brought home to complete in the evenings - he had always been of the conscientious type. She said in addition, that he had always been a shy, solitary, highly sensitive man, never mixing with company. These traits became accentuated during the six months' release and in addition he became depressed.

On admission he was depressed with retardation of thought and said that, while he "liked the Army all right the first time", during the six months he gradually

came to dread his return to it and began to entertain the idea that people were speaking about him on account of his altered attitude to it. He became depressed and, though he occasionally thought about suicide, he never seriously contemplated committing it as he realised that that would solve nothing satisfactorily. He denied the presence of ahllucinations. He was conscious of a lack of interest in his surroundings and was markedly lacking in confidence, wishing that he might be able to pull himself together.

He showed a gradual improvement under treatment towards the end of which he stated that he had fought things out with himself and had now come to the conclusion that he was cured of his illness: he still remained, however, solitary and preoccupied in the ward and it was not until treatment was terminated that his improvement became marked: he began to mix freely with the other patients and to work well on his own initiative. The confidence which he had previously lacked now returned.

5.9.41	(1)	5.5 c.c.	M
9	(2)	5.7	"
12	(3)	6.0	"
16	(4)	7.2	"
19	(5)	8.5	"
23	(6)	10.5	"
26	(7)	10.5 R.1	"
30	(8)	10.5	"
3.10.41	(9)	10.5	"

CASE 262. A.E.McK. Male, aged 19 years. Single. Admitted 3.7.41, discharged 29.10.41.

Full details did not accompany him on his admission. His medical history sheet recorded that he had been admitted to hospital from 21.10.39 to 7.1.39 with a history of depression and suicidal impulses, but his behaviour was normal between these dates. He was again

admitted to hospital from 8.6.41 to 3.7.41 with no admission notes and would not give an account of events leading up to his admission beyond saying that it was all due to his comrades who kept pulling his leg and were very irritating. He was secretive and suspicious but later said that at his unit he threatened to steal a boat and a Lewis Gun and to run berserk: he had also asked for acid to throw at someone. His mood was labile, now laughing at one moment at the idea of having his leg pulled and the next he would be sullen and refuse to communicate further information. He was restless and odd in his behaviour and constantly made vague references to being badly treated.

On his transfer on 3.7.41, he was very suspicious, resentful about being kept in hospitals and refused to give any history "because I don't want to commit myself again". He denied the presence of hallucinations. He was untidy in his dress, resentful of hospital discipline and insolent when spoken to by the orderlies for whom he would work only under direct supervision. He became agitated at times and later would state that he was oblivious of what he was doing. His sister stated that he had always been of a nervous disposition, was very backward at school, after leaving which when 14 years, he had always been at home with very occasional work as a golf caddie.

As a result of treatment, there was a diminution in intensity of his marked paranoidal attitude to people in general, but this diminution was slight: he remained temperamentally unstable and often was embroiled with other patients on account of the hastiness of his temper, striking out at them at the least provocation. He became agitated and emotional when reprimanded for such outbursts. He was discharged on 29.10.41.

19.8.41	(1)	6.0 c.c.	M
22	(2)	6.2	"
26	(3)	6.5 + 7.0	"
29	(4)	6.7 + 7.0	"
5.9.41	(5)	7.5	"
9	(6)	7.5	"
12	(7)	7.7	"
16	(8)	9.0 R.2	"
19	(9)	10.5	"

CASE 263. D.M. Male, aged 30 years. Single.
Admitted 16.7.41, discharged 8.10.41.

He was admitted from Iceland as a case of anxiety neurosis which had first been detected after he disobeyed unit orders by failing to report on parade.

On admission on 16.7.41 he stated that his mother had died in an asylum and that a maternal aunt was subject to screaming attacks at night. At school, he said he was very backward and was always very nervous. Since 1929 he had had feelings of unreality with an almost constant fear of impending disaster, and it was at the same time that he began to hear the voices of his mother and grandparents (all dead) advising him by giving him messages. He also thought, ever since then, that people were looking at him, talking about him and reading his thoughts. He was afraid he would go insane like his mother. Rambling and inconsequent in his conversation, he frequently stated that "there is a link missing which would explain everything". Despite his fluent talk, he said he had great difficulty in thinking. He was argumentative with his fellow patients and at times made a general nuisance of himself: he would only employ himself under supervision. He said that his fellow patients were getting together and talking about him behind his back. He was unable to concentrate on a job for any length of time.

His delusions that his fellow-patients were talking about him persisted under treatment but he stated that he was not taking any notice of them as "thoughts of that kind" were a family affliction. He remained nervous and hesitant when in conversation. He was discharged on 8.10.41.

19.8.41	(1)	6.0 c.c.	M
22	(2)	6.2	"
26	(3)	6.5 + 5.0	"
29	(4)	7.0	"
2.9.41	(5)	7.5	"
5	(6)	8.0	"
9	(7)	8.5	"
12	(8)	9.0	"
16	(9)	10.2	"
19	(10)	10.5	"

CASE 264. T.S. Male, aged 26 years. Single.
Admitted 17.7.41, discharged 15.10.41.

The day of admission he was picking his teeth with a needle when he said it slipped: he also said that he had swallowed several pins. (At that time he was under close arrest and awaiting trial by F.G.C.M. for over-staying his leave.) After X-ray examination, the needle was removed from across the lower pharynx by direct laryngoscopy, but the needle in the abdomen, probably in the colon, was not removed after surgical opinion was taken.

On admission he was depressed and apathetic, did not speak spontaneously and replied to practically all questions with "I don't know". He was considerably confused. He stated that he often saw his father (dead from causes unknown) and could hear him say "I am coming to you": these hallucinations had been present for three months before admission although his father had been dead for two months only. The needle was still present in the abdomen seven days after admission. Until treatment was begun, his mental state remained the same. On 14.8.41 he changed his story about the needle, saying that it was in his tea which he was drinking and that he had never swallowed more than one. He was untidy in dress and general appearance and did no work save under direct supervision.

He improved to the point of social recovery with treatment, losing all his gross psychotic symptoms: but was reported to be rather untidy and wayward in his behaviour and that, although he worked well, he showed no spontaneity of effort until a fortnight before dismissal when he began to employ himself on his own initiative. Further X-ray examination showed no indications of any foreign body in the abdomen. He revealed himself as possessed of low intelligence.

29.8.41	(1)	6.0 c.c.	M
2.9.41	(2)	6.5	"
5	(3)	6.5	"
9	(4)	6.7	"
12	(5)	7.0	"

CASE 265. W.E.C. Male, aged 22 years. Married. Admitted 27.8.41, discharged 15.10.41.

On his medical history sheet, it was stated that at his entrance medical examination he had tried to feign deafness by plugging the external auditory meati with face cream and that he had pretended idiocy when it came to reading the Snellon's test types. A lieutenant of his battery stated "sympathy and held did not have the desired effect of improving his work ... became consistently worse ... started the habit of grumbling and leaving fatigues when not under close supervision ... has no desire to soldier" ... The M.O. of his unit stated that the patient was always reporting sick, made contradictory statements, was unappreciative of help and would not co-operate.

On admission to hospital he was quite frank with me and stated that he was malingering at his entrance medical examination because he did not want to serve as he had a horror of bloodshed (although himself very aggressive) and frankly admitted that he did not try to perform his military duties in an efficient manner since his conscription four months previously. There was an entire absence of any guilt feelings in connection with such conduct. In connection with his previous history, he stated that he had been nervous when he was young, revealing phobias associated with darkness, cemeteries, heights, water, bulls and horses. He had been backward at school, was in many school fights but never went in for sports. He had been unemployed two years after leaving school and only took a job offered to him at the end of that time because of the threat that otherwise his five shillings a week dole would be stopped. Since quitting this job "because it was too hard" he had been in various jobs for varying spells with lengthy periods of unemployment between. He either quit his jobs because the work was too hard, or because it was too monotonous or because, on one occasion, he was sacked because he left his work to go out and have a drink. He married in January, 1940, after one month's courtship, a full-time baby (of which he said he was not the father) being born in July of the same year. An attempt to elicit facts concerning his matrimonial difficulties was prevented by an angry display of emotion which left him incoherent

and speechless. He said that he got on all right with his wife, that a maintenance order had been made out against him and that his mother-in-law with whom his wife lived was the cause of all the trouble. He said life was not worth living under the circumstances and hinted that an attempt at suicide as a way out was under contemplation. I agreed with him and suggested methods whereby this might be accomplished and how he would be given every opportunity to commit suicide if he so desired. Much taken aback at my statement, he rejected all the methods suggested to him by saying that he had never seriously given the subject a thought.

In the ward, he was reported as being very childish, resented hospital discipline and said that he intended to escape at the first opportunity.

There was a marked improvement in his behaviour following a brief course of treatment: he was reported in the ward as "much brighter and always trying to please the staff by doing odd jobs".

16.9.41	(1)	5.5 c.c.	M
19	(2)	6.2	"
23	(3)	7.5	"

CASE 266. A.D. Male, aged 27 years. Married. Admitted 12.9.41, discharged 6.11.41.

On admission he was under close arrest awaiting trial by F.G.C.M. for being absent without leave for a month at the end of which he was stated to have surrendered himself. For the four weeks preceding admission he was stated to have "been in a state of semi-stupor so that no sense has been obtained from him". He was a corporal: five charges against him were entered in his conduct sheet and he had been convicted on each - untidy bed, neglect of duty in that while on guard he slept and permitted his men to do similarly, two charges of absence

without leave, and of being in an untidy and dirty state. On admission he was unable to give an account of himself, was extremely retarded in his replies and many questions put to him remaining unanswered, was confused and disorientated and seemed not to appreciate his actions, e.g. he sat down naked from the waist upwards after his physical examination obviously under the belief that he was fully clothed. There was a tendency to echolalia. His eyes would wander as he turned his head as if he were hallucinating but he denied the presence of these. He stated he felt nothing the matter with him and saw no reason why he should be in hospital. He remembered that before coming to hospital he had been under detention but was unable to state on account of what: he ultimately admitted that his memory was poor for he could tell neither his age nor his period of service.

His amnesic attack was terminated by treatment when he was then able to give an account of himself, an account which was, however, greatly limited by the negative therapeutic attitude which he then revealed. He was unable, however, to tell of anything he did or of anything that had happened to him during his amnesic period, the last thing before the onset of which he remembered was being in charge of a party of twenty soldiers who were guarding a viaduct. His amnesic attack appeared to be genuine and his wife who was subsequently interviewed stated that he had had a similar attack in civilian life: during this attack he was dazed, did not seem to know where he was and eventually wandered away from home for two or three weeks when he returned and then asked what had been the matter with him. With the object of filling up the amnesic period, cyclonal narcosis was suggested to him, the object of this treatment being fully explained to him. He persistently refused to have this treatment, however, saying that in his opinion he would be far better off not knowing what had happened. Otherwise, he was a good patient and gave no trouble: he was a well-behaved patient in the ward, clean and tidy in his appearance and was a willing worker. He showed a keen interest in all the organised games and sports. He was discharged on 6.11.41.

15.9.41	(1)	7.0 c.c.	M
28	(2)	10.0 + 8.0	"

CASE 267. S.L. Male, aged 35 years. Single.
Admitted 16.8.41, discharged 24.11.41.

He returned from leave on the day of admission and "complained of inability to control his thoughts. Acutely depressed. States that he 'met God' and that 'people can hear my thoughts and see the trembling of my fingers and eyelids'. On admission to C.R.S., refused to stay in bed stating that he could not stay in a place with the radio on".

On admission to hospital he was retarded in his replies (he did not speak spontaneously), confused and incapable of giving a coherent history. He said he had heard his wristlet watch speaking to him and that he had seen God. While on leave he said that everyone was "asking me peculiar questions" and that "perhaps they were spies". From 6.6.40 till 11.10.40 he had been a patient in an L.C.C.Mental Hospital: this was subsequently confirmed and he was stated to have suffered then from "non-systematised delusional insanity" in which persecutory delusions were prominent. His mother died, aged 53 years, after almost a year as a patient in a mental hospital, and a maternal aunt and uncle had also died in mental hospitals.

He improved to the point of social recovery with complete loss of his gross psychotic symptoms, but soon relapsed to improve to the same point with further convulsions electrically induced. He was then discharged.

22.8.41	(1)	6.0 c.c.	M
5.9.41	(2)	6.2	"
9	(3)	6.2	"
12	(4)	6.5	"
16	(5)	7.0	"

CASE 268. W.S. Male, aged 22 years. Single.
Admitted 26.7.41, discharged 6.11.41.

He had been reported missing from his unit for four days previously, and stated that since his experiences at Dunkirk everything became strange and inexplicable and that he had had no "deep feelings". He confessed to a difficulty in thinking, which was very obvious on observation, and his account of himself was rambling and almost incomprehensible: in his conversation he had to be repeatedly brought back to the point. He was suspicious and reticent where any personal details were concerned, and confessed that a reason for this was that everyone was out to trick him. He was very apathetic. His mother stated that he had always been of a very nervous disposition and occasionally fainted when he became excited: he was frequently off school on account of his nerves and often was in bed for two weeks at a time - not eating, irritable, subject to headaches, unable to concentrate or to take an interest in things. He had always been very quiet and very reticent, constantly day-dreaming, never making any friends, and seldom speaking even to his family. He was always absorbed in mathematical problems and on leaving school proceeded to the University to continue his studies in that subject interrupted after one month by his conscription. His father was in a mental hospital for a considerable period following a head injury during the Great War, and since his discharge he had remained subject to periodic attacks of depression with agitation in addition to his habitual nervousness. Two of the patient's four sisters took fits and his maternal grandfather had been in a mental hospital for three months.

Cardiazol treatment was terminated on account of the extreme fear which he showed. He said he felt each injection travel up his arms and both sides of his back like a scarlet neon light, after which he was conscious that his body was trembling, after which his head and ultimately his whole body became like lead until he remembered no more until he later awoke. It was not until treatment was terminated that he confessed to the presence of hallucinations other than fluttering noises in his ears. He now said that he heard voices speaking to him and saw "visions" which latter consisted of a head appearing

He showed me a poem which, he said, explained everything:-

"The voices say that he must fail
And like a brute of hell
Pursue the earth

And like a fever overwrought
A hate performs
That at a murdrous height
Pursues its wrath".

He still had difficulty in thinking and became incoherent when he had uttered more than a few words.

He was begun on insulin therapy on 29.9.41 and between then and its termination on 1.11.41 had had fifteen comas to his great improvement and disappearance of both his auditory and visual hallucinations. He had no real realisation of the fact that he had been ill, however, and generally was very loathe to discuss himself: he constantly gave me the impression that he thought I was out to trick him although he did not actually say so. His behaviour in the ward was reported as being normal and he joined spontaneously in the ward activities being no longer shy at entering into conversation with the other patients, as he had previously been. He was discharged on 6.11.41.

18.8.41	(1)	6.0 c.c.	M
22	(2)	6.2	"
26	(3)	6.5	"
29	(4)	7.0	"

CASE 269. I.Maca. Male, aged 26 years. Married. Admitted 9.9.41, discharged 29.10.41.

Following the giving of blood for a blood-transfusion in December, 1940, he thereafter became subject to attacks of pyrexia with petechiae, and had since been in five hospitals for treatment of Henoch's or Schonlein's purpura. There was (judging from his medical history sheet) difference of opinion as to what type of purpura it was: on two occasions transient pain and swelling had appeared in his joints. Admission notes from his M.O. on 9.9.41 stated that the patient's "mental condition has deteriorated during the last few weeks ... spent most of this morning placing pieces of paper, string and empty cigarette packets in a very neat manner on his bed ready for kit inspection ... also tied a piece of four by two" (toilet paper) "to a piece of string and said he was going to hang himself and then put it at half-mast" ...

On admission, he was elated and noisy and thereafter talkative and restless. He was unable to give a connected coherent account of himself although he was well orientated. His replies to questions were irrelevant and often interrupted by some strange remark or by his adopting a listening attitude as if he were hallucinating: he admitted, on questioning, that he heard voices calling him such names as"bastard" and confessed spontaneously to the presence of visual hallucinations by remarking that there was a red band of blood running horizontally across the upper surface of one of the walls of the side room to which he had been removed on account of his shouting and throwing articles about the admission ward. He said he was perfectly well and that there was nothing the matter with him. Save that he became quieter and attempted to rationalise his hallucinations (for example, saying that the voices he was hearing were those of a chronic maniac in the next room), his condition remained the same until treatment was begun. He began to voice delusions to the effect that he was on leave in order to assist the wife of one of his Army comrades: he was to go to Liverpool and trace her through a penny-in-the--pound scheme.

Under treatment he rapidly progressed to the

point of social recovery, with, however, no insight into his illness newly-passed beyond realising the "foolishness" of his previous beliefs. His course of Cardiazol treatment was terminated by two convulsions electrically induced on 7.10.41 and 10.10.41. He was discharged on 29.10.41.

24.9.41	(1)	6.5 c.c.	M
27	(2)	7.0	"
30	(3)	8.0	"
3.10.41	(4)	8.5	"

CASE 270. F.B. Male, aged 28 years. Married. Admitted 12.9.41, discharged 24.10.41.

He was referred for psychiatric examination as a psychoneurotic who was always reporting sick. He stated on admission that 11 years previously he had been in hospital in civilian life for a period of two months for an illness in which he felt very weak, was troubled with sickness, suffered from palpitations and, for a period, had to be fed with a spoon and to have his teeth cleaned for him. He was advised on his dismissal to take things easily and accordingly began work as a gardener to a private house and ultimately chauffeur-gardener. Since then he had been troubled with "rheumatic pains" in his feet, right arm and across his back, together with shivering and shaking whenever he became excited. He attended his civilian doctor periodically for this complaint. The patient's attitude to himself was epitomised by "I'm one of the weak sort - soon exhausted" and his attitude to the Army was "I know I'm not fit and cannot do the work I'm expected to do": he had been continually ailing and reporting sick ever since going into the Army. In infancy and childhood, he had had marked phobias associated with darkness, heights, water, he had "always wanted to cry", was shy, blushed easily and had always preferred his own company, a little under the average as a scholar (his M.A. - 12 yrs.5 months), was never in any school fights,

was occasionally bullied and never played truant or even considered it.

His hysterical complaints entirely disappeared after the first of his convulsions of treatment and he was greatly astonished at the disappearance. In addition, he said that he was no longer shy at approaching people as he had previously been. Regarding all his injections, he said he was "scared stiff of them" on account of things seeming unreal to him when he "came round" and strange in a way he was unable to describe.

23.9.41	(1)	6.0 c.c.	M
26	(2)	6.2 R.1	"
29	(3)	6.5 R.1	"

CASE 271. B.McC. Male, aged 22 years. Single. Admitted 5.9.41, discharged 15.10.41.

Admission notes accompanying him were to the effect that he had been in two hospitals from 24.8.41 to 5.9.41 when he was transferred as a functional condition. On admission on 24.8.41 he was stated to have been in a stuporose condition, responding hesitatingly to questions. His pulse on one occasion was 48 beats per minute. Nothing abnormal was detected save an "apparent weakness on the left side".

On admission on 5.9.41 he gave a history of having while standing outside a chip shop at 23.30 hrs. on 23.8.41 felt "everything going blank". He did not think he passed unconscious although he was profoundly dazed: he remembered being carried into a house and someone slapping his face in an endeavour to bring him round, after which he remembered no more until he awoke in hospital four days later with "weakness" of his left side. This weakness consisted of what I took to be a hysterical paralysis of his left hand which in no way differed from others I have seen - dusky-blue, swollen, cold and clammy.

Circumstances precluded any treatment at the time of his first interview save my reassuring him that I was satisfied from the examination I had made that there was no structural disability which would satisfactorily account for the appearance and powerlessness of his hand: I said he had merely lost the idea how to use his hand: it was up to him to reaccustom himself to the idea that his hand was perfectly normal and that a decided improvement would be evident by the next time I saw him. Such improvement, was, however, not forthcoming when I again saw him a week later, circumstances precluding my seeing him before this. I then attempted some superficial interpretation from the point of view of motivation, pointing out he had informed me on his first interview how "I don't like the Army and never will" and how he might have had, in the depths of his mind, developed the symptom of a paralysed hand as a legitimate excuse, as it were, for his honourable discharge. I also pointed out how this method of being quit of the Army was probably suggested to him unawares by a similar affection he had had seven years previously, and of which he had informed me on his first interview, when, working as a tea-boy to builders, his right hand had contacted a live wire and how, following his twelve foot fall when the current was switched off, the left side of his face was temporarily paralysed and how he had been awarded compensation for ten or eleven weeks thereafter. At this point, he showed an apparent and considerable resistance to my interpretation, getting up as if making for the door to go out, complaining bitterly that after three weeks in hospitals he had received no treatment and he asked to be returned to his unit. I pointed out the ridiculousness of such a request with his present disability and how the three weeks in hospital had been valuable in that it enabled the M.O.s concerned to arrive at a true estimate of his disability which was, indeed, a very big step forward in treatment and progress which was now being held up solely because of his own attitude which precluded the acceptance of a psychic origin for his disability. I firmly reassured him that he would continue to receive treatment and would not be permitted to leave hospital until his disability was entirely gone. At this point, with rather a strained expression, he confessed that he could use his hand perfectly and proceeded to do so on my request. I asked him if he were aware of the fact that he was a malingerer and of the possible

consequences to him of malingering and he said that he was. His motive was to secure his discharge from the Army. Questioning elicited the fact that he had an entire absence of any guilt feeling in connection with what he had done.

His previous history revealed a habitually quiet, self-conscious personality who had always avoided games and social intercourse with other people on account of shyness and his habit of blushing. He had had phobias associated with darkness and heights and, at school, where he was slightly above the average as a scholar, he had never been in any school fights. He had no interests save dancing to which he was very attracted despite his shyness, and remained clumsy and self-conscious when on the floor despite the fact that he had "been at it for years". His mother was a chronic neurotic and disposed to acute nervous attacks. A brother had had an acute schizophrenic attack five or six years previously and a sister, aged 16 years, had always suffered from convulsions until she was 12 years old.

Further investigation of him showed he had a genuine phobic anxiety concerning military service which he had never liked despite the fact that he had done well in it; he disliked the discipline intensely and the pity and sympathy he had always sought and expected from other people was not forthcoming. One convulsion had no influence on his mental state and it was considered inadvisable to proceed with further treatment.

27.9.41 (1) 6.0 c.c. M

CASE 272. C.S. Male, aged 20 years. Single. Admitted 9.9.41, discharged 10.12.41.

Documents accompanying him were to the effect that since his conscription three months previously, he had been constantly reporting sick with the complaint of headaches and demanding to see a specialist, visiting the sick quarters at all hours and doing no duty. On the day of admission, he had become violent at the sick quarters and had attacked an orderly.

He was admitted on 9.9.41 face downwards and tied to a stretcher. He was reported in the wards to have been very hysterical for the three days following admission and on the night of the third day became very hysterical and restless, requiring restraint for a short time. With me, however, he was quite calm and at interviews invariably sat with his right hand over his forehead and shading his eyes: he invariably looked away when one caught his eye. He spoke in a whining voice as he referred to the bruises on his arms caused by his previous restraint and said that he had no idea of what had happened to him at the sick quarters. The headaches, which were his sole complaint, began after an eleven weeks' period in hospital in civilian life, fifteen or sixteen months before admission: he was admitted then as a case of cerebro-spinal meningitis but a communication from his own civilian doctor stated that the ultimate diagnosis was fibrositis. He attended his civilian doctor for the headaches 13 or 14 times (roughly, once monthly) before conscription, since when he had reported sick every day as, unlike the conditions in civilian life, he had had no opportunities to lie down and rest. On questioning, he said that for years past he had heard whistling sounds in his ears but no voices, and that if he concentrated his gaze on any object the object was apt to change shape and assume e.g. the form of an animal. Investigation of his earlier history revealed the existence of phobias associated with darkness, travellingin 'buses, heights and wasps: he was shy, nervous and blushed easily and preferred his own company always. He had no outside interests since leaving school, at which he had been an average scholar. His father, mother, one brother and sister were stated to have been very nervous: another sister had been for a period of months in a mental

hospital for what appears to have been a schizophrenic attack.

There are no outstanding features to report concerning his treatment which produced a complete disappearance of his hysterical headaches and other symptoms. He was reported from the wards as working conscientiously, but requiring firm discipline on account of his unusual noisiness at times.

23.9.41	(1)	6.0 + 6.5 c.c.	M
26	(2)	8.5	"
30	(3)	8.0	"

CASE 273. J.H. Male, aged 27 years. Single. Admitted 29.8.41, transferred 8.10.41.

He was referred for a gun-shot wound of his left great toe ? self-inflicted. He stated on admission that he had contracted gonorrhoea in April, 1941, and was thereafter on account of this complaint 8 weeks in hospital. During this period he became depressed: he said this was on account of all his articles being marked and his having to spin unconvincing stories to his fellow patients as to why they were marked. He said he was shunned slightly by the other patients - most probably this was a paranoidal belief. His attitude when he came out of hospital was "If you're not good enough to mix with people, you're not good enough to soldier with them". One week out of hospital, he was cleaning his rifle which was cocked and laid it down temporarily to speak to some of his comrades: tea-time intervening, he hurried back to put his rifle away and it discharged accidentally, the bullet going through his great toe. He himself had not loaded his rifle, he said, and had no idea how it came to be loaded: he was quite unaware that there was any ammunition in it. He said "I never did care for the Army" in which he was slow at picking things up: his mental age was 8 7/12 years. Concerning his previous history, he said he had

always been nervous, had phobias associated with darkness and loneliness and, if ever in these circumstances, was afraid he might be attacked from behind. He also had had phobias associated with water, heights, cows, horses, was a life-long nail-biter, was shy, blushed easily and "I kept myself to myself more or less" and was a mother's boy.

On admission, hysterical symptoms had supervened in his right foot which had the gun-shot wound: there was a moderate degree of acrocyanosis and paralysis due, he said, to pain associated with the gun-shot wound which caused him to limp.

It was not until his course of treatment was terminated that he admitted to the previous existence of auditory hallucinations beginning a few weeks before his admission on 29.8.41. They were the voices of men holding every-day conversations: he was greatly surprised at hearing such voices and fearful in case "I was going soft". His hysterical symptoms entirely disappeared in connection with his foot and his walking became quite normal. The complaint of girdle pain in the chest region caused him to be X-rayed and a compression fracture of the 6th. thoracic vertebra being discovered, treatment was stopped and, his mental state being now returned to normal, he was transferred to another hospital on 8.10.41 for orthopaedic treatment.

23.9.41	(1)	6.0 c.c.	M
26	(2)	6.2	"
29	(3)	6.4	"

CASE 274. J.P.G. Male, aged 29 years. Single. Admitted 17.9.41, discharged 3.12.41.

He was admitted under close arrest while awaiting trial by F.G.C.M. for inciting the troops to revolt, and on 16.9.41 was taken out of detention and admitted to another hospital with multiple self-inflicted wounds on both anterior wrists and above the inner elbow of the left arm. He expressed delusions to the effect that the Nazis were after him and that a Nazi had access to his body and worked from inside him. He was accordingly transferred on 17.9.41 and on his admission stated that on the night before 16.9.41 he thought he was going mad and that people did not know what they were talking about: to prevent himself going mad he attempted suicide by cutting himself with a razor blade: on finding that he did not die, he took that as a sign that he was either Hitler or Stalin: since hd did not want to be the former he therefore knew that he must be the latter, and was still convinced of this. He said that there was really no war in progress and that reports of present fighting in Russia were myths. He realised that he was ill mentally and that this illness was in some way connected with his bowels.

In connection with his family and previous history, he said that his mother had always been a dogmatic and intolerant woman and that one of his five sisters had been a patient in an asylum for four years. He had been introspective and withdrawn from company all his life: he laid emphasis on the fact that he had never been superstitious and for that reason, for instance, would not go to chapel despite bearings from his mother and that, although afraid of the dark, used to go out into it at nights prepared to meet God Himself in an endeavour to overcome this fear: similarly, although afraid of heights, he would, particularly when he had had a drink in him, "try" heights in order to vanquish his fear of them.

He made a social recovery as the result of treatment. Even after his first convulsion he realised the delusional nature of his beliefs and discussed them at length in a critical way but he relapsed after the termination of treatment but again responded to 7 convulsions electrically induced. He then stated he was

"proud of the fact" that he had been in a mental hospital as it had given him "a rude awakening". The ward report was unfavourable: he was described as a useless individual, slovenly, untidy and requiring always to be told to wash himself. His appetite was reported as being gluttonous. He was discharged on 3.12.41.

30.9.41	(1)	5.5 c.c.	M
3.10.41	(2)	6.6	"
7	(3)	6.6	"

CASE 275. G.M. Male, aged 23 years. Single. Admitted 19.9.41, discharged 29.10.41.

The M.O. of a C.R.S. asked four days before admission for a psychiatrist's opinion as the patient was "in a very confused state and is obsessed with ideas regarding machinery to the exclusion of all interests in other events ... seems to be losing the power of concentrating on easy work ... "

On admission on 19.9.41 he stated that as a miner in civilian life he had "felt fine" as he had had a definite routine but that since conscription he had had plenty of time to think. Latterly, employed in his Army life as a driving instructor, he felt that his comrades were intellectually his superiors. (Actually, testing revealed him to be in no way backward intellectually.) Four months before admission he had gradually become a prey to compulsive thinking in connection with mechanical things, wondering, for example, "how trains went", "how engines ran"; he continually thought of how the pistons moved up and down in their cylinders, and was unable to drive a car without wondering about and picturing in his mind the tappits working. Once while proceeding on leave and thinking about the movements of the pistons in the cylinders and of the train and locomotive in general, it seemed to him that the locomotive was in some way human and he doubted if it, with its load, would ever reach

London: so much so that he turned and asked a comrade travelling with him "Will this train really be able to reach London?" (The patient himself was not making this full journey.) He was unable to prevent himself thinking about mechanical things in such a fashion and gradually it reached such a pitch that he "couldn't relax", became subject to "splitting headaches" and "my skull seemed to become tight with worrying as if my brain might be pushed out at the back": his "mind became all of a turmoil as I tried to fathom things out for myself": he "tried to cope with a dozen things in my mind all at once". He thought he was going mad and, indeed, heard voices repeatedly saying to him "He's stupid" i.e. referring to himself. Everything now (i.e. just before admission) seemed so trivial to him, e.g., such things as his comrades drilling on the square. He began to entertain ideas of whose silliness he himself was aware, e.g., he imagined he was in charge of all the mechanised Army. He became worked up to such a pitch that even the sudden sound of a telephone bell beginning to ring caused him to jump as it seemed to him that his heart was about to explode. He began to wonder if the bronchitis and asthma he had had all his life weren't at last affecting his brain.

Concerning his previous history, in addition to his asthmatic attacks, he stated that he had had phobias associated with darkness, heights, dogs, mice: that he had always been why and had blushed easily: he suffered from nocturnal enuresis until fourteen years of age and "did a little nail-biting", was subject to recurrent nightmares in which he was either falling or swinging through the air, was backward at school through his frequent attacks of asthma which caused him to be off for considerable periods, and that, when at school, was on occasions bullied. He was reluctant to speak on the topic of sex and said that when young he had not been bothered with sexual problems any more than anyone else. His father since ever he could remember was separated from his mother "through drink".

Despite the presence of an acute asthmatic condition he was begun on treatment terminated by one electrical convulsion on 11.10.41. He showed a gradual improvement in that he was less given to his compulsive

thinking but he himself did not admit to feeling himself again until 20.10.41, when, at the same time, he first complained of pain in his lumbar region. (It so happened that of all the patients I was then treating for my colleagues and myself about this period, several of the patients had sustained compression fractures of the vertebrae and were accordingly treated by immobilisation in Plaster of Paris jackets for a few days after which they were allowed up in them.) He was greatly preoccupied with his complaint of pain and expressed the fear that he "might have the same as they have, i.e. the other patients, but I reassured him on that point and still further reassured him when the result of the X-ray examination of the region complained of was returned negative. It was a very noteworthy point that all his symptoms previously complained of entirely disappeared on the onset of his complaint of back pain and how this in its turn was banished by reassurance, leaving him feeling his normal self. Any tendency to asthma was also no longer in evidence.

3.10.41	(1)	5.5 c.c.	M
7	(2)	6.0	"

CASE 276. A.G. Male, aged 37 years. Married. Admitted 8.10.41, discharged 3.12.41.

The patient's mother committed suicide when aged 60 by "going through a window". The patient was the third youngest of a family of eight, a twin brother of his dying from causes unknown to the patient when about six years of age. Both of the patient's two sisters were subject to depressive attacks which did not require hospitalisation and a cousin on his mother's side suffered from "neurasthenia" in which the depressive element was marked.

Concerning his previous history, the patient said he had always been nervous and jumpy when he was

young and had had marked fears in association with darkness (which fear he still had), dogs, heights, water: he was shy and blushed easily, was a lifelong nail-biter and had suffered from slight nocturnal enuresis until his conscription three months previously: he had been told by his mother that he both walked and talked in his sleep and, while sleep-walking, would try to climb the wall: at school, he kept to himself and was never in any school fights and was "a bit backward" at his lessons, and, after leaving school, worked as a miner until his doctor made him give it up "for the same as I have now".

This was an attack of depression, the first attack occurring when he was twenty-one years old. Each subsequent attack became progressively more severe and progressively longer in duration. His last attack occurred three years before admission and for this he was admitted to mental observation wards for eight weeks when he was taken out by his wife when it was suggested that he should be transferred to a mental hospital.

No notes accompanied his admission on 8.10.41 when he presented fairly typical features of depression - glum, immobile features, marked retardation in his replies to questions and in his movements, and expressed the belief that he was a hopeless case and that no recovery was possible. He was at times preoccupied with suicidal thoughts but his depression was quite free of any self-reproaches. He complained, in addition, of various symptoms - "head seems like a lump of lead all the while", of it seeming, in addition, as if there were an elastic band running around his head, of spots before his eyes, of feeling dizzy, exhausted, staggering, of "a terrible taste" in his mouth, of his stomach burning, of red-hot needles shooting all through his body which was very tender and of how "I can't abide anything pressing on my nerves", of inability to concentrate and of irritability more than his usual (which was very considerable), of being very restless at nights when he was unable to sleep and of "eating against my will". He was occasionally subject to auditory hallucinations, hearing his wife's voice saying "He's finished". He had been similarly hallucinated during his illness three years previously.

He was begun treatment on the day of admission, six convulsions being subsequently produced electrically with a loss of his depression. He said he felt as if a magic wand had been waved over him. He subsequently stated the day before his discharge on 3.12.41 that he had no recollection of the injection I had given him on admission nor had he any recollection of his having been admitted. He expressed the opinion that Army life "brought on the depression worse": the hurry and bustle was entirely different from civilian life where he "could take my time".

8.10.41 (1) 8.0 c.c. M

CASE 277. W.R. Male, aged 21 years. Single. Admitted 10.9.41, discharged 6.11.41.

He was admitted with a history of having two months previously declared that he refused to fight and arrangements were accordingly begun to effect his transfer to a non-combatant unit which was eventually done. He never reached this unit after his posting, however, but was found near to it on 22.8.41 "by the civilian police, suffering from complete loss of memory. Would not answer any questions. Very depressed. No history of any accident. Found wandering" ...

On admission on 10.9.41 he gave a very unsatisfactory account of himself, the account being accompanied by almost continuous weeping, a habit which he said had been present nearly all his life. (I had the impression that he was weeping in order to impress me.) Nevertheless, he did seem to have a genuine amnesia for the incident above referred to, the last thing he was able to remember before its onset was taking off his kit in order to rest outside some shops before proceeding to his new unit. He felt all on edge and the next thing he remembered was wakening up in hospital. He admitted that he did not care for the Army and, from the facts he gave,

had apparently never made an endeavour to fit himself into Army life. He said that he sometimes heard a humming noise in his head and, a few days before treatment was begun, he admitted to the presence of visual hallucinations - "ugly things - faces".

In connection with his previous history, he said he had "always avoided violent things like fights" and had "always tried to keep myself to myself more or less": he had had phobias associated with darkness and horses, was subject to nightmares in which he felt he was being murdered, was very shy and blushed easily, was a lifelong nail-biter and suffered from nocturnal enuresis until he was 5-6 years of age, was backward at school since leaving which he had been in various jobs with fairly frequent spells of unemployment between them, the longest being for six months.

In the wards, up until treatment was begun, it was reported of him that he was strange at times, grimacing and given to the use of mannerisms, was untidy and lazy and when talked to concerning this was emotional and lachrymose. He complained that he had hideous nightmares and was afraid to go to sleep at nights because of this, though no report of his not sleeping was given by the night staff save on one occasion in 28.9.41 when he was reported as noisy, restless and slightly confused.

He showed an improvement to the point of social recovery with treatment, with complete loss of his psychotic symptoms and the appearance of social behaviour, which latter had previously been absent. He showed, on testing, a considerable degree of mental deficiency.

30.9.41	(1)	6.0 c.c.	M
3.10.41	(2)	6.2	"

CASE 278. J.R. Male, aged 37 years. Married. Admitted 5.11.41, discharged 3.12.41.

He was referred by the captain of his company on the day of admission for "of late he has been acting peculiarly. To-day in particular he has been going about holding his head in his hands and asking silly questions such as 'where is my hat?' 'Where am I to go for food?' 'Have I to get any food?' 'Who has the lemonade and the coffee?' and other senseless things". An M.O. who saw him a short time later stated that there was "a loss of memory for events past and present ... very depressed and tends to break into tears for no reason" ...

On admission, he was confused and disorientated and could give no account of himself, not even his age, duration of service or Army number. Beyond stating that he thought he came from Sunderland (untrue), he replied to all questions with "I don't know". Physical examination revealed no abnormalities.

Convulsed with 7 c.c. of Cardiazol, he said on the day following that he could now think quite clearly, although his account of himself was still unsatisfactory in many respects. He had volunteered the day after the outbreak of war and four days later his left knee "gave out" and he "collapsed": there was no loss of consciousness: "It was just exhaustion. It was warm and I was sweating" and thereafter he was excused all marching duties but did full duties otherwise. He was eventually regraded C after which he did clerking duties only. In view of the fact that no physical signs were discovered on clinical examination, it is probable that his knee complaint was functional in origin. He said he was a constant worrier about the least little thing and for long periods was troubled with lack of sleep: he maintained that he was not depressed at any time but that "life's been a monotony for a long, long time". He had got on all right in the Army and had no complaints to make concerning it: he "can't make pals with anyone" but did not try to: he said he had no disturbing home worries. He was unable to account for his mental illness, apparently newly-passed, and indeed had no recollection of anything that had occurred in it.

In connection with his previous history, he said he had always been of a highly-strung, easily excitable type, and always of the worrying kind, had a phobia associated with the sea, suffered from nocturnal frequency of micturition but no actual enuresis and was never in any school fights although he was not bullied.

He maintained his improvement until his dismissal on 3.12.41 but revealed himself as a mental defective of mental age $9\frac{3}{12}$ years.

6.11.41 (1) 8.0 c.c. M

CASE 279. G.G. Male, aged 28 years. Unmarried. Admitted 16.9.41, discharged home 3.12.41.

Admission notes by the M.O. of the patient's unit stated that "since joining the Army (nine months) the patient has been depressed and unable to carry out efficiently his duties. Recently has been threatening to commit suicide but appears to be mentally backward and slow" - a point confirmed on admission when his mental age on testing was seven years. The patient told me that he had always been a brooder and a worrier and had been subject to spells of depression in civilian life (particularly when he was out of work - which was fairly frequently) and in those spells was the prey of suicidal impulses which, however, he was always able to fight off. A recent attack had begun two weeks before admission since when he had frequently considered throwing himself in front of an oncoming 'bus or car.

In connection with his previous history, he stated that he had always gone out on his own as he did not care for company, that he had had phobias associated with darkness and water, was shy and blushed easily and that, although not suffering from nocturnal enuresis, had nocturnal frequency of micturition, that he talked in his sleep, was backward at school at which he was

never in any fights, and had no hobbies or outside interests of any description. In an endeavour to terminate one of his lengthy spells of unemployment, he joined the Army in 1937 and was discharged at the end of two months as unlikely ever to become an efficient soldier.

The day after admission he took to swallowing buttons which he said he did for no reason at all: he subsequently passed these per rectum. He occasionally refused a meal. At times he was slightly confused and was mentally inaccessible: at other times he was argumentative.

He improved to the point of social recovery with treatment, but in view of the marked degree of mental deficiency which he showed, his past mental history and the nature of his mental illness newly recovered from, it was apparent that he was incapable of ever becoming an efficient soldier and he was discharged home on 3.12.41.

29.9.41	(1)	6.0 + 7.0 c.c.	M
3.10.41	(2)	8.0	"

This treatment was terminated by six convulsions electrically induced.

CASE 280. H.M.P. Male, aged 20 years. Single. Admitted 6.10.41, discharged 16.2.42.

His conduct sheet was not prepossessing: during his two and a half years of service he had been on seven charges including absence without leave, refusing to obey orders and using obscene language to an N.C.O. His M.O. stated that "the patient is a chronic sick ... generally reports sick when in trouble with some other department. The sickness has never been corroborated by clinical findings ... He is a habitual liar ... Everybody is against him according to himself. These claims were originally groundless but now, on account of his laziness

and inefficiency, he is trusted by neither officers nor airmen and as a result has become disagreeable and lazy" .

On admission, he presented the features of a stupor and was unable to give an account of himself.

After two relapses under treatment, he revealed himself as a mental defect with a mental age of $9\frac{7}{12}$ years. He said that the first thing he noticed wrong with himself at his station was his going off his sleep and that his eyes were staring. He said that all the time he was trying to do the work he felt as if he were moving about in a trance: in this state he also came into hospital and all that he could remember of his first interview was my tapping his arms with a percussion hammer. He denied the presence of hallucinations. When I asked him if things had ever seemed unreal to him, he burst into a fit of laughter and said that they had not. He had no insight of any description into his condition. He was a continual source of discord in the ward, made unfounded accusations of ill-treatment against the orderlies and afterwards admitted that they were lies, was idle and shiftless, childish and unreliable, lazy and incapable of sustained effort.

6.10.41	(1)	5.0 c.c.	M
7	(2)	5.5	"
10	(3)	6.5	"
14	(4)	7.0	"
17	(5)	8.0	"
21	(6)	8.5 R.1	"
24	(7)	9.0	"
4.11.41	(8)	9.5	"
7	(9)	9.5	"
14	(10)	10.0	"
18	(11)	10.5	"
25	(12)	10.5 R.1	"
28	(13)	10.5 R.1	"
2.12.41	(14)	10.5 R.1	"

CASE 281. J.H. Male, aged 21 years. Single. Admitted 2.12.41, discharged 14.1.42.

On 1.2.41 when riding as a D.R. on slippy roads "everything went black". He had no idea of what happened. He awoke two days later in hospital and was suffering from a fracture of the left maxilla and mandible. (These facts were confirmed by documentary evidence). He was in hospital for three months and was subject to headaches. There occurred a gradual development of lack of interest in things which previously interested him, he was unable to concentrate, became irritable and "couldn't be bothered with people". Efforts to shake off these feelings were availing for an hour or two at the most. His depression deepened. This state prevailed on his return to his station where once he became so "fed up" that he went absent without leave for six days and went home. He often thought about suicide and how that would end his troubles. In connection with his previous history, he said that he had always been shy, was a lifelong nail-biter, had phobias associated with darkness and dogs: he was, in addition, subject to outbursts of temper on account of which he was twice expelled from school, once for throwing an inkwell and once for throwing a black-board at his teacher.

There was no retardation in his giving the above facts on admission although he was markedly depressed. His depression (which he felt he would never be able to shake off) was free of self-reproaches. His sleep was restless and fitful. His appetite was normal and the amount of food consumed was not below average.

He made a social recovery as a result of treatment. His post-convulsion behaviour was characterised by great restlessness, accompanied by masturbatory movements. His period of post-convulsion amnesia lasted from two to three hours. He was slightly lacking in spirit on his dismissal but otherwise he felt quite well. His two Cardiazol convulsions were followed by two convulsions electrically induced.

2.12.41	(1)	6.5 c.c.	M
5	(2)	7.0	"

CASE 282. F.C. Male, aged 30 years. Single.
Admitted 18.11.41, discharged 8.1.42.

The patient's father apparently was suffering for many years with functional gastric trouble. A maternal uncle committed suicide by cutting his throat in a bath.

The patient was admitted to another hospital on 10.10.41 for treatment for a relapse of gonorrhoea, was a patient therein for one and a half days when, after rising from resting on top of his bed to go for tea, he felt a sharp pain in the region of his right posterior hip. He was put to bed and remained there for approximately two weeks on account of throbbing and "I was going mad with pain". Nothing he knew of relieved the pain. X-ray revealed no bony abnormality. (He had had an attack of rheumatism six years previously: all his joints were swollen and he was a patient in bed for 11 weeks.) His condition was judged to be hysterical in origin and he was accordingly transferred on 18.11.41.

He then walked with a marked limp and said that he found the aid of a stick necessary. His limp was grotesque and hysterical.

In connection with his previous history, he said he had suffered from nocturnal enuresis until 16 years old, was a lifelong picker of the skin about his nails, had a marked phobia associated with cows: he was called "Fiery" at school because he had once in revenge set fire to his blankets, having been sent to bed as a punishment for getting his feet wet.

Treatment produced a rapid disappearance of his hysterical symptoms. Masturbatory movements in the post-convulsion stage were very marked. After his third and last convulsion a complaint of a circumscribed memory defect was made: he was inclined, he said, on the evening following his last treatment, to wander along the wrong corridor to his ward.

21.11.41	(1)	6.0 c.c.	M
25	(2)	6.2	"
28	(3)	6.5	"

CASE 283. P.D. Male, aged 32 years. Married. Admitted 26.11.41, discharged 7.1.42.

A maternal aunt had been in a mental hospital for an unknown number of years. His father and one of his three brothers were stated to be "nervous".

The patient saw action with an infantry battalion in France and was taken prisoner in June, 1940, escaping after one and a half days' detention, eventually reaching Marseilles where he was again taken prisoner. He also escaped from there over the Pyrenees into Spain. In crossing the frontier, he and the friend who accompanied him were obliged to kill a sentry. He was again in prison (four times), eventually securing his release through a message smuggled to the British Consul and finally was embarked at Gibraltar for the U.K. The ship in which they were sailing went into action in the Atlantic and he and the other passengers were battened down for the 20-30 minutes during which the action lasted. He had felt perfectly fit up until then and "would have done anything" but the experience of being battened down, hearing the guns go off and seeing everything upset by the vibrations caused him to go into the mental state which was present on admission - he complained of being nervous, shaky, jumpy at the least noise, insomnia, nightmares, shouting in his sleep and couldn't stand being shouted at.

He was very emotional on admission, frequently his eyes filled with tears and his lips were very tremulous. He complained of depression but he was never so depressed as to contemplate suicide. His M.A. = $7\frac{9}{12}$ yrs. and he admitted that at school he had been backward and also unaggressive. He had been a lifelong nail-biter and, when young, had had marked phobias associated with darkness, heights and water.

He improved to the point of social recovery with two convulsions about which there is nothing special to note save that in the immediate post-convulsion phase his behaviour was characterised by its aggressiveness, kicking out and tossing and turning in his bed as if endeavouring to find a comfortable position to lie in. He proved a willing, clean and tidy worker.

5.12.41	(1)	5.5 c.c.R.1	M
9	(2)	6.0	"

CASE 284. W.F.S. Male, aged 19 years. Married. Admitted 26.11.41, discharged 7.1.42.

He had never done well at his unit during his period of service and had been frequently charged with such things as absence without leave, insubordination which included several times striking an N.C.O.. Just before admission he escaped from arrest and, when being brought back, made an attempt at suicide by cutting the anterior aspect of his wrists. While in detention, he swallowed a pin and half of a spoon which he broke.

On admission on 26.11.41, he admitted to the presence of auditory hallucinations, hearing voices telling him to do such things as swallow a pin, break a spoon and swallow half of it. He had heard these voices since he was about 16 years of age and they had been particularly troublesome during the year before admission. He had seen a vision of Christ when he was twelve years old and, while undergoing detention in the Army, his mother had appeared to him in a vision and had said to him that he had made a mess of things. He did not report these things to his M.O. as the patient was afraid the M.O. might think the patient was trying to work his ticket. The patient was unable to read or write and his M.A. on testing with the progressive matrices tests was just under ten years.

In connection with his previous history, he said that when he was young he had had phobias associated with darkness, spiders, beetles and rats, was a life-long nail-biter and nocturnal enuretic, the latter now occurring only occasionally.

As a result of a short course of treatment he rapidly improved to a normal standard with a complete loss of his gross psychotic symptoms, but he had no insight of any description into his past condition. He proved a willing and obliging worker in the ward in which no sign of mental instability was reported.

4.12.41	(1)	5.5 c.c.	M
5	(2)	6.0	"
9	(3)	6.2	"

CASE 285. R.H. Male, aged 23 years. Single.
Admitted 1.12.41, discharged 8.1.42.

Two cousins on his father's side were said to take fits.

About six months before admission he started "getting fed up" for no apparent reason, began worrying e.g. if he were doing his job properly, and was afraid of getting into trouble with his N.C.O.s. He tried to set his mind to things but could not. He became depressed though not to the point of actually committing suicide, although he "thought about it in a way". He began to get into trouble, one for overstaying his leave for three days: he was perfectly conscious of what he was doing: but "I was so browned off that I couldn't be bothered going back". The second charge was for being late and he was unable to remember what the other two charges were for, but he was sure that they were only minor ones: otherwise, he would have remembered them. On 15.11.41 while returning to his unit, he got out at Newcastle Station to make a connection and the next thing he remembered was coming to two days later on the outskirts of that town, his clothes wet and his face unshaven. He expressed the opinion that his loss of memory was a climax to his mental state - "a kind of reaction to something I didn't like" - he wanted to go to sea as a sailor and landed in a shore job in the marines. His M.A. = $14\frac{5}{12}$ years.

In connection with his previous history, he said he had always been excessively jumpy whenever suddenly f rightened, was shy and blushed easily, and once when five years of age had sleep-walked downstairs and urinated in a corner of the room.

His depression rapidly cleared as a result of convulsive treatment; his social recovery was unattended by any insight into the condition for which he was treated. In the post-convulsion stage, oral and anal features were marked, particularly savage biting on the mouth gag and afterwards clawing at his buttocks in the perianal region.

2.12.41 (1) 6.5 c.c. M

5.12.41	(2)	7.0 c.c.	M
9	(3)	7.5 R.1	"
12	(4)	8.0	"

CASE 286. C.W.W. Male, aged 31 years. Married. Admitted 1.12.41, discharged 6.3.42.

The M.O. of his unit stated that the patient "appears simple and most of his actions are almost automatic ... He will sing, dance or laugh on being told to do so, in fact, I consider he would do anything that he was asked to do - apart from orders".

On admission, the patient was a dull, simple, bovine and vacant-looking man who grinned fatuously. Mentally he was very slow and retarded and he gave an extremely restricted account of himself. He was irrelevant in many of his replies and, when questioned about himself, was secretive and suspicious. When questioned about indifferent topics he was quite indifferent. He admitted to the presence of auditory and visual hallucinations. He was a frank mental defect.

The first two of his ten convulsions which constituted his course of treatment were induced by Cardiazol, the remaining eight by electricity. He showed no response to treatment. No real contact with him was ever made. He was a true case of dementia praecox and this, together with his mental deficiency, made any proper psychiatric approach to him impossible. He was ultimately discharged to the care of his relatives.

2.12.41	(1)	6.0 c.c.	M
5	(2)	6.5	"

CASE 287. J.G. Male, aged 26 years. Single.
Admitted 13.12.41, discharged 8.1.42.

This patient was referred by the M.O. of his unit for psychiatric opinion on account of inability to carry out his work and of suffering from palpitations on exertion. He was stated to have, while driving, knocked down a woman (how long previously was not stated) and thereafter to have lost confidence in himself and to be easily reduced to tears. By the time he arrived for psychiatric examination he was quite mute.

This state prevailed on admission to hospital. It was obvious, however, that, although he was unable to talk, he appreciated all that was said to him and that he was correctly orientated. In reply to questions put to him he gave the following pencilled answers: "I lost my voice all of a sudden. I seemed to go paralysed. I can't stand up straight. I get palpertation if I get excited ... I have had a lot of worry. Everyone has been on to me at -- Fort. They said I worry to much and am working my ticket .. I am not trying to work my ticket. I have nothing to get out of the Army for. I have a young lady up here where I am stationed. I have no home. My father and mother are dead ... I had fits when I was a child. I have been under the doctor in civy street with heart trouble ... I can't seem to stand up straight and I feel bent up. I am all right in bed".

One Cardiazol convulsion on the day of admission was sufficient to restore his lost voice. This returned at first in a whisper but soon reached full volume. Psychiatric examination showed him to be very immature emotionally and to have very strong mother fixations which had never been successfully surmounted. He gave evidence of extreme masochism all his life. This was shown, e.g. by his voluntarily supporting financially a woman almost twice his own age and her family of four.

There are no points of especial note concerning treatment or in connection with his stay in hospital.

13.12.41 (1) 7.0 c.c. M

CASE 288. B.B. Male, aged 32. Married.
Admitted 15.12.41, discharged 7.1.42.

He was admitted to another hospital on 20.11.41 complaining of stomach trouble. Since his calling up on the outbreak of war, he had been in various hospitals for various periods: in November, 1939, he was in a hospital in France for one month for "stomach trouble": from August to January, 1941, on account of sickness and headaches: from 24.6.41 to 30.7.41 for appendicectomy and thereafter in a convalescent home for a few weeks beginning 11.9.41. On admission on 20.11.41 his story of stomach trouble was inconsistent and X-ray of the stomach and duodenum after a barium meal was negative. He was then recognised as being a mental defective and to be suffering from depression.

He was accordingly transferred on 15.12.41 when he was obviously depressed, dull, retarded and on testing his M.A. = $8\frac{3}{12}$ years. Probably his depressed state had an influence on this low figure but his intelligence was certainly not high, a point which the patient confirmed when asked to detail his poor scholastic record and his poor record of civilian employment in unskilled labouring jobs. He said his depression began 16 months previously and that, on one occasion, he had tried to strangle himself with a silk stocking belonging to his wife with whom he did not agree and on account of whom he had furious outbursts of temper. No further actual suicidal attempts had occurred but he was always afraid he might yield to a further impulse and do himself in. He was so depressed and retarded that at times he seemed unable to appreciate the information required of him. He sat wringing his hands throughout the whole interview. He denied being subject to any hallucinations, delusions or paranoidal feelings. He was correctly orientated.

His depression rapidly responded to treatment and he reached what appeared to be his point of social recovery, allowance being made for his mental deficiency. He was reported from the ward as lacking interest and initiative and he was inclined to be untidy in his dress. He only employed himself under supervision.

16.12.41	(1)	6.5 c.c.	M
19	(2)	7.0	"

CASE 289. D.C. Male, aged 44 years. Married. Admitted 14.11.41, discharged 23.12.41.

He was admitted while on leave to another hospital on 20.10.41 on account of pain in his back, around his shoulders, in his calves and in the back of his head. Physical examination was negative. X-ray examination showed slight osteo-arthritic changes in the spine which were, according to the orthopaedic surgeon consulted, insufficient to cause the symptoms complained of.

On transfer on 14.11.41, he came in grunting and groaning: he hobbled with the aid of a stick and was bent almost double, his body being twisted to the side at the same time. The pains of which he complained began on the boat taking him to the Gold Coast in October, 1940. He attributed this to changing from khaki to tropical kit en route and that the cold was too much for him. His condition gradually became worse and medical treatment in two hospitals had no effect on the condition. He reported sick to the nearest M.O. while at home on leave.

His condition rapidly responded to treatment with a complete loss of his gross hysterical symptoms save for an occasional pain in his heels which had no effect upon his now normal gait. From being a disgruntled hypochondriacal man he became a cheery patient interested in his surroundings and in his fellow-patients of whom he took charge of a squad which was employed in gardening work.

5.12.41	(1)	6.0 + 7.0 c.c.	M
9	(2)	7.0	"

CASE 290. T.L. Male, aged 22 years. Single.
Admitted 21.11.41, discharged 23.12.41.

He was admitted with a history of having been twice operated upon for sinusitis on account of his complaint of frontal headaches and for these operations was in hospital during the period 24.1.41 to 14.2.41 and 23.10.41 to 6.11.41. On his dismissal on the latter date, his mental state was suspect and for that reason he was sent for psychiatric examination.

He had been in the Army for 2½ years and was 3-4 months in it when he became "browned off" chiefly, he said, on account of the fact that he had never had any leave to see his mother to whom he was greatly attached and on whom he had hitherto been greatly dependent. His headaches had begun at the same time, localised to above the eyes, and consisting of sharp, shooting pains. These were usually present when he awakened in the morning and were temporarily relieved by aspirin. He reported sick with his headaches twice weekly on the average since joining the Army. Although stating he was depressed he did not himself consider suicide as a possibility and cited as proof of this that something inside him pulled him back when he was going to throw himself into water from a bridge about two months before admission.

He was reported in the wards as being a very unreliable individual who took a delight in doing the opposite to what was told him, who was threatening and abusive to the staff and who required firm and strict handling.

One Cardiazol convulsion followed by two convulsions electrically induced caused a disappearance of his headaches and mild depression. It also had the effect of causing considerable improvement in his behaviour, the adverse ward reports disappearing. There is no doubt that this improvement resulted from his (correct) belief that he would receive more treatment if he did not mend his ways.

25.11.41 (1) 7.0 c.c. M

CASE 291. J.M.H. Male, aged 28 years. Single. Admitted 22.12.41, discharged 29.1.42.

While proceeding abroad, he took ill at sea: it was reported that he had walked smoking at the church parade and frequently walked naked about the ship. (The O.C. his unit stated that hitherto the patient was cheerful at his work and behaved quite normally.) He attempted to throw himself overboard. He was described as elated and his dress was said to be untidy. He stated that since going aboard "A glorification goes through my veins and heart. Everything is beautiful. Even water tastes like wine. I felt it come over me like a spell". He said that at his mother's funeral he had burst out laughing as he had felt so happy.

On admission on 22.12.41 he was grimacing and manneristic. His mood was one of elation and his movements were jerky and restless. He talked incessantly of activities of a sexual nature in which he had indulged including incest, coprophagie, urophagie, fellatio, and sodomy. His recital was liberally interspersed with oaths. Later, when I expressed frank disbelief in his indulgence in these activities, he denied sexual practices of any description save normal intercourse with two women. Many of his phantasies were of an obvious compensatory nature to his small, puny and insignificant appearance. Others were bizarre such as copulation at a distance and the feeling at times that there were women's parts inside his own body. He told me that he was Christ, spoke of God and his own father simultaneously, and later said that he had seen Christ in a vision and that "He was an ugly looking --- with one eye". The patient concluded the interview by putting the lighted stub of the cigarette I had given him to smoke into his mouth, chewing and then swallowing it without apparent discomfiture: on my enquiring if he felt no unpleasant sensations resulting from his action, he scoffed at the idea.

Treatment begun with two Cardiazol convulsions was terminated by three convulsions electrically induced. He made a social recovery with, however, no insight into his mental illness newly passed save that the realised that he had been ill. He gave a history of a similar

attack approximately two years previously for which he was treated for ten weeks in the mental observation wards of a general hospital.

22.12.41	(1)	6.5 c.c.	M
23	(2)	7.0	"

CASE 292. A.W.M.B. Male, aged 23. Married. Admitted 3.1.42, discharged 17.2.42.

The captain of his unit stated that the patient's work was "good but he is very slow in the execution of his duties and resents any attempt on the part of his superiors to speed him up ... is inclined to be morose and requires careful handling". The M.O. of his unit stated that it was "difficult to obtain a coherent history from him. His main complaint is persistent headache and general lassitude, and inability to concentrate ... Since he came under my care he has repeatedly reported sick complaining of persistent headache and his mental outlook has steadily deteriorated ... I am convinced that he makes the most of his symptoms and have tried some encouragement without success" ...

On admission, his complaint was one of headaches which began, he said, after an attack of meningitis when he was 12-13 years old. He never attended a civilian doctor with these headaches but since his conscription 1½ years before admission, he reported sick with them and had been in three hospitals for a total period of 3 months on account of them. In appearance he was vacant and dull-witted, answered questions very slowly, speaking in a very childish voice and nodding his head frequently: there seemed little doubt that these were voluntarily assumed for, when spoken to sharply, these characteristics disappeared. Even so, he remained unco-operative and obstructive during the examination and had obviously no desire to answer questions, invariably side-tracking them. He ate and slept well. He was correctly orientated, did

not admit to the presence of hallucinations or other gross psychotic features.

Treatment, of which he was very much afraid, produced a complete disappearance of his complaints and his symptoms. He did not directly admit that he had been malingering, but his attitude in general to things military was much in keeping with the diagnosis of such.

5.1.42	(1)	6.0 c.c.	M
8	(2)	6.2	"
11	(3)	6.4	"

CASE 293. S.B. Male, aged 18. Married. Admitted 18.1.42, discharged 27.2.42.

The M.O. of the patient's unit stated that he was called to see the patient on account of the latter's attempted suicide ... "I found him in a hut in a highly emotional state. There were superficial cuts on either side of his Adam's apple which he said he had done with a razor-blade. He told me that everything went black and that he felt funny while he was on look-out" (on an Ack-Ack post) ... "The N.C.O. in charge of the site stated that they heard shots. They went to the gun-pit and saw him standing with blood on his neck ... trying to load a rifle which they promptly took from him ..."

On admission, the patient stated that his father had committed suicide by gassing. Regarding his own depression, the patient stated that this had begun approximately 11 months before admission and just a few weeks after he had become married. He attributed the onset of this depression to the uncertainty of knowing whether or not his wife was all right after the Clydebank blitz as she lived near the bombed area. The depression had persisted despite the news that his wife was safe, and it had gradually become more intense in degree: he had tried to shake the depression off by various means

but found that this was impossible. He "couldn't be bothered with things" and was unable to take an interest in anything. For the 2-3 months preceding admission, he stated that he "often thought about doing myself in". His depression was free of retardation or self-reproaches: it still persisted, he said, in its previous intensity.

Features from his previous history included the facts that he was always shy, tended to keep to himself, and had no outside interests or hobbies save reading.

He was vague about the attempt at suicide for which he was admitted: that it was not a determined attempt was obvious from the few superficial scratches in his neck which healed completely in a few days, leaving no scars.

Following convulsive treatment, he made a social recovery without, however, achieving any insight into the nature of the condition for which he was treated. There are no points of especial note concerning treatment save that oral features in his case were marked, taking the form of chewing vigorously on the mouth-gag and then spitting. Post-convulsion restlessness was also marked.

6.2.42	(1)	6.5 c.c.	M
10	(2)	7.5	"
13	(3)	8.0	"

CASE 294. J.S. Male, aged 25. Married.
Admitted 20.1.42, discharged 13.3.42.

He stated on admission that he had always been of a nervous type and cited as instances of this that he was always afraid of darkness, heights, water and dogs: he had been a lifelong nail-biter, had always been subject to nightmares and he had fairly frequently walked in his sleep: he had always been shy and blushed easily and, for that reason, he had always kept to himself: he

had never been in a single fight and hated to see any. His only hobbies and interests were backing dogs and horses.

Following an accident 4 months before admission when he fell off the tail-board of an army truck, he was rendered unconscious, and taken to hospital where, after he had regained consciousness, he found that he was now subject to frontal headaches and felt that his strength had quite gone, e.g., when put on fatiques on his dismissal from hospital he said that he was "panting, panting the whole time and I was lucky to get my breath back". He also heard imaginary voices saying "I think that fellow must be crackers" and thought that "people" at his unit were against him, laughing at him and speaking about him. He was much given to repeating questions during the initial interview as if he grasped their import with difficulty: he admitted that, since the accident, his powers of concentration had diminished and that he was irritable more than his usual.

His social recovery was aided by one treatment which produced a dislocation of his right shoulder, easily reduced under pentothal anaesthesia. After this occurrence, he stopped hallucinating and revealed no abnormal signs in connection with his speech, appearance, conduct or behaviour.

6.2.42 (1) 6.5 c.c. M

CASE 295. L.D. Male, aged 28. Single.
Admitted 24.1.42, discharged 24.3.42.

He was admitted to a general hospital on 4.1.42 where it was stated that "he is so weak physically and so disturbed mentally that his story tended to be quite incoherent at times". With his continued stay in hospital, the mental aspect of his case became more pronounced: he stated that he had felt depressed for a

year or two previously, that his ultimate aim was to be better than his fellow-men at everything, that he recognised the futility of trying to express something far beyond himself and other people.

The patient's brother was interviewed at that hospital and he stated he had noticed a great change in the patient since the latter's return from the Middle East in March 1938. He hardly spoke to anyone and would not meet people. He thought everyone was looking at him and talking about him: he panicked at the idea of going back on the expiry of a two months' leave which was given him: ultimately, he was transferred to a service hospital where he said "they" were saying that he was trying to work his ticket: he would sit in a chair for hours staring at nothing: on one occasion, he stated that he wanted to end his own life.

On admission on 24.1.42 he was very suspicious and guarded in his replies to questions as if he might say too much. Often his replies were irrelevant and he often talked past the point from his irrelevant replies to come round to the correct answers - as if he were aware of the irrelevancy and trying to cover up this abnormality. At times he was incoherent. He often stopped short in the middle of a sentence. He admitted to difficulty in thinking and to a diminution of his previous powers of concentration. He did not admit to the presence of hallucinations, but, when enquiry was made as to the possible occurrence of auditory ones, it was significant that he stammered and put a little finger in one ear. He was very grimacing and manneristic: this latter was also commented upon in the nurses' reports e.g. when he thought he was unobserved he would bow and salaam to the empty air.

Treatment produced at first a marked improvement in his condition in that his replies to questions became relevant and he lost his habit of grimacing and gesturing. His powers of concentration improved. He had, however, no insight into his previous condition and emphatically denied that he had benefited from treatment in any way. On the contrary, he maintained that it had actually made him worse in that what little confidence he had remaining previously was now gone.

In this frame of mind and giving that as his excuse, he refused further treatment, though the excuse was obviously a rationalisation in order to avoid the fear associated with the injections which fear he felt with great intensity. His appetite after treatment was enormous and, in addition to the meals supplied in the wards, he spent most of his time in the canteen eating or drinking Ovaltine, Bournevita which he said he drank to improve his physique.

After his refusal of treatment, his attitude became very paranoid and he protested that he had been grievously wronged in ever having been sent to a mental hospital: he maintained that at no time had he been mental and asked for addresses of authorities to whom he might write to lay before them the facts of his case and to secure redress for the wrongs done him.

6.2.42	(1)	6.5 c.c.	M
10	(2)	7.5	"
13	(3)	8.0	"
17	(4)	8.5	"
20	(5)	9.0	"

CASE 296. T.H. Male, aged 32, Single.
Admitted 31.1.42, discharged 24.3.42.

He was admitted with a history of having attempted suicide by tying the rope of his kit-bag to the bed, then round his neck and then sliding to the floor. He made no comment when told to take it off, but did so and returned to bed. On another occasion, it was stated that he was "found being abused by two men and enjoying it very much".

On admission, he spoke with a stammer, an affliction which he said was life-long. He admitted to two recent attempts at suicide, the first as above described, the second, also by hanging, but when the

rope was in position "something held me back - the disgrace it would bring my old mother". He attempted suicide, he said, because the chaps at his unit were pulling his leg and because they were against him. He became "browned off" and "fed up", was unable to take an interest in things and was unable to concentrate.

Three months before admission he began to suffer from auditory hallucinations, hearing voices telling him to do things he didn't want to do, e.g. masturbation, or telling him he was "finished" or calling him "a swine": visual hallucinations had been present for the same duration: sometimes he saw angels and sometimes demons. His depression began two months before the onset of his hallucinations.

A similar attack of depression without hallucinations occurred when he was fifteen years old and was brought on by his accidentally spending a few coppers of which he was not the rightful owner: he threw himself into a canal but was rescued. Other points from his previous history were shyness and sensitiveness as a result of which he kept to himself, nocturnal enuresis until he was 20 years old, had always been subject to nightmares particularly a recurrent one in which a monster was about to swallow him, and frequent somnambulism. A maternal grandmother, he said, had been in an asylum for depression.

He improved but did not recover as a result of treatment: he still hallucinated though very much less frequently and said that the hallucinations no longer troubled him to the same extent as they did before treatment was begun. His depression cleared completely save for one hysterical-like attempt at suicide.

There are no points of especial note concerning treatment itself.

6.2.42	(1)	6.5 c.c.	M
10	(2)	7.5	"
13	(3)	8.0	"
17	(4)	8.5	"
20	(5)	9.0	"
24	(6)	9.5	"
27	(7)	10.0	"
3.3.42	(8)	10.5	"
6	(9)	11.0	"

CASE 297. H.W. Male, aged 20. Single.
Admitted 4.3.42. Died 17.4.42.

He was admitted after having been in training for only 3 weeks. The report from the captain of his unit stated that the patient "appears to be generally unstable and has not the power of clear, coherent thought or speech. His answers to simple questions seldom bear any relation to these questions, e.g. when asked what his occupation was in civil life, he replied that he was fond of dance music ... On the morning of 26.1.42 he rose at 03.00 hours and made up his bed in more or less inspection order. At about 09.30 hours the same morning, he wandered into "R" Company office saying 'They're all happy now. I'm quite well fed but I'm going home. I'll shoot myself'".

On admission it was not possible to obtain a coherent, rational history from him on account of his mental state. Besides being irrelevant, he was rambling, diffuse and circumstantial in his conversation in which there was some "push" and this, together with the facility with which he flitted from topic to topic, suggested a pseudo-maniac state. He was troubled with auditory hallucinations, hearing voices talking to him: he said he first heard these before the war began in September, 1939, and again since war broke out - "very strange voices and familiar voices".

Throughout his initial interview he sat playing like a child with a few coppers he had and two packets of cigarette paper. In the ward, he was reported as being confused, restless, frequently getting out of his bed and being aggressive and threatening when efforts were made to get him back to it.

He improved to the point of social recovery with, however, two relapses and no insight into his condition when he had eventually recovered. There are no points of outstanding note in connection with his treatment which was terminated by four convulsions electrically induced. His death was in no way connected with treatment but occurred in circumstances which involved medico-legal aspects which I have not received permission to quote.

6.2.42	(1)	6.5 c.c.	M
10	(2)	7.5	"
13	(3)	8.0	"
20	(4)	8.0	"
24	(5)	8.5	"
27	(6)	9.0	"
3.3.42	(7)	9.5	"
6	(8)	10.0	"

CASE 298. R.D.T. Male, aged 23. Single.
Admitted 3.2.42, discharged 21.3.42.

The patient's brother had died of pulmonary phthisis 4 weeks before admission and the patient, instead of returning to his unit after the funeral, reported sick to a general hospital with "various symptoms", was thoroughly investigated including a chest X-ray but no lesion was discoverable to account for his complaints. Told to report to his unit, these investigations having been completed, he did not do so but reported to his civilian medical practitioner who sent him back to hospital with a note as, in addition to complaining to him of severe headache, he had threatened to commit suicide.

He was admitted to a hospital for psychoneurotics on 30.1.42. On admission there, he expressed the opinion that his brother had not been properly treated for his tuberculosis and that he could have been saved had he not been in the services. The patient expressed the fear that he too had pulmonary phthisis. He was stated to be depressed, retarded and picking his nails, wandering about with lowered head and taking no interest in his surroundings.

On his transfer on 3.2.42 he revealed himself as very infantile in his general attitude. He talked about suicide in a childish way with an air of bravado and threat, as if to say "If you don't give me what I want, I'll do it!" He had no desire whatever to remain

a soldier and was quite frank in expressing the absence of such a desire: his charge sheet in his unit was "like the Weekly News". He admitted to the presence of auditory hallucinations "since ever I could hear and speak". He was surly, childish and showed no co-operation throughout the interview.

His depression cleared as a result of convulsive therapy but he still remained childlike in his outlook generally. He gave no indication that he sought or would ever seek a more adult attitude in keeping with his years. His post-convulsion behaviour was characterised by restlessness in which he wandered about the corridors in an apparently aimless manner. Exhibitionism was also marked, e.g. undoing the front of his trousers and letting his shirt trail out of the opening.

6.2.42	(1)	6.5 c.c.	M
10	(2)	7.5	"
13	(3)	8.0	"

CASE 299. L.S. Male, aged 23. Married.
Admitted 3.2.42, discharged 6.3.42.

His mother who was alive was stated to have suffered from depression and his maternal grandfather had mental hospital treatment for a mental breakdown of a type unspecified.

The patient himself had suffered from attacks of depression since he was 15 years of age following a comparatively small burning accident. His story can be summed up as one of failure at school and throughout his working career. He was sacked from two jobs on farms, after which he began work in hotels, having at least nine jobs, either being sacked or leaving because he was "fed up".

His habitual depression deepened since his

conscription as he found he was expected to do things he believed to be beyond his capacity. He came to take less and less interest in things and to be less and less capable of concentrating, this latter frequently getting him into trouble from a disciplinary point of view. Although depressed, he said he had no suicidal intentions.

His depression was relieved by treatment. He maintained that it had gone completely but from his general attitude including an eventual refusal of further treatment I was of the opinion that his assertion of well-being was an overstatement. He gave no indication that he was fit and confident enough to surrender his listless, apathetic attitude to life in general, an attitude which had characterised his whole life.

6.2.42	(1)	6.5 c.c.	M
10	(2)	7.5	"
13	(3)	8.0	"

CASE 300. H.G. Male, aged 29. Married.
Admitted 3.2.42, discharged 28.2.42.

The admission notes accompanying him stated that on the early morning on the day of admission "he was found wandering about this depot (where we have 2 feet of snow) with nothing on but his greatcoat, a shirt and a pair of shorts. He has been dazed all night, murmuring 'Name, Name' whenever spoken to" ...

On admission he stated at first that he complained of headaches, dizziness and fainting turns following an accident in 1934 when, during his work on the pit-head, he was hit on the head by a falling girder, was unconscious for two and a half days thereafter and was in hospital for a total period of 3 weeks and off work for a total period of 9 months. He stated that, in addition to these symptoms, in November 1942 he "began to vomit violently" and "had terrible pains in the

stomach. On account of these symptoms he was admitted to a general hospital where, improvement resulting, he was returned to his unit. On the way to this, however, he developed the amnesic attack previously described.

He admitted on questioning to the presence of auditory hallucinations: he sometimes heard imaginary voices speaking to him but he was unable to distinguish what they were saying: he also, and frequently, heard sounds like a motor car starting. He was correctly orientated. His general affect was one of depression but he did not complain of this. The eliciting of information was difficult owing to the frequency with which he interpolated self-pitying remarks which he continued to utter if uninterrupted.

His two sisters were stated to suffer from "fainting fits" and a paternal uncle was stated to have died in a mental hospital after having been a patient therein for six months.

He made a social recovery as a result of treatment with a loss of his gross psychotic symptoms, but it was not found possible to afford him any insight into the nature of the mental illness he had newly recovered from. There were no points of outstanding note concerning treatment itself.

6.2.42	(1)	6.5 c.c.	M
10	(2)	7.5	"
13	(3)	8.0 R.1	"
17	(4)	8.5	"