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Part I.—Original Articles.

EXCITATORY ABREACTION: WITH SPECIAL REFERENCE TO ITS MECHANISM AND THE USE OF ETHER.

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THE origin of the term abreaction dates from the time of Breuer and Freud's (1) early studies in hysteria, when they observed that patients were helped by "just talking it out." Later their technique was employed under hypnosis (2). Sadler (3) defined abreaction as "a process of reviving the memory of a repressed unpleasant experience and expressing in speech and action the emotions related to it, thereby relieving the personality of its influence." Miller (4) quotes Freud as holding that experiences shall be recalled with emotional vividness. "Affectless memories are almost useless," said Freud.

Freud himself soon abandoned this hypnotic method of abreaction in favour of free association and the psychoanalytical technique. However, during the First World War it became apparent that abreaction had a very definite place in the treatment of acute "traumatic neuroses" (5). Millais Culpin (6) stated, "Once the man's conscious resistance to discussing his war experience was overcome, great mental relief followed the pouring out of emotionally charged incidents. It was as if the emotion pent up by this conscious resistance had by its tension given rise to symptoms. The memory, usually of a nature unsuspected by me, then came to the surface, its return being preceded perhaps by congestion of the face, pressing of the hands to the face, tremblings, and other bodily signs of emotion." William Brown (7) pointed out in 1920 that the improvement was often solely dependent on the abreaction obtained and

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not on suggestion. "Suggestion removes the symptom, abreaction removes the cause of the symptom by producing fully adequate re-association."

As previously indicated by Freud, Millais Culpin (8) stressed, from his experiences in treating traumatic neuroses, that an incident may be remembered, but the emotional content may be separated from it and repressed. Thus with the passage of time the word abreaction has taken on a wider and more elastic significance, including the reliving with affect of conscious and unconscious material. In fact it is in this wider sense that we use the term in this paper.

Between the two World Wars the lessons of abreaction were largely forgotten, but a new approach was opened by the introduction of the use of barbiturates in psychotherapy by Blackwenn (9) in America in 1929. Lindemann (10) and Wagner (11) using sodium amytal and Stockert (12) and Campbell (13) using sodium evipan were a few of the pioneers in this field. Horsley (14) in 1936 elaborated the method of employing intravenous nembutal or pentothal to facilitate discharge of repressed emotion and memories while the patient was in a suggestible state induced by the drug. This method was only slowly adopted by psychotherapists, but in 1940 Sargant and Slater (15) reported on its value in the treatment of the acute Dunkirk casualties, among whom were a very high proportion of cases with gross conversion symptoms, particularly amnesias (16). Discussing their findings in this group, Debenham, Hill, Slater and Sargant (17) advised that under the barbiturate the patient should be encouraged to "re-experience the violent emotions that battle scenes have aroused."

Following these reports, drug abreaction became widely adopted in the treatment of military casualties in Great Britain. Further interest was stimulated among American workers by Grinker and Spiegel's (18) use of this technique in North Africa in 1942, though some confusion was added by the adoption of yet another name, "narcosynthesis." At the same time Palmer (19) was achieving interesting results by employing ether instead of a barbiturate. Still later Rogerson (20) substituted nitrous oxide.

It is the intention of this paper to discuss some of our findings in the abreaction of patients with ether, which we started to use in 1944, following the method developed by Palmer. It is, however, worthy of note that Hurst and his collaborators (21) made use of "etherization" in the treatment of hysterical conversion symptoms in the 1914–18 war. His clinical accounts frequently describe the induced excitement, but the method, not specifically recognized as abreaction, was only occasionally used, and generally after firm suggestion or persuasion had failed. Also Penhallow (22) in Boston reported "a case of mutism and deafness due to emotional shock cured by etherization" in 1915. Prior to our use of ether techniques, we had been using barbiturates for four years on a variety of cases among the many thousands who had passed through the unit for treatment during that time. Comparison between the two methods revealed some remarkable differences which led us to speculate and experiment on the whole mechanism of abreaction. The subject has been surrounded for so long by so much psychological theory that certain basic physiological principles may have become obscured.

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To arrive at a physiological basis for the use and understanding of abreaction it is first necessary to study the work of experimenters in higher nervous activity. Pavlov's experiments have, despite their limitations, the advantage that they can be repeated and few have been inclined to dispute their accuracy. We therefore wish to recapitulate a few of his findings which we believe are relevant to the problem of abreaction. Just as it is now generally accepted that those who break down even under severe battle stress generally have evidence of constitutional predisposition, so Pavlov found he could divide his dogs into those with ill-balanced nervous systems liable to excessive excitation or inhibition, and those whose nervous systems were with difficulty upset by stimuli, maintaining a steady balance between excitation and inhibition. In 1924 many of Pavlov's dogs were nearly drowned in the Leningrad floods. When rescued at the last moment from their cages, in which they were trapped and swimming about with their heads just above water, some were in a state of acute excitement, which was succeeded by a phase of " collapse " or stupor. This in turn gradually passed off. Pavlov discovered by experiment that this terrifying experience, which had produced great nervous excitement and what he described as " ultraparadoxical " cortical inhibition, had destroyed a series of conditioned responses which he had implanted in these dogs by months of patient work. Other more stable dogs were less affected, did not exhibit such marked excitatory and inhibitory phenomena, and did not lose similar conditioned responses in face of similar psychological trauma. This dramatic extinction of recently acquired conditioned reflexes interested us in relation to the mechanism of abreaction, as also did the fact of its special occurrence in dogs with " weak nervous systems," who were liable to go into cortical transmarginal inhibition under exciting stimuli. For the rest of this paper, when the term transmarginal inhibition is used, we mean the final ultraparadoxical phase of cortical inhibition following an overwhelming stimulus. This may break up recently acquired conditioned behaviour, and is what we wish to suggest may have some relation to the therapeutic value of emotional abreaction in psychotherapeutic techniques.

Pavlov's laws governing the phenomena of nervous excitation and inhibition, their irradiation, concentration and mutual or reciprocal induction, and his demonstration of the " equivalent," " paradoxical " and " ultraparadoxical " phases of inhibitory cortical activity are well known, and can be read in books on conditioned reflexes and their relation to psychiatry (23, 24, 25). He postulates that morbid states of brain activity can be brought about by the collision of excitatory and inhibitory processes, as a result of which a dynamic stereotypy of abnormal behaviour may develop which needs less and less work to sustain it. The normal regulation of excitatory and inhibitory balance may quickly become chaotic, especially in those with unstable nervous systems. Many of the apparently inexplicable behaviour patterns seen in acute war neuroses were faithfully reproduced in Pavlov's dogs under experimental conditions, and are understandable if reference is made to the laws established by Pavlov in twenty years of experimental work. We have discussed this together with some preliminary observations on abreaction in a previous publication (26).

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To return to the problem of abreaction. In abreacting patients with ether we immediately noticed a great difference from similar cases we had previously abreacted with barbiturates. Ether produced much more easily a far greater degree of excitement. The same effects were achieved by barbiturates, and by hypnosis for that matter, but the recital of events was usually less intense. Another striking observation is one to which we will refer constantly in this article; that is, the more frequent occurrence of sudden states of "collapse" in the course of an emotional outburst of particular severity when ether is employed. Again this can be obtained under barbiturates or hypnosis, but only occasionally so. We believe the phenomenon corresponds to Pavlov's observation in some of his dogs, that the production of acute excitement leads to a phase of transmarginal inhibition in which the cortex is momentarily incapable of further activity and, as happened in the Leningrad flood, there may result an abolition of recently implanted conditioned behaviour patterns. During abreaction our patients could be made to reach a pitch of terror, anger and excitement, and then suddenly collapse and lie motionless, unmoved by ordinary stimuli for a minute or so. On coming round they would often burst into a flood of tears, or state that outstanding symptoms had gone. A patient might describe his mind as being freed of ideas that had dominated it. He could still think of them, but without associated anxiety or hysterical responses. On several occasions—and this we considered one of our most important observations—when simple excitement at the recital of experiences was produced without a resultant end-stage resembling transmarginal inhibition, little or no improvement occurred. When abreaction was repeated and total inhibition produced by stimulating further excitement, recovery ensued.

Such a technique was not necessary in all types of case. Some cases of recent amnesia, for instance, required but little barbiturate to bring about cortical relaxation, and for a memory then to come flooding back without further effort on the part of the doctor or patient. Ether proved useful for cases in which this was not sufficient. These were the cases in which abnormal behaviour had become more organized and fixed, and had taken on the quality of a stereotypy which needed less and less work to sustain it. Such conditions often became chronic, disabling, persistent, and resistant to simpler measures. But with the massive excitation aroused under ether ending in a transmarginal inhibition, the whole recently built up pattern of behaviour could be disrupted with ensuing rapid recovery.

Pavlov found that some of his dogs were capable of being reconditioned after their experiences in the Leningrad floods, whereas in those with the weakest type of nervous system reconditioning was always unpredictable and sometimes impossible. In the better "inhibitory" type of dog, with the cortical slate wiped clean, the therapist could again write on it. In the weaker animals no stable patterns of behaviour could be re-implanted. The similarity to therapeutic reconditioning in a transference situation enhanced by a dramatic emotional abreaction, in the course of an analysis, is too striking to need further emphasis. It was also exactly what we found in our patients.

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Technique of Ether Abreaction.

Ether has proved to be a suitable and useful medium for the facilitation of excitation. Its pharmacological action is to depress the most highly evolved psychic centres first, thus producing disinhibition (27). The amount we administer is far short of the anaesthetic stage, and the open mask method obviates the irritation and suffocating sensations of the closed method, as used in anaesthesia. In this manner it acts as a mild intoxicant and produces a sensation of warmth (the cutaneous and cerebral vessels are dilated), some confusion of thought and loss of self-control. The exhilarating properties of ether have long been known, and the use made of it for pleasurable purposes largely contributed to its discovery as an anaesthetic. Keys (28), in describing its use at parties or "ether frolics," says, "These young participants became pleasantly drunk. They lost their sense of equilibrium, talked foolishly, and sometimes laughed with complete abandon." F. W. Cock (29), in his graphic description of the first operation under ether in Europe (amputation performed by Robert Liston at University College Hospital on 21 December, 1846), relates how a preliminary trial was carried out in the operating theatre on one of the hospital porters, Mr. Sheldrake, before the great Liston arrived. "So the porter lies down on the table and sucks away at the tube, young Squires holding his nose. But after a minute or two, Sheldrake jumps off the table quite intoxicated and making a tremendous to-do, climbs on to the railings and plunges into the mass of students, who are like a flock of sheep when a dog chases it, separating right and left, and letting him nearly reach the door."

There have been numerous accounts of the techniques of abreaction under barbiturates and the methods adopted to stimulate excitement. Roughly the same technique is used with ether; it is essentially simple, but the results depend to a large extent on the experience and personality of the doctor. It is best to warn the patient beforehand that there is no intention whatever of anaesthetizing him or putting him to sleep, as the fear that the "mask treatment" or "ether treatment" is given for such a purpose may diminish the patient's co-operation. We explain to the patient that the treatment is given to allow the freeing and release of emotion or tension that is "locked-up" inside him and giving rise to symptoms. A firm well-padded couch or bed is essential or the patient may hurt himself during his excitement, and it is a wise precaution to have a sufficient number of nurses or doctors present to control the patient. If this is not done, it may be impossible to carry on the abreaction if the patient is violent or struggling and shouting. In powerful muscular individuals some form of mechanical restraint may be an advantage, and in such cases a restraint jacket used in E.C.T. (Sargant and Slater (30)) has proved valuable in the absence of sufficient staff. A Schimmelbusch mask with about 8 layers of gauze is best used, together with an ether drop bottle. The patient lies flat and is first talked to in an informal way about events prior to the onset of his illness, or prior to the incident over which he is to be abreacted. Care should be taken not to drop any ether into the eyes, and a pair of dark goggles is a useful protection. The mask should be sprayed with a liberal quantity of ether from the start, and although held away

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from the face during the first few whiffs and the preliminary talk, it should be quickly approximated to the face, except in bronchitic subjects. A preliminary injection of atropine sulphate, gr. $\frac{1}{100}$ is given to the latter type of patient. Soon after the preliminary discussion the patient is brought back to the scene of the breakdown or to a past incident that had been accompanied by much emotional significance. It is important not to administer the ether too slowly nor to use too little at a time, as this method will result in a gradual anaesthetization, with the patient tending to exhibit a prolonged drunken phase in which it is difficult to establish contact with him. If the light etherization (there is no anaesthetization in the accepted sense) is done successfully, the patient usually becomes quickly and wildly excited and begins to abreact. The voice becomes louder, the face reddens, and the flush becomes deeper as the emotional release occurs. Much depends on the way in which the physician handles the situation. Often the trigger stimulus only becomes apparent during the treatment, and one has to be on the alert to seize on this and press it home. The therapist may have to enter into the spirit of the particular situation recalled or created. Thus he may have to shout or whisper, or swear or imitate certain noises as the case may be, and it may well be an exhausting business. With ether the recital of events is often more dramatic than with barbiturates, and the patient is more likely to behave as though those same events were happening now. He is of set purpose encouraged to cry, shout and struggle, as the greater the degree of excitement the better may be the eventual therapeutic result. The onset of excitement from the commencement of treatment varies from about a minute to ten minutes or more. It may be necessary to probe, encourage and coerce, and a case that is seemingly too inhibited to abreact may suddenly do so. The excitement varies in intensity and duration; some patients keep up a level of excitement for a time, others may quickly stop and appear to become inhibited, but soon resume again, and yet others show a rising pitch of excitement and suddenly fall back at its climax into an inert state. For a few minutes they remain flaccid and quiet, as though felled into unconsciousness. A mixture of fear and released aggression, constantly stimulated by the therapist, produces the most satisfactory terminal emotional collapse.

It is generally easy to produce an emotional release in an individual suffering from a recent acute traumatic neurosis (Kardiner places this group as occurring roughly within a week or two of the precipitating incident), but in a long-standing illness, particularly one in which reactive depression has become a prominent symptom, the patient may have the utmost difficulty in relaxing and reliving the traumatic situations. He tends to answer in the past tense and in an impersonal manner, and some of the emotion displayed does not ring true, i.e. it is done to satisfy the therapist. It is often in these cases that some therapists will succeed in producing a useful abreaction with ether, whereas others will fail. In such cases ether shows its superiority over barbiturates.

After the abreaction and removal of the mask the patient may weep or burst into laughter or alternate between laughter and tears. He is encouraged to talk, and so may perhaps continue the uncovering of an amnesia or relate

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further incidents of importance. He frequently volunteers the statement that his mind feels relieved and easier. " Something has lifted " or " My head feels clearer " or " I have lost my tension " are expressions often heard. It is our practice, if very emotional incidents have been revealed and the patient continues to be somewhat excited, to follow the abreaction with sedative or sleep treatment for a day or more, depending on the patient's stability.

Experimental Observations Relating to Excitatory Abreactions.

Our experiences early on in the war, with Dunkirk casualties and those from the London blitz and Battle of Britain in 1940, showed that immediate first-aid sedation, or the injection intravenously of a barbiturate drug, would at once break up many acute hysterical reactions to traumatic experiences and prevent a fixation of abnormal patterns of behaviour. Excitatory abreaction was sometimes necessary, and in recent cases this was fairly easy to produce with barbiturates (17). Anxiety was just below the surface and traumatic memories were fresh. When we experimented with ether in the acute Normandy cases and patients from the V-bomb attacks on London, we investigated more fully acute hysterical reactions that failed to respond to ordinary abreaction or suggestion under barbiturates; we found some could be more easily helped by the far greater degree of excitation released by ether. Case 1 is a good example of this, but a satisfactory result might also have been obtained had a more deliberate excitatory technique been adopted under barbiturates.

Case 1.—I. U—, male, aged 26, was admitted to hospital in 1945 complaining that he was unable to stop shaking. There was nothing relevant in his family history. He had chorea at the age of 11, and described himself as one who " always worried inwardly," nervous, afraid of the dark and prone to headaches. In the Army he drove Diesel engines loaded with ammunition and was continually frightened by the possibility of an explosion. His home was badly damaged in the Battle of Britain in 1940.

Patient stated that two days before admission he was in his bedroom when a rocket exploded approximately a mile away. He " felt something hit him," heard his wife calling him downstairs, and when he got down he collapsed and was unable to stop shaking. On examination he appeared extremely anxious. There was a very gross tremor of the arms and legs; the arms moved through a wide angle, and he was unable to walk without support because of the tremor of his legs. His face was anxious and drawn with an expression of distress and his forehead was wrinkled.

Suggestion under intravenous sodium amytal slowed down the jerkings and tremors, but this recurred as soon as the effect of the amytal wore off. A violent abreaction over the bomb incident was then carried out under ether, and a rapid improvement ensued. After a few days' continuous narcosis he was discharged substantially recovered.

It was in patients with good previous personalities showing the more chronic hysterical reactions that ether was found more useful than barbiturates. Such patients were treated at a stage when excitement had given place to lethargy and neurotic patterns had started to become stabilized. There was a tendency for such patients to give a rather dull recital of events under amytal, as it was more difficult for them to relive exciting episodes which had become clouded by subsequent events and symptoms. With the use of ether we began to

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obtain more dramatic abreactions more easily. Case 2 is quoted to illustrate some most important findings in this group. In this case the abolition of an associated amnesia did not relieve the patient's symptoms, nor did a moderate degree of excitement released by ether. It was when excitement under ether was stimulated to a climax and the phase of temporary transmarginal inhibition brought about that symptomatic recovery was produced.

CASE 2.—E. C. C—, male, aged 47, was seen in a psychiatric out-patient department in December, 1944, when he complained that he had lost the use of his right hand since the previous June after a flying bomb incident.

There was nothing relevant in his family or early personal history. He had served in the 1914–18 war without breaking down, although gassed. In 1925 he attended hospital for a month because he had lost his sense of taste, and he has not recovered from this. Although a government clerk for many years, he was transferred from the permanent to the temporary staff in 1930 because of depression and inability to concentrate. His wife died a week before the bombing incident, but he had been separated from her for two years before this and his twin children were brought up by his mother-in-law. Patient was living alone. During the blitz in 1940–41 he showed no signs of nervous trouble, despite the fact that he had witnessed many distressing sights when working in a first-aid party attached to a local borough council.

He stated that he was quite fit before the flying bomb incident. His right hand was hit by some debris whilst he was helping to rescue some buried air-raid wardens, and he remembered no more till he found himself in his depot some ten minutes later. The total injury was a bruised right thumb and a sprain of the second metacarpo-phalangeal joint. A few days later his hand began to shake, and as there was no improvement it was put into plaster, and he attended hospital daily for 5 months for treatment with massage, hot and cold baths, and rug-making in the occupational therapy department. He continued to complain that he was unable to grip with his hand, which was cold and shaky, black and blue in cold weather. He was receiving a 25 per cent. disability pension.

Treatment under intravenous sodium amytal was twice carried out in out-patients and the short amnesia was clarified, but the shaking hand only stopped momentarily. On admission to hospital in February, 1945, the right hand showed a gross tremor, was cold, congested and bluish-red in colour. He could adduct and oppose fingers and thumb, but was unable to grip, and any voluntary movement caused an extreme increase in the tremor. He had a dilapidated run-down appearance, was mildly depressed and querulous, and complained also of a blurring of vision.

There was a moderate emotional display in the first abreaction under ether when he described some bombing experiences. As there was little improvement he was again abreacted under ether. This time he became violently excited, and the abreaction terminated in a phase of transmarginal inhibition. The hand stopped shaking and assumed a normal colour and temperature. The grip returned, and after some rehabilitation he was discharged.

We found that it was the chronic hysterical "stereotypies" of behaviour or thought that did best when excitement was stimulated to the point of transmarginal inhibition. Case 2 was motor stereotypy of six months' duration, while Case 3 is quoted to show that the same effect can be obtained in a stereotypy of thought of similar duration associated with features of depression and hysteria.

CASE 3.—F. P—, female, aged 55, stated on admission: "I keep on going so funny and seeing different incidents with rockets that I have been through."

Family and personal history were normal, but she "has always been on the nervous side." There was no history of any previous breakdown. Her personality was described as very active and rather obsessional, with a tendency to

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depression. She had been married 31 years, and her husband was a docker who drank heavily and was on strike at the time of her admission to hospital. They had no children. She had a hysterectomy in 1932. In 1939 she became a full-time air-raid warden, served in Dockland for 6 years and kept well despite numerous incidents. The symptoms began after her job as a warden became unnecessary with the ending of the war.

In March, 1945, she was involved in a rocket explosion, when her helmet was blown off and she felt something hit the back of her head. A lump came up, but she took no notice and helped in the rescue work. " I saw terrible sights ; plenty of people cut to pieces under the debris " (there were 50 casualties). A few months later she began to picture the incident, saw people cut and bleeding all over again, and could not get it out of her mind. If she closed her eyes she pictured the terrible sights, and had bad dreams. The symptoms were of 6 months' duration when she was admitted to hospital. At interview she was depressed and anxious, unable to concentrate, had lost considerable weight and complained of fainting attacks and giddiness. She had feelings of unreality, felt that people were talking about her, slept badly, and had almost completely lost the use of her legs. A neighbour stated that whereas she had been a very energetic and bright person, she was now forgetful and " flat."

Under light etherization patient relived the rocket incident with great emotional intensity and described how she was buried under the debris with her husband and brother. Her brother rescued her (he was decorated for his work), and then, during the abreaction, she frantically called and shouted for her husband : " Charlie ! Where are you, Charlie ? " she repeatedly shouted at the top of her voice, at the same time clawing with her fingers as though searching in the debris. The climax of the abreaction occurred when describing his rescue and she suddenly fell back and lay inert. This was a most dramatic result for, when the patient came round she had complete use of her limbs, said her mind was clear and that she had lost her fears. She remained active, well and cheerful, and regained her weight with the aid of modified insulin.

Another interesting finding was that it was not always essential, when doing an abreaction, to recall the precise incident or trauma that may have precipitated the breakdown. An artificial creation of stimuli of a more general kind may be sufficient. Thus one can use phantasy to create excitement, invent false situations or distortions of actual events when the uncovering of a true amnesia or the reliving of an actual experience has not brought about sufficient emotional release to disrupt a deeply ingrained neurotic pattern. Case 4 is quoted to illustrate this point. In this case it will be seen that when the reliving of the actual experience was insufficient, we deliberately distorted the actual experience under ether to produce the required degree of excitement in the subsequent abreaction.

CASE 4.—A. H. H—, male, aged 29, complained, on admission to hospital in July, 1946, of insomnia, headaches, depression, attack of unconsciousness, loss of 1½ stones in weight and battle dreams, with nightmares about becoming blind.

He showed some neurotic traits in childhood. After a normal schooling he ran away to join the Navy in 1933 at the age of 17, but was invalided from the submarine service in 1938 following chlorine gas poisoning from leaking batteries. He was granted a gratuity. His domestic situation was complicated ; he divorced his wife in 1943, after five years of married life, because she had an illegitimate child (there is one child of his own), and he was unable to break away from his parents as he was an only son and his father was well-to-do. Although his general health was good he complained of abdominal pain and attacks of vomiting on and off since a cholecystectomy in 1942. He described himself as a good mixer, normally happy-go-lucky, fond of sports and reading, but very dependent on his parents and devoted to his mother.

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Patient volunteered in September, 1939, rejoined the Navy and kept symptom-free until 1942, when he went down with the aircraft-carrier Hermes, but was rescued after some minutes' immersion. A few weeks later he had an attack of amoebic dysentery and was treated in hospital in Colombo for five months. During convalescence he developed acute abdominal pain, headaches and vomiting; the symptoms were relieved when his gall-bladder (said to have been perforated) was removed. As he had a recurrence a few weeks later of diarrhoea with blood and mucus he was invalided back to England in 1943. He soon volunteered for Naval Commandoes and took part in the landings in Sicily and Italy; his worst experiences were at Anzio. He remained free from illness during his 14 months in Italy, but in a rough sea *en route* to England vomiting began again and was followed by diarrhoea. Despite this he took part in the Normandy landings on D Day, but fell ill a week later with diarrhoea and was sent back. Frequent attacks ensued, and he was invalided from the Navy in December, 1945, with the diagnosis of "amoebic dysentery." He began work as a technical representative in his father's engineering firm, but three weeks later lost consciousness in the street, since when he had complained of frontal headaches. He again collapsed in April, 1946, and is said to have shown an icteric tinge of the conjunctivae. All physical investigations proved negative, and he was transferred to the psychiatric unit. At interview he was tense, sweating, restless and fidgety, and reproached himself for letting down his family and employers. He stated there were no gaps in his memory.

Patient was treated for several weeks by psychotherapy and modified insulin, and his weight increased by 10 lb. He expressed a desire to take up forestry work instead of returning to his father's employ, but as he continued to be tense and agitated with recurrent dreams of a flash and blindness, it was decided to carry out an ether abreaction. He said he was most affected by incidents in Italy, and by the fact that his ship went down off Walcheren and his mates were drowned whilst he was in hospital in Scotland, some months before the end of the war. At the abreaction, an incident, the bombing of Cape Passerole (1943), was chosen. He described how he was coxswain of a ship with an inexperienced crew and that he was the only one able to steer the vessel. At the time of the incident she was at dropped anchor. They were waiting for orders to go into action and patient was sun-bathing whilst he could hear bombers attacking the land. Suddenly a look-out man spotted an enemy plane, and when the order "action stations" was given he ran towards the bridge, but the ship was bombed. A bomb hit the bows, the captain and gunnery officer were killed and patient's leg was trapped under the collapsed chart table. He violently abreacted this episode, calling loudly for the sick-bay attendant during the abreaction, "Get me out. I can't use my leg." In the abreaction he kicked wildly with his right leg, but the left leg was immobile. In the actual incident he was released and able to steer the ship to safety. When the abreaction was over he continued details of the incident, for which he had previously a complete amnesia. He had no knowledge that his leg had been trapped and could now see the reason for complaints of a weak leg which he had frequently made after the incident. This trauma was not the precipitating incident of his neurosis.

A second abreaction was then carried out with the patient restrained in a jacket and during which he was even more violent. It ended in a "collapse" when he was told he was trapped and could not get away, so that he and his ship were doomed (in the actual incident he got away easily). Thus in the first abreaction an amnesia was uncovered with release of emotion and reproduction of details, but although he remembered all, he was no better. In the second abreaction an artificial situation was created, namely, that he was trapped and could not get away, with an artificial stimulation of anxiety terminating in a phase of total inhibition. On coming round he said, "The War has lifted. Something has lifted from my mind." Some days later he said he kept thinking about the events he had forgotten and other incidents, but he could now do so without worrying. He was soon fit for discharge.

Case 5 is quoted as a second example of this important finding. Here it was not till the patient was induced to abreact over being in a burning tank (in actual fact he was only near one) that a successful transmarginal inhibition was finally brought about with improvement.

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CASE 5.—L. T—, male, aged 22, complained, on admission in May, 1946, of terrible depression, inability to concentrate, loss of confidence, and that all he could do was to sit around.

His father was an alcoholic and a man of violent tempers; his mother is a nervous worrying type. Patient was a rather nervous, timid, unsettled youth and apt to be bullied, but described himself as generally cheerful, fond of company, music and sport, sensitive, easily upset and prone to worry. He found it difficult to settle down at work, and did numerous jobs before his conscription in July, 1942.

He was quite well until his Normandy experiences. He landed on D plus 3, went into action the next day as a tank gunner and was not unduly nervous until he saw an Allied tank knocked out. From that time he was constantly waiting for a shell to come through and hit him, as he saw one tank after another destroyed and knew it would be his turn sooner or later. Even when he was withdrawn from action he would dive for cover if a shell landed as far as a hundred yards away. He ate little and hardly slept, but did not complain of his nerves. One particular incident worried him; when S.E. of Caen he jumped into his tank, as the shells were falling nearby, locked himself in and refused to come out. He was there for two hours waiting to be hit, was very scared, and did not want to see what was going on around him. When he did come out his mates just laughed it off. He did not think he could last much longer. The next day practically the whole of his regiment was lost in action. His tank was six miles inside the enemy's lines, but he did manage to get back. Soon after the tank was hit and set on fire, but he was outside it at the time. He found his way back to the allied lines and thought he was safe, but he was dive-bombed and wounded as he stood between some gliders. He hid under a disabled tank, and remembered the sound of the dive-bomber and the scream of the bomb. Something hit him in the face and arm, and he ran round in circles making a noise in an effort to get a bandage. He could not speak because his teeth were chattering; he was driven back to the R.A.P. and evacuated home. After four months' treatment in hospital for his wounds and a month's convalescence he returned to training duties, but found he could not swing across a river on a rope during a battle exercise. Then he realized he was not the same man, as such an exercise would not have given him any qualms prior to his Normandy experiences. A psychatrist sent him to a military neurosis centre, where he was re-graded C2 after several months' treatment, and he was transferred to general duties, but the symptoms persisted, and he had to rely on alcohol to help him carry on. On examination he was very tense, tearful, tremulous, agitated, restless, and preoccupied with memories of and dreams about Normandy, particularly the dive-bombing incident.

Under ether there was an extreme emotional display; short lived amnesias were revealed without relief. Finally he went into a state of transmarginal inhibition when he was deliberately induced to abreact his being trapped in a burning tank. There was an obvious relief of tension after this, and he said he felt free and relaxed. This improvement was maintained although he showed a slight jumpiness, so he was treated with modified insulin, regained his former weight, and left hospital well.

We also found, following this clue, that not only may distortion of real incidents be as effective as the abreaction of the incidents themselves in bringing about relief, but that successful abreaction can be carried out around non-specific incidents whose only use is that they can release a sufficient degree of excitement. Thus Case 6 shows that a patient may be relieved by using as an exciting stimulus an incident unconnected with the onset of the illness, and only occurring incidentally in its course. This is a case of depersonalization, the symptoms of which were finally resolved by an ether excitation when other treatments had failed, and the incident used to arouse the necessary excitement was the patient's experience of a mental hospital during the course of the illness.

CASE 6.—T. W—, male, aged 26, stated on admission to hospital in July, 1946, that he had remained in a daze since undergoing an operation for circumcision in India in the previous January.

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He had been a rather nervous child, with fears of his father, who drank heavily and was quarrelsome at those times. He did quite well at school and, after four years as a shop assistant, joined the Army in 1940. His Army record was good and he was soon promoted to corporal (tradesman). Up to some months before the onset of his illness he was a cheerful, sociable person, with obsessional traits, but he became very worried when his fiancée wrote terminating their engagement. He was beginning to settle down and forget this before the operation.

A spinal anaesthetic was administered. Soon after, his head "went funny" and this feeling persisted. He said on admission, "Up to this very day I have not come out of that dazed condition. It seemed to dull my senses. I have not felt myself since. I am more or less in a different world. Everything seems unreal and I feel unreal. Things do not seem to be so distinct outside. I have no conception of time; it is not so precise as it was. Everything is automatic although I do my work. I can't grasp things." He also complained of headaches, pains at the back of his neck, loss of interest, inability to concentrate, and a feeling like a film over his right ear. When interviewed he was restless and tense, complained of palpitations, insomnia and fears of insanity. Prior to admission he had been sent to a mental hospital in error, but was discharged after a few days. Nevertheless this had increased his worry and unhappiness.

Patient had already been treated in India with E.C.T. and psychotherapy without success. A course of treatment with benzedrine, sedation and modified insulin was also ineffective. He was then abreacted under ether, but there was little emotional release until he was induced to relive his mental hospital experience, with emphasis on his fear that he would never get out again. This produced an emotional storm, and after the abreaction he said the tension had lifted. "I feel carefree." A few days later he became anxious again and lacked confidence. A second abreaction revolving entirely around the mental hospital incident produced further relief and he lost his symptoms of unreality.

Repeated abreactions under ether may be necessary in some cases. As many as four or five abreactions have often been given about the same remembered incidents before sufficient excitation has been achieved and for the patient to feel better. Repeated abreactions are often needed in reactively depressed patients, or those showing a general state of inhibition following an accumulation of stresses or blast. These patients may only require a simple re-excitation to break through inhibition, and do not always need the culminating transmarginal inhibition that proves helpful in the motor or sensory stereotypies as reported in Cases 1 and 2. Case 7 is quoted as a good example of those requiring two abreactions.

CASE 7.—J. H—, male, aged 26, complained of headaches, inability to tolerate bangs, trains, etc., and pains in the lower back, which at times spread all over the body.

There was nothing relevant in his family history. He was "the ruffian of the family," and was nearly drowned when five years old. After two appearances in a juvenile court he settled down in adolescence and volunteered at the commencement of war. Before the onset of his illness he was a very happy person, fond of company and a good swimmer, and although he had a bad temper, it was under control.

Symptoms began in 1942, when a bad parachute jump resulted in a fall on his back and a dislocated shoulder. After some time he returned to the Parachute Regiment feeling fit, and went to Sicily in August, 1942. His plane was hit and he hurt his back as he baled out through the door, and he made a bad landing. Since then his "nerves began to go." In the Italian campaign he was dropped behind the German lines at Mount Etna, and found himself, with a broken knee and only able to crawl, alone between opposing barrages that went on for five days. He eventually reached the Eighth Army, and was sent in a highly nervous state to a Naval hospital.

After a period of remustering in Africa and further action in Italy, he returned to England in December, 1943. He had treatment for his back and was then

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prepared for Arnhem, which he dreaded, but managed to conceal his fears. At the landing he fell across his wireless set and again hurt his back, but proceeded to Arnhem and experienced all the horrors of the fighting. He was the only survivor of his group of 17 and " then went mad." A house he was in was blown up and he had to run from house to house to escape German tanks and shells. He was accompanied by two other soldiers, but one was killed and the other wounded; he carried the latter on his back. When he could no longer endure the conditions he remembers standing up, rushing across the road in front of a German column waving his hands and shouting, " Kill me, you bastards ! " Despite this he managed, under constant sniping, to dash across the Rhine, but was eventually captured. He was then subjected to ill-treatment for propaganda purposes and was compelled to crawl and be photographed. An S.S. officer blacked both his eyes, and the prisoners were marched many miles and jeered at *en route*. They then had six days without water in a cattle truck and reached " a louse-ridden camp." Here they lived on turnip-tops for 14 days; he developed dysentery and was sent to another Stalag, where he had his first bath. Later he joined a working party in Berlin, but was sick with abscesses most of the time. He was working in coal mines when liberated by the Americans in April, 1945.

Patient was on a compassionate posting when admitted to hospital in March, 1946. He was tense, anxious, restless, irritable, sweating, and a stone under weight. He was suspicious, felt people were talking about him and was constantly ruminating over his experiences.

The first ether abreaction was only moderately successful, as he was unable to let himself go. He wanted to swear, but was subdued and inhibited and could not really place himself back to some of his terrible experiences. There was, however, some benefit, and he said, " I am on top of the world to-day," but he continued to complain of headaches and pains in his back. A week later he said, " I feel that if I could have a damn good scream I would be all right," and he remained tense and anxious. He put on 4 lb. in weight. In the second abreaction, incidents were clarified and there was far greater excitement with a better therapeutic result. After it he said, " I feel lighter in mind; something has lifted." The next day he affirmed that something had definitely lifted from his mind and he felt better. A week later the improvement was maintained. " I feel a hundred per cent. better." He was soon fit for discharge.

In many patients excitement is stirred up by making use of suppressed aggression and fear. For instance, in Case 8 intravenous amytal showed that much aggression could be mobilized to create excitement. Going over the same ground with ether released this and produced the desired result.

Case 8.—S. W. E—, male, aged 26, complained, on admission to hospital in December, 1945, that he had become increasingly depressed for a year, was slow, unsociable, very concerned about his eyes and had headaches and suicidal thoughts.

His mother is highly strung, and a sister had been treated for depression in hospital. A maternal aunt is " hypochondriacal " and is in a mental hospital. In his early years he had no friends, as he was " kept behind bars " by his parents; he was told that others in the house might upset his mother. After matriculating he studied business methods for two years, and had begun a business of his own before joining the R.A.F. in 1942.

He became a corporal-instructor in radio-mechanics and enjoyed 17 months in Iceland. When home on leave his house was bombed and he was buried under the debris. About that time he had been working long hours, as he felt " over-conscientious " during the flying bomb period, and he became very depressed. He was sent to Germany, where he finally broke down.

A course of sedation helped him to sleep better, but he remained depressed and retarded. Intravenous sodium amytal was then administered, and he talked with much affect over the unjust treatment meted out to the men by officers in Germany. He was on a welfare committee and tried to stand up for the men, but could do nothing. He accused the officers of " all sorts of things," was obviously much upset and displayed aggression and hatred. He failed to release much excitement.

As there was no change after this treatment, he was abreacted with ether on

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the same topic. He was encouraged to shout, struggled violently when describing the attitude of the officers and released a good deal more aggression. There was intense relief after the abreaction and this was reinforced by psychotherapy. Three weeks later he complained only of a mild headache and occasional depression and returned to his unit.

There is no doubt that for uncovering an amnesia the use of an intravenous barbiturate, such as sodium amytal or sodium pentothal, is an excellent procedure. The same result may be attained by light etherization, but the barbiturate method is generally preferable as the excitement under ether often interferes with a full recital of events, and there is a tendency for an emotional climax to occur before the whole of the amnesia has been laid bare. Although it is frequently found that the patient, after an ether abreaction, goes on talking and completes the details of an amnesia, a prolonged amnesia is better dealt with under barbiturate administration. Nevertheless, one of the drawbacks of the barbiturate method is that if the patient is allowed to fall asleep after his treatment he may deny any knowledge of what has been uncovered whilst under the influence of the drug, i.e. the memories have not become integrated into consciousness. This disadvantage does not occur with etherization, as the patient does not usually fall asleep after the abreaction and is therefore able to retain and keep the memories in consciousness. Occasionally, however, we have failed to break through an amnesia under barbiturates, but succeeded with ether. In Case 9, after numerous attempts with intravenous barbiturates had failed, ether proved successful. Presumably in this case the inhibition and resistance could only be disrupted by the intense excitation produced under ether.

Case 9.—M. C—, male, aged 24, was first admitted to hospital in May, 1944, when he complained of slight headaches, dizzy attacks, forgetfulness, and a "browned off" feeling. His early history was uneventful, and he served for three years in the Irish Army before joining the British Army in 1942. There was a history of previous nervous breakdowns. Symptoms first began during the Italian campaign when he went to Tunis on leave and remembered nothing more till finding himself in hospital three weeks later. His papers stated that he had an acute hysterical breakdown following a period of severe stress in action. From this time he was constantly in trouble because he forgot things and could not tolerate anybody shouting at him. He was evacuated home, but as he pleaded to be retained in the Army his discharge was postponed and he was graded Category C, but failed to adjust. On admission to hospital he appeared anxious and depressed, but denied this and said he only objected to being shouted at or punished. He made little progress on routine treatment, and was invalided out of the Army in May, 1944.

Patient was readmitted in August, 1945, complaining of headaches, a fed-up feeling, and worry over his inability to recall events following the onset of his amnesia in Tunis. Several unsuccessful attempts had already been made to uncover the amnesia, including the use of intravenous barbiturates. He stated that he was involved in heavy fighting in which there was a large loss of life. Three of his mates on the machine gun he operated were killed on separate occasions. Soon after this he was given leave and went to Tunis. The last thing he could remember was coming out of a church and passing, on the church steps, a soldier offering shoe-laces for sale. Patient showed considerable distress when discussing this at interview, and burst into tears. He also said that after leaving hospital in 1944 he felt fed up for weeks at a time, was irritable and bad tempered as never before, and derived much relief from alcohol.

Intravenous sodium amytal was again tried on a few occasions in hospital, but failed to reveal details of the amnesia, although he displayed much aggression and some weeping when describing the fighting. A course of benzedrine and epanutin

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failed to benefit him, and he became aggressive and unco-operative, refused to go to occupation classes and sat about reading. He expressed a constant anxiety about the recovery of his loss of memory, and appeared tearful, although he denied it, when remarks were made about his behaviour. An ether abreaction was then attempted, but he threw off the mask as he reached the events immediately leading up to the amnesia, and struggled so violently that the treatment had to be suspended because of insufficient staff to hold him down. A further attempt was made by administering intravenous sodium amytal followed by ether, but after a considerable abreaction over an incident unconnected with the amnesia, he again struggled too violently when the subject of the amnesia was approached. There was a subjective improvement, so it was decided to try another ether abreaction—this time with sufficient staff present to ensure any necessary restraint. There was a tremendous abreaction and the details of the amnesia were revealed. Briefly, he was accosted by an Italian who uttered some offensive remarks and patient "saw red," knocked the man down and trampled all over him until he lay motionless. Patient was stricken with the idea that he had killed the Italian, and in a panicky state he wandered about for a time, finally returning to his unit. His brother, who was also his commanding officer, covered his absence. Patient tried without success to obtain news concerning the man he had assaulted. When the ether abreaction was concluded he continued to fill in the details. It was considered that, in view of the nature of the material uncovered and which had been so strongly repressed he might not be able to cope with the knowledge, and he was therefore treated with a course of continuous narcosis for ten days. He was very restless and unco-operative, with aggressive outbursts, but the symptoms gradually abated and he was much improved when discharged from hospital.

Endogenous depressives can rarely be made to release emotion even under ether. Despite all attempts to stimulate excitement a dull recital of events is often the only result. But this is the sort of case which responds to the much greater degree of non-specific excitation obtained by electric shock therapy. Depressives responding to E.C.T. are generally stable personalities in a state of profound widespread inhibition. The disruptive stimulus of E.C.T. may prove too much for the less stable nervous system showing hysterical and reactive depressive features. The latter type of case can be re-excited with ether, whereas the endogenous depressive fails to respond. Ether in turn, as we shall show later, can be too disruptive for the chronic constitutional hysterical personality. Thus various types and degrees of excitation may be needed for the different types of nervous system. One is tempted to search for an explanation of the differences in action of E.C.T. and ether abreaction. Some differences, no doubt, are independent of the strength of stimulus, and one can but speculate, for instance, on whether the action of ether abreaction is more cortical, whereas E.C.T. acts more powerfully on the whole brain and particularly the autonomic nervous system. The latter suggestion is the belief of Gellhorn (31) based on his experimental work on rats. Whatever the explanation, it is significant that abreaction, E.C.T. and insulin, are treatments which, at different levels of nervous activity, produce their best results by an initial excitation carried to the point of temporary cortical inhibition. A subshock E.C.T. may be as ineffective as an incomplete insulin coma or an ether abreaction which does not reach the stage of collapse.* These comparisons need further investigation and study before any conclusions can be drawn, but two cases are worth quoting. In Case 10 E.C.T. succeeded where abreaction failed in

* In our experience the best results from E.C.T. treatment generally occur in those showing the profoundest relaxation after the fits. Likewise, E.C.T. given under insulin sopor may sometimes produce better results than E.C.T. alone, perhaps due to the greater final relaxation obtained in this manner.

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an endogenous depressive, whereas Case 11 illustrates a successful result with abreaction in a patient suffering from reactive depression after E.C.T. had produced no change.

Case 10.—W. D—, male, aged 48, a police inspector, was first seen in out-patients in January, 1946, when he complained of depression.

There was nothing relevant in his family or personal history, and he had a good record. His previous personality was that of a rather rigid obsessional with a hasty temper at times, but fond of company and fairly happy.

His symptoms began in 1940 after he was buried in his home when it received a direct hit from a bomb. He was trapped for some hours with his head " doubled under him " and he felt himself slowly choking. In addition he sustained injuries to his right shoulder and ribs and concussion; despite three months in hospital he felt " a bag of nerves," was sleepless, tense, giddy, tremulous and tearful. A course of analytical treatment failed and he returned to work in a tense state and lacking confidence. His work entailed supervising bomb incidents. " I felt like crawling under the ground. Knowing other people were trapped in these incidents had a hellish effect. I lived it all over again." Although he carried on he became increasingly depressed. On examination he was depressed, anxious, tired, and found it an effort to concentrate or maintain interest. He felt people were looking at him and that he was misunderstood, and became impatient and resentful. There was a recent marked increase in weight, and it was thought that the depression was either complicated by myxoedema or of a menopausal type.

An ether abreaction produced little emotion and there was a rather dull recital. He did, however, become flushed and a little excited when describing the bomb incident. There was some improvement, and ether was tried a second time, but produced no real break through his depressed state. It was therefore decided to try the effect of E.C.T., as testosterone, thyroid and benzedrine had also failed to effect an improvement. He was able to return to work in a fit condition after four E.C.Ts.

Case 11.—H. L—, male, aged 44, gave a history, when first seen in out-patients in August, 1945, of a feeling that there was something over his face all the time, and that he was unable to feel over it.

There was nothing of note in his family or personal history. He was a professional boxer of some standing and had never been knocked out. His previous personality was that of an obsessional though cheerful individual.

The duration of symptoms was six years without fluctuation, and he became increasingly worried and depressed. The onset was sudden, whilst he was working in a conservatory. " I will never forget it. I was planning a fire curb when I suddenly felt as though something hit me in front of the head. After that everything seemed different. I am there and yet I am not there. I feel there is no world around me. There is a strip in front of the face and all feels black before me. It feels like a lump in the forehead, and I have an empty feeling in the pit of the stomach as though the breathing centre is not there." Before the onset of symptoms he was unable to rid himself of an attack of pediculi pubis. This worried him greatly, as he was scrupulously particular about personal cleanliness. The condition was eventually cured by his doctor and the depersonalization followed. On admission to hospital he was depressed, anxious, unable to concentrate, had bad dreams, and was preoccupied with ideas of suicide. Five E.C.Ts. produced little change. He was then abreacted under ether. There was an extreme emotional outburst over the " crabs " incident, but the symptoms remained unaltered. He was immediately abreacted again, this time to the stage of transmarginal inhibition. On coming round he stated " There was something round my head which has now gone. My head is relieved. I have lost the feelings of unreality. I feel different altogether." This was maintained, and he was discharged from hospital free of symptoms.

We have learned as much about the mechanics of abreaction from our many failures as from our successes. For instance, we have tried the effect of ether abreaction in a small number of cases of chronic obsessional neurosis. We

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wished to find out if we could produce in such cases a state of excitation followed by transmarginal inhibition and whether it might be possible to disrupt the pattern of rumination around a particular idea or fear. We did not succeed. It is difficult to excite or abreact such patients, as they are too precise, rigid and meticulous to picture with emotion an incident not happening at that particular moment. They tend to answer "Yes, doctor," or "No, doctor," when attempts are made to induce them to re-enact certain events. If, however, they do become excited they may be made temporarily worse by the abreaction. This result is not surprising in the light of Pavlov's concepts. In such case there is often already an abnormal predominance of the excitatory process, an abnormal "inertness" or "pathological inertness" in points or areas of the cortex. We have found that when there is a useful response to abreaction there are generally hysterical or reactive depressive components to the total picture, or an accompanying state of depersonalization—all these suggest the presence of inhibitory phenomena which excitation under ether may loosen. In Case 6 we have already described a case of depersonalization with obsessional rumination relieved by abreaction, and in Case 12 an obsessional phobia occurring in a setting of depression was disrupted by one E.C.T. followed by a particularly severe ether abreaction which produced a transient state of dissociation yet lead to recovery.

CASE 12.—T. H. A. M—, male, aged 32, said, on admission in December, 1945, "I am convinced I have syphilis. I was depressed, but accept it now."

Patient's mother was nervous, and one of his sisters was in a mental hospital. He had been a sensitive, timid youth, did well at school, gained a University Scholarship and had a First Class Honours degree in Engineering. He had no sexual experience, and though engaged at one time, he terminated it because of his ideas. His previous personality was described as anxious, shy, solitary, and a ruminative obsessional.

He first thought he had syphilis when, in adolescence, his penis was tender after ejaculation, and he kept this knowledge to himself. Two years later he suffered from dysuria and a retracted testicle. This increased his fears about syphilis, but he carried on "normally" until 1941, when he had a feeling of falling to one side. His memory began to fail, and in June, 1945, his libido diminished and his skin became anaesthetic in parts. His brain felt "clogged with thoughts like treacle," and he lost interest. Before June he was "keyed-up" by strong sexual feelings, but since then everything was flat. He experienced a clear discharge after an erection and this meant syphilis. Throughout the illness he carried on as a Post Office engineer and first consulted a doctor four months before admission. Several Wassermann reactions, done privately and in hospital, were negative, but this, and the fact that his C.S.F. was negative, made no difference to his symptoms. On admission he was very dull and apathetic, sat in a chair most of the day, and believed that his syphilis was either due to the fact that his father was a bailiff in a mental hospital, or that he had contracted it from the lavatory seats in Portsmouth dockyards. He blamed himself for not mentioning it when he first contracted it, and showed practically no insight. There were also some hypochondriacal symptoms, which he attributed to syphilis, such as the dead feeling of his skin, and he said he was emotionally dead, had ceased to worry and was sleeping badly.

This man was suffering from an obsessional neurosis with severe depression, and it was decided to try E.C.T. Unfortunately he sustained a vertebral crush fracture at the first treatment and refused any more. Nevertheless, he said that on the day of the treatment and the next he felt alive again, but this wore off. He was then abreacted under ether, using, as stimuli, his fears of syphilis and his bombing experiences. He abreacted for a time with considerable force, and then appeared to go into a dissociated state. This lasted a few hours and there were marked fluctuations in awareness. He insisted on staring out of the window, talked

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random nonsense, and would then appear normal for a while. Although he said he was improved, it was difficult to assess the extent. There was no doubt about this later on, as he was much happier, active, mixed for the first time with patients in the ward and attended the occupational departments. The following week he was " more alive although the skin was partially dead," but he said that he hardly gave a thought to syphilis, despite his absence of libido. A fortnight later he was no longer depressed, called his old ideas " rubbish " and returned to work.

If severe chronic hysterics are treated by excitatory abreaction they rapidly become inhibited or dissociated when any strong stimulus is applied. As soon as they show an emotional release, or attempt to relieve incidents that have produced distress in the past or artificial situations of some emotional significance are created, they inhibit or dissociate. As with Pavlov's weaker dogs, they show chaotic cortical function or total inhibition again and again following slight excitation, and their past record shows little stability in response either to upbringing or environment. Never having had a stable balance, continual re-excitation only makes them more unstable. Thus severe chronic hysterics do not as a rule benefit from ether abreaction. If at all, they are helped more by gradual release of tension under barbiturate. Benefit from ether is confined to the previously stable person who has developed hysterical symptoms following severe stress.

In mixed cases, showing for example stammers, amnesias, tremors and anxiety, the combined use of barbiturates and ether has often been necessary to produce a good result, either alone being insufficient. At various stages of therapy it may be necessary to damp down or re-excite in treatment. Case 13 is also a good example of the combined method, each type of abreaction being used at different stages of treatment. Barbiturates at first were used to get rough details of the traumatic incident. Then ether was used to produce a high degree of excitement and restore the use of a limb paralysed for one year. Finally, barbiturates were again employed to complete a more exploratory type of abreaction, and round off the recovery with additional psychotherapy and reassurance.

CASE 13.—W. F—, male, aged 35, complained of " black-outs " of three years' duration and which were becoming more frequent. He also complained of depression, insomnia and nightmares, and made a mention of his paralysed left arm.

There was nothing of note in his family history. His early home life was difficult because of the frequent absence of his father, and financial difficulties. He was a good scholar and, although shy, enjoyed games and took a great interest in physical training. He became an instructor at a boys' club, and did some short-term jobs before joining the Army in 1940. He volunteered as a Commando, took part in the Dieppe and other Commando raids, and was wounded through the left shoulder in June, 1944. When admitted to our unit a year later he still had shrapnel behind the scapula and in the pectoral muscles. Physical examination showed multiple scars round the upper left arm and scapular regions where operations for the removal of shrapnel had been carried out. There was wasting of muscles, and the left hand was cold and apparently useless. Patient said he was " desperately worried about being unable to use his arm," although he also said, " I realize it is a psychological paralysis."

Under intravenous sodium amytal he became upset when describing a number of incidents as a Commando, including the shooting of a child and the loss of a friend after he had promised this man's wife that he would look after him. Patient felt much improved after this treatment, and said he was " lighter " and better than he had been for months. He used his left hand a little, but free movement was very limited, although he " felt sure it would come." There was a reluctance

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to discuss his experiences, about which he showed evident guilt feelings. An ether abreaction was therefore carried out, and he reacted very strongly to the death of his friend and the shooting of the child. He explained that he had to kill this child in a Commando raid to prevent her giving the alarm. After the abreaction there was almost full range in movement of the left shoulder for the first time, and he was able to engage in a sparring match with one of the doctors. A week later, though cheerful, the movement of his arm was somewhat limited. At times he felt " very scared and tense inside " and had four " black-outs," but they did not last so long as before, and there were now no violent outbursts during the attacks. A further intravenous sodium amytal injection was carried out, to which he reacted immediately and violently, and relived several commando raid experiences. He returned to the incident of the child, and for the first time disclosed that he had strangled her with his left hand. He felt intense guilt, but knew he had to commit the act to save his men. As a father he could not forgive himself, nor could he bear to see children suffer. There was also some discussion about a very unhappy childhood and his upbringing by a strict grandmother. He had seen so much suffering by children on Tyneside that he could not tolerate thinking about it. Suggestion and reassurance under amytal relieved considerable guilt feelings, he appeared able to forgive himself and used his arm quite freely. From this time he was completely at ease and talked without excessive emotion.

Finally a note of caution is necessary. We have stressed the many failures in treatment by abreaction. A serious aspect is that in inexperienced hands ether abreaction may precipitate a temporary psychotic episode requiring the patient's removal to an observation ward. This has happened on only one occasion in our series of several hundred abreactions despite the uncovering of many severe traumatic incidents. Hence the importance of suitable selection of cases, necessitating first a careful assessment of the patient, his past history, personality and the psychopathology of his illness, together with skill in controlling disturbing symptoms by other methods of treatment.

Discussion.

Throughout the war, especially during the times that our hospital unit of neurotic soldiers was subjected to intermittent bombing, we were impressed with the fact that many barbiturate " narcoanalysis " recoveries were in part physiologically determined. The brain was being influenced by a drug in a way that made it readily give up its patterns of hysterical behaviour, especially before they had become deeply ingrained (30).

We gained this impression even more forcibly with our experiences of ether abreaction. Therefore we have searched back through other disciplines for instances of similar happenings, each given by their exponents a different metaphysical explanation. It seems to us that the phenomena we observed in their extreme form in ether abreaction are very similar to phenomena seen throughout the ages, when the brain of an individual has been subjected to emotional excitation, often leading to a phase of temporary cortical inhibition with " rupture" of pre-existing patterns of thought and behaviour. There seems to us to be a basic physiological pattern running through procedures as far apart as the rites of the Corybantes and the catharsis of Freudian psychoanalysis. Within its scope are religious conversions, orgiastic rituals, tribal dancing, the use of mescaline in primitive religious ceremonies, and other methods of producing rising emotional excitement, leading to exhaustion followed by changes in mental outlook.

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In primitive medicine sufferers from mental disease were thought to be possessed by a spirit or demon, and were treated by purifications and incantations. Aristotle, in his account of Greek tragedy, is quoted as saying, "Tragedy is a representation . . . which by means of pity and fear effects the purgation of such emotions." Thomson (32), in *Aeschylus and Athens*, discussing this says Aristotle implies that before the morbid affections can be expelled, they must be first artificially stimulated. In primitive Greek magico-medical secret societies, such as those of the Corybantes, "madness" was induced and cured by a ritual of incantations and an orgiastic dance to the accompaniment of flutes and drums. The spirit was first roused into activity and then expelled. It is interesting that the exorcists were selected from those initiates who had experienced the privilege of exorcism. Aristotle, in this connection, said, "The initiates were not required to learn anything, but to experience certain emotions and to be put in a certain disposition." This certain disposition was the artificial excitation of fear, whereby the emotions were then released.

Celsus, the recorder of medical thought in Roman times, in common with the majority of Greek and Roman physicians, recommended dungeons, fetters, purgation and starvation of the mentally deranged. He claimed by these means that certain memories were refreshed, and said, "It is also beneficial to make use of sudden fright, for a change may be effected by withdrawing the mind from that state in which it has been" (Zilboorg, 33). Magic and superstition reigned throughout the Dark Ages; the mentally sick were in the hands of the priest, and treatment was based on ideas of treatment of the devil. Here again excitation was a prominent feature. Nolan Lewis (34) describes three main groups of curious mental reactions in Central Europe in the Middle Ages: "(1) Epidemics of flagellants who gathered into large processions and travelled over the country bearing crosses, banners and candles, doing public penance for their sins; they marched, prayed, sang and shouted and flogged the upper parts of their bodies until blood came. . . . (2) The 'dance mania' characterized by an urge of dance, laugh, sing and make other noises until completely exhausted. . . . (3) Devil possession; the devil was supposed to choke, push, pull and throw its victim about, causing him to become excited, violent and froth at the mouth. It was then up to someone with spiritual power to exorcise the demon. During this procedure, if successful, the devil jumped out with a sudden jerk."

Symptoms of neurosis were regarded as manifestations of the influence of Satan, and almost all mentally sick were accused of being witches or sorcerers. This continued to the eighteenth century, and the theologians alone could fight the menace. Bromberg (35), in *The Mind of Man*, gives an account of a notable exorcist, St. Norbert, who attempted to exorcise a possessed woman. Resemblance to modern excitatory abreaction is obvious. He made repeated attempts in the presence of the people but "the devil mocked him." Further attempts with the girl immersed in water and her hair cut off also failed. The Saint thereupon fasted and prayed. "On the following morning he prepared to say Mass; the girl was again brought, and the people gathered to witness the combat between the priest and the demon. Norbert ordered two men to hold

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the possessed not far from the altar . . . and several passages were read over her head. The demon still mocked, and when the priest next elevated the Host, it cried out: 'See how he holds his little god between his hands!' This made the priest of the Lord tremble, and gathering up all his strength, he began to attack the demon in his prayers and to torment him. Then the demon cried out through the mouth of the girl: 'I burn! I burn!' Then the voice howled: 'I die! I die!' Then a third time: 'I want to go! I want to go! Send me away!' Two men held the possessed woman strongly. But the demon did not let himself be stopped. He escaped, abandoning the vessel he had possessed, and leaving behind him nauseating smells. The girl fell to the ground. She was taken back to her father's house, took nourishment and soon completely returned to health."

In the eighteenth century, although chains and fetters were beginning to be abolished, even Christian Johann Reil recommended "non-injurious torture." He considered it legitimate to throw patients into water, and fire cannons to bring patients to their senses, and believed it was useful to arouse anger, disgust and pain in certain cases.

The short history of a variety of conditions already mentioned suggests that the phenomenon of massive excitation, especially when carried to the point of collapse, is possibly one of the underlying mechanisms of relief. Many other examples can be quoted.

Franz Anton Mesmer's remarkable results, for instance, are generally attributed to suggestion, but, although doubtless this played a part, we suggest that the excitation produced was one of the important factors in the production of results. Mesmer used the baquet, a large wooden tub filled with bottles in and around which was "magnetized" water. Patients sat round this holding rods protruding from the baquet and they were touched by a "magnetized" wand held by Mesmer wearing a lilac silk coat. "Soon signs of restlessness appeared, the patients would twitch and tremble violently, while convulsive movements of the hands and body muscles increased in tempo, until palpitating and convulsed they achieved the 'grand crisis', ('crisis of exaltation'). Without a crisis there could be no cure" (35). Mass convulsions were produced under mesmerism. An eye witness described it thus: "Some patients remain calm, and experience nothing; others cough, spit, feel slight pain, a local or general heat, and fall into sweats; others are agitated and tormented . . . by involuntary jerking movements in all the limbs, and in the whole body, by contraction of the throat, by twitchings in the hypochondriac and epigastric regions, by dimness and rolling of the eyes, by piercing cries, tears, hiccough and immoderate laughter. . . . They are all so submissive to the magnetizer that even when they appear to be in a stupor, his voice, a glance or sign will rouse them from it. . . . When the agitation exceeds certain limits the patients are transported into a padded room; the women's corsets are unlaced, and they may then strike their heads against the padded walls without doing themselves any injury." A lengthy report by the Academy of Science vividly describes the state of excitation induced, and continues: "This last stage, which terminates the sweetest emotion, is often a convulsion. . . . To this condition there succeed languor, prostration, and

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a sort of slumber of the senses, which is a repose necessary after strong agitation" (35).

Similar techniques have played a prominent part in movements concerned with religious conversion or salvation. It was, and still is at the present time, common for abreaction to occur to groups or individuals at revivalist meetings. In 1820, Charles G. Finney, an American evangelist and self-styled "Brigadier-General of Jesus Christ," had grasped the fundamental principles of excitatory abreaction, when he would exhort his audience with violent gestures to "Agonize, I tell you; why don't you agonize?" Searching through the literature we find many reports of acute excitement followed by collapse resulting in profound alterations of thought and behaviour, particularly in accounts of sudden religious conversions of various kinds. James' *Varieties of Religious Experience* (36) contains records of this. John Wesley, in the eighteenth century, insisted that effective conversion is usually accompanied by a profound emotional experience, and his diary contains a mass of factual data. Using a fear-provoking technique in preaching, he records detailed descriptions of individuals or groups showing increasing excitement and collapse leading to instantaneous and unexpected conversions (37).

Thomas Butts (38), writing in 1743 about these conversions, says: "As to persons crying out or being in fits, I shall not pretend to account exactly for that, but only make this observation: It is well known that most of them who have been so exercised were before of no religion at all, but they have since received a sense of pardon, have peace and joy in believing, and are now more holy and happy than ever they were before. And if this be so, no matter what remarks are made on their fits."

John Wesley suspected a physiological component to the phenomena that occurred with his preaching. He is quoted as saying: "They can be accounted for on principles of reason. How easy is it to suppose that a strong, lively and sudden apprehension of the hideousness of sin and wrath of God and the bitter pains of eternal death should affect the body as well as the soul, suspending the laws of vital union, and interrupting or disturbing the ordinary circulation and putting nature out of its course" (39). And he also found by experience the necessity of stabilizing the change to prevent relapse. While insisting that the initial change should generally be an instantaneous process; he then divided the converts into small groups under a leader to meet once a week. His rules for the conduct of these groups can be profitably studied to-day by those interested in the group treatment of neuroses (40). Historians now recognize that by this combined technique he was able to change the face of England at a critical era.

Arriving at the present century we find, in psychoanalysis, where there occurs a slow and prolonged mild abreaction, critical periods arise in which there is a much more powerful abreaction. This may sometimes terminate in a phase of temporary collapse and sudden progress in treatment.

Modern psychotherapy and religion bear out Pavlov's observation that once an animal or human being is "changed" by such a process, new patterns of

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behaviour or new ideas may often be implanted on the altered soil. Further individual or group psychotherapy is generally necessary to achieve this. New aims may be given once the patient is released from his old neurotic adjustments. Patients must be reconditioned. They are often left in a temporarily suggestible state, particularly if the abreaction has culminated in an ultra-paradoxical phase. A transference situation is established, corresponding to that of the positive transference created by the analysts. They are thus open to new ideas, and in a position to accept what is held out to them. However, like Pavlov's dogs, weaker individuals relapse and may even become worse, but the better type of personality remains steadfast in a subsequent adjustment.

Attempts in the past to account for the beneficial effects of emotional release in psychopathological or metaphysical terms alone seem inadequate to us. McDougall (41) insists that the essential therapeutic step is the relief of a dissociation such as an amnesia, and assigns a very subordinate role to the emotional excitement. Kardiner (5) considers that in the traumatic neurosis there is a disorganization or contraction of the ego, the primary symptom being inhibitory and later symptoms adaptive attempts. In the acute cases (before the ego structure has been altered) abreaction assists in bringing about a re-integration, but, says Kardiner, "the therapeutic measures used successfully in treating these neuroses had very little to do with the conception of the psychopathology." Grinker and Spiegel (42) believe that a progressive weakening of the ego occurs in its relationship with the sources of anxiety, ending finally in a complete elimination of normal ego mechanisms. In some cases the anxiety is concentrated and the remainder of the ego is allowed to function in a stable and efficient manner. Abreaction allows a freeing of the ego. Some consider that in the course of an emotional abreaction the patient is placed in a hypnotic or "hypnoidal" state, and that the abreaction which takes place and its beneficial results are due to suggestion. Our findings suggest that simple physiological mechanisms may play a larger part than has hitherto been stressed.

Summary.

1. The literature on abreaction, and the Pavlovian physiology with a possible bearing on the mechanisms involved, are reviewed.

2. The use of ether in facilitating excitatory types of abreaction and comparisons with the barbiturates are discussed.

3. Experimental observations arising out of the use of excitatory abreaction for the relief of various types of neurotic illness are reported. Indications and contra-indications to the employment of this treatment are given. Relevant case histories are quoted.

4. The findings in modern drug abreaction are compared to other similar findings reported in the various forms of religious and psychological healing throughout the ages.

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REFERENCES.

(1) FREUD, S., and BREUER, J. (1893), *On the Psychical Mechanisms of Hysterical Phenomena.* Vienna. Included in "Collected Papers", vol. i, p. 24.
(2) BREUER, J., and FREUD, S. *Studies in Hysteria.* Translated by A. A. Brill. New York: Nervous and Mental Disease Publishing Company (1936).
(3) SADLER, W. S. (1936), *Theory and Practice of Psychiatry*, p. 1160. London: Henry Kimpton.
(4) MILLER, E. (1940), *The Neuroses in War*, p. 153. London: Macmillan & Co., Ltd.
(5) KARDINER, A. (1941), *The Traumatic Neuroses of War.* Psychosomatic Medicine Monographs II and III.
(6) CULPIN, M. (1931), *Recent Advances in the Study of the Psychoneuroses'* p.27. London: J. & A. Churchill.
(7) BROWN, W. (1938), *Psychological Methods of Healing. An Introduction to Psychotherapy.* pp. 18–19. London: Univ. of Lond. Press, Ltd.
(8) CULPIN, M. (1920), *Psychoneuroses of War and Peace*, p. 16. London: Cambridge Univ. Press.
(9) BLACKWENN, W. J. (1930), *J.A.M.A.*, **95**, 1168.
(10) LINDEMANN, E. (1930–31), *Proc. Soc. Exp. Biol. N.J.*, **28**, 846.
(11) WAGNER, J. (1933), *J.A.M.A.*, **101**, 1787.
(12) STOCKERT, F. G. VAN (1935), *Med. Klin.*, **7**, 98.
(13) CAMPBELL, A. M. G. (1938), "Sodium Evipan as an Aid to Psychotherapy," *Guy's Hosp. Rep.*, **88**, 185.
(14) HORSLEY, J. S. (1936), "Narco-Analysis: A New Technique in Short-Cut Psychotherapy. A Comparison with Other Methods," *Lancet*, **1**, 55.
(15) SARGANT, W., and SLATER, E. (1940), "Acute War Neuroses," *ibid.*, 6 July, p. 1.
(16) *Idem* (1941), "Amnesic Syndromes in War," *Proc. R.S.M.*, **34**, 757.
(17) DEBENHAM, G., HILL, D., SARGANT, W., and SLATER, E. (1941), "Treatment of War Neuroses," *Lancet*, 25 January, p. 107.
(18) GRINKER, R. R., and SPIEGEL, J. P. (1943), *War Neuroses in North Africa. The Tunisian Campaign (January–May*, 1943). New York: Josiah Macy, Jr., Foundation.
(19) PALMER, H. A. (1945*a*), "Abreactive Techniques—Ether," *J.R.A.M.C.*, **84**, 86–87.—(1945*b*) "Military Psychiatric Casualties," *Lancet*, **2**, 492.
(20) ROGERSON, C. H. (1944), "Narco-Analysis with Nitrous Oxide," *Brit. Med. J.*, **1**, 811.
(21) HURST, A. (1940), *Medical Diseases of War.* London: Edward Arnold & Co.
(22) PENHALLOW, D. P. (1915), "Mutism and Deafness Due to Emotional Shock Cured by Etherization," *Boston M. and S. J.*, **174**, 131.
(23) PAVLOV, I. P. (1928), *Lectures on Conditioned Reflexes: The Higher Nervous Activity (Behaviour) of Animals.* Vol. I. London: Lawrence & Wishart.
(24) *Idem* (1941), *Lectures on Conditioned Reflexes: Conditioned Reflexes and Psychiatry.* Vol. II. London: Lawrence & Wishart.
(25) FROLOV, Y. P. (1938), *Pavlov and His School.* Translated by C. P. Dutt. London: Kegan Paul, Trench, Trübner & Co., Ltd.
(26) SARGANT, W., and SHORVON, H. J. (1945), "Acute War Neurosis. Special Reference to Pavlov's Experimental Observations and the Mechanism of Abreaction," *Arch. Neurol. and Psychiat.*, **54**, 231–240.
(27) SOLLMAN, T. (1942), *A Manual of Pharmacology.* London: W. B. Saunders Company.
(28) KEYS, T. E. (1941), *The Development of Anaesthesia*, p. 564. New York.
(29) COCK, F. W. (1911), "The First Operation Under Ether in Europe. The Story of Three Days," *U.C.H. Magazine*, **1**, No. 4, 134.
(30) SARGANT, W., and SLATER, E. (1944), *An Introduction to Physical Methods of Treatment in Psychiatry.* Edinburgh: E. & S. Livingstone, Ltd.
(31) GELLHORN, E. (1946), "Is Restoration of Inhibited Conditioned Reactions by Insulin Coma Specific for Pavlovian Inhibitions? Contribution to the Theory of Shock Treatment," *Arch. Neurol. and Psychiat.*, **56**, 2, 216.
(32) THOMSON, G. (1941), *Aeschylus and Athens*, p. 273. London: Lawrence & Wishart.
(33) ZILBOORG, G. (1941), *A History of Medical Psychology.* New York: W. Norton & Co.
(34) LEWIS, NOLAN D. C. (1942), *A Short History of Psychiatric Achievement.* London: Chapman & Hall, Ltd.
(35) BROMBERG, W. (1937), *The Mind of Man.* London: Hamish Hamilton.
(36) JAMES, W. (1902), *The Varieties of Religious Experience: A Study in Human Nature.* London: Longmans Green & Co.
(37) WESLEY, J., *The Journal of John Wesley.* Standard edition. Edited by N. Curnock. London: Charles H. Kelly. 1909–1916, vol. ii.
(38) *A New History of Methodism* (1909). London: Hodder & Stoughton.
(39) BOWEN, MARJORY (1937), *Wrestling Jacob.* London: Heinemann.
(40) PIETTE, M. (1938), *John Wesley in the Evolution of Protestantism*, pp. 456–464. London: Sled & Ward.
(41) MCDOUGALL, W. (1926), *An Outline of Abnormal Psychology.* London: Methuen & Co., Ltd.
(42) GRINKER, R. R., and SPIEGEL, J. P. (1945), *Men Under Stress.* London: J. A. Churchill, Ltd.

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