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A SURVEY OF ONE HUNDRED CASES OF WAR NEUROSES*

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In this report some observations are presented on the previous history, treatment, and results of treatment of 100 men admitted to an E.M.S. hospital suffering from psychoneurotic states occurring during or after exposure to combatant action. No commissioned officers are included in the group.

A number of workers in this field have been interested in the type of person who develops a psychoneurosis under the strain of active service. Besides having important implications regarding the prognosis and treatment of these cases, a study of the prominent features previous to breakdown is of the utmost value in the detection of possible psychoneurotics. Though as yet no scheme has emerged, their detection by some form of psychiatric examination at the time of recruitment has engaged the attention of many psychiatrists, and our survey has led us to make some suggestions towards this end. There is little doubt that the psychoneurotic can be valuable in military service as in other spheres, yet often his greater liability to panic is a constant menace to the morale of any fighting unit. More than one of our patients was acutely distressed by his effect on other men. We would not for a moment suggest that all psychoneurotics should be eliminated from the Forces, but when a strong predisposition to nervous breakdown is detected it would appear that the type of service into which the individual is to be sent should receive proper consideration.

Since the present war began sharply divergent views have been expressed on the methods of treatment of these illnesses and different results quoted. These variations appear to be due largely to the orientation of the particular workers, according to whether the symptom, or the dynamic disturbance in the personality underlying the production of the symptom, was the focus of interest—i.e., whether a short-term or a long-term policy was adopted. Which of these approaches is the more useful is a question on which our observations leave us in no doubt. The “war neuroses” are essentially the *neuroses in war*, and in my opinion the treatment and disposal of these cases can be based only on this fundamental standpoint.

Nature of the Group

It should be noted at the outset that the cases here considered must be regarded as the more serious instances of this type of illness. Most of these patients had been in other hospitals before coming under our care; on the average each man had been two weeks in hospital, followed by one week of sick leave. Thus the selective

nature of the group precludes conclusions about the incidence of certain factors in general.

Ranks.—The distribution in ranks was as follows:

P. sgt.-major	1	Corporals	4
C.Q.M.S.	1	L/corporals	7
Staff sergeant	1	Other ranks	77
Sergeants	9		

This represents a proportion of 23% N.C.O.s—roughly the proportion of N.C.O.s to other ranks in the Army as a whole. (It would be unwise to stress statistical observations based on such a small number of cases; therefore many of the following remarks should be considered with this limitation in mind.)

The preponderance of sergeants is probably connected with many factors besides possibly greater strain. (This preponderance has been found to exist in a subsequent group of similar cases.) Their greater average age (36 years) and the fact that some were given this rank because of their technical experience rather than any special personal qualities would doubtless be contributory factors.

Age and Family Connexions.—The average age of the whole group was 29 years 10 months, the age distribution being:

20-24	38	40-44	3
25-29	21	45-49	4
30-34	15	50-54	2
35-39	17		

Fifty-eight men were married, 39 of these having children.

Motives for joining Army, and Attitude to Service.—The recruitment categories form an approach to the question of motives in joining, and of the attitude to, the Services. These were:

Regular Army	14	Territorials	31
Regular Reserve	12	Volunteers	25
Supplementary Reserve	6	Conscripts	12

Perhaps the most striking feature is the low incidence of conscripts. It might be expected that conscripts would form a high proportion of breakdowns as compared with volunteers, though there are, of course, factors opposing such a tendency. For example, age might offset breakdown, as the younger men are not so likely to be harassed by family ties, etc., and are correspondingly readier to respond emotionally with the “joy of battle.” Again, the most common type of neurosis occurring in the younger conscripts may yield more readily to treatment, so that only the more serious cases reach us. Certainly a third of the conscripts felt definitely unhappy from the start of their service, and would not have volunteered; 6 of them had a bad early history.

Of the 14 soldiers of the Regular Army 5 had joined up impulsively to escape an unhappy situation. They

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regretted the step afterwards, and looked forward to the time when they would be freed from what they felt to be an irksome bondage. The Territorial and volunteer groups included a good proportion of highly conscientious men impelled to serve by a strong sense of duty despite their anxious tendencies. A few of the Territorials nevertheless showed unsatisfactory motives—e.g., to avoid conscription, to get social outlets, enlisting under what was felt to be pressure from employers or to ensure being in non-combatant service. The majority of this group had had some years of service, the median period being four years, and it is of interest that the 7 men who joined in the year preceding the outbreak of war had very bad histories of psychoneurotic symptoms. Their enlistment was more in the nature of an attempt to deal with rising anxieties than of mature consideration about duty. Among the volunteers also were several men whose enlistment was occasioned by unpropitious elements. Thus 10 joined primarily to get more money than the unemployment allowance. Two joined impulsively for no very good conscious reason, while another pair volunteered for non-combatant service. There were 7 who joined for special engineering work: these men, who were older than the others, did not expect to be engaged in battle. One man's reason for enlisting was to avoid arrest.

Altogether 37 men joined the Services with an inadequate attitude and were thus under a strain from the start. They showed poor appreciation of their roles in a time of national danger, and were subsequently too much concerned with their personal problems for the larger issues to govern their conduct. The situation of those men who, aware of their psychological limitations, volunteered for specialized work and later became involved in combatant action was an unfortunate one. The Supplementary Reservists suffered in this fashion. Mostly older men, they enrolled willingly for specialized branches, but found the unexpected strain of battle too heavy. Evidently the ease with which this situation may nowadays arise would make advisable a psychiatric scrutiny of such men before detailing them for service abroad.

Physical Condition.—Practically none of the group had any signs of systemic disease. Three with positive Wassermann reactions were found, one being suspected clinically and the others discovered in routine testing. On the average, physique was good, only 6 men being of poor development. Two of the latter were thought to be possible cases of pulmonary tuberculosis, but radiological examination was negative.

Intelligence.—Owing to pressure of time it was not possible to measure intelligence satisfactorily. Twenty men reported having been backward at school, and probably most of these were borderline defectives. When the matrix test (Raven, 1939) was given to 45 unselected cases in the group a mean mental age of 12 years was obtained. On later admissions of this type the Herring revision of the Binet-Simon tests gave an average mental age of almost 14 years.

Previous History and Prediction

Eighty of the hundred cases admitted having traits indicating previous emotional instability. They could be divided into the following groups:

Group 1.—In this group were 36 men who had a disturbance amounting to a definite and easily recognizable psychoneurotic condition before joining the Army, so that the state which developed after traumatic experience was merely an aggravation of one already well established. Included in this group are those men who had had previous episodic illnesses—e.g., previous spells of depression or transient hysterical symptoms. It is safe to say that none of this group should have been exposed to combatant action, so great was the likelihood of breakdown in view

of their previous history, and at best only a small proportion should have been admitted to any kind of service with the Forces.

Group 2.—This group comprised 33 men with a character formation pointing to a latent psychoneurotic condition or with a degree of temperamental instability, though without gross symptoms. It contained the over-anxious and over-conscientious types, the poorly adapted socially, and a number of weak personalities who had never made much of a success in any occupation. It is more difficult to forecast the behaviour of men of this type under strain. Most of them were capable of service of some kind, and probably a fair proportion would have remained well enough in home service.

Group 3.—This consisted of 11 men whose only striking characteristic was that they had always been restless. They frequently changed their jobs, yet worked with fair efficiency so that they were seldom unemployed. They, for the most part, were good soldiers until they broke down (there were a few regular soldiers among them), but showed temperamental instability with a marked lack of doggedness.

Group 4.—This comprised 20 men whose previous history was good and whose breakdown would not have been expected. There was a definite tendency for them to fall into two sub-groups of different age levels, the first consisting of men over 35 who found the pace of events rather fast, and the second of men under 25, in whom breakdown was mostly of a milder character.

A list of some of the specific symptoms and their frequency provides an instructive approach to the kind of factor to be inquired into in any brief psychiatric examination such as might be made by medical officers as a preliminary filter for the separation of these cases.

Previous Symptoms and Traits			
Anxious over being aggressive	54	Previous hysterical symptoms or fits	8
"Nervousness"	41	Domestic strife or worry	7
Frequent change of type of work	27	Nail-biting	7
Phobias	24	Frequent blushing	4
Anxiety dreams and night-mares	17	Stammering	4
Shyness	17	Stealing and persistent truancy from school	3
Solitariness	13	Tics	3
Mild depressive spells	12	Previous serious accidents	5
Anxiety attacks	11	Previous serious accidents followed by emotional disturbance	4
Avoidance of females	9		
Enuresis	8		

Because a certain degree of rapport is usually necessary to elicit a full symptom-picture in the psychoneurotic, examination of all men by psychiatrists is not at present feasible because of the time it would take. Nevertheless it seems to me that a useful and practicable psychiatric selection could be made in the first place by referring to the psychiatrist those patients who admit or show general "nervousness" at initial medical examinations. More often than not the anxiety manifestations in these cases during routine medical examination would make the admission unnecessary. (From experience of many other patients in this hospital who were not exposed to combatant action a useful selection could have been made in this way. As would be expected, the previous history is even more striking in these cases.) Whenever specific symptoms were found the men could be referred to the psychiatrist for fuller investigation and opinion.

Family History.—Information about nervousness in their families was obtained from the men themselves, and is thus apt to be inaccurate. However, from a description of specific behaviour in the relatives mentioned it could usually be decided whether or not the individual was abnormal enough to be recorded as such. Fifty-three men reported the presence of emotional instability either in parents or in siblings, as follows:

Both parents nervous	8	Mother nervous	16
Father nervous	17	Siblings nervous	12

In 15 of the cases with parental abnormality there was also instability in a sibling. Doubtless family history in the

psychoneuroses is of uncertain value unless information from other sources is obtained. Moreover, its significance lies in its association with the previous history of the individual rather than in an independent contribution. The importance of abnormal early environment is illustrated by these facts. In 16 homes there was serious drunkenness or parental strife, while 6 patients acquired a step-parent in early childhood, and 3 were "only children." Nine men lost their fathers by enemy action in the last war, 6 of this group admitting no specific nervous symptoms in their previous histories. Another man was illegitimate and was brought up in trying circumstances.

Precipitating Factor and Onset of Symptoms

As is well known, early in the last war the strongly materialistic standpoint of general medicine inclined to the view that the war neuroses arose from some form of *commotio cerebri*, a view gradually abandoned under the persistent barrage of facts. With our patients it was difficult to ascertain the extent of shock or whether concussion had been present or not. Many reported amnesia for varying periods, but the comparatively easy recovery of memory made it almost certain that there had been no true concussion. Further, most of these patients with amnesia recalled clearly the particular stimulus causing the loss of memory—i.e., they showed no retrograde amnesia, as would be expected in true concussion. There was 1 case of cranial injury and only 3 cases of apparently true concussion so far as previous reports show. Seventeen men had been subjected to physical violence by blast, though few of these lost consciousness. Ten others were wounded in the body—wounds mostly of a superficial character; and in those cases in which deeper structures were involved healing was rapid. Bombing of ships, with immersion in the sea, was the traumatic experience in 7 cases. For several men the critical experience was the loss of friends severely wounded beside them, while others were especially upset by the harrowing scenes of women and children being machine-gunned and bombed.

The onset of symptoms in most cases occurred during battle, though a quarter of the patients developed marked symptoms after return to this country. For the most part these latter were men who had had mild anxiety symptoms for a period, the depression which supervened being the cause of their reporting sick. A few conversion symptoms, however, also appeared after a latent period.

The majority admitted readily that their illness began as the climax to a rising feeling of fear and strain under the process of battle. With the increase of their anxiety they often became more and more afraid of loss of control, until finally some special circumstance brought about disintegration. The fundamental factors in the breakdown were the subjective significance of the trauma plus the particular psychological make-up of the individual. Thus different traumata evoked similar states, and, conversely, the same trauma gave rise to different disturbances—e.g., a conversion hysteria or a depression. As would be expected, where the predisposition seemed less marked the traumatic experience was more severe, and vice versa, an illustration of this inverse relation being given by these figures:

Traumatic Experience	30 Cases of Bad Previous History	30 Cases of Better Previous History
Fear and strain	18	6
Blast	4	11
Wounded	2	6
Death of friends	2	3
Aerial attack on ship	4	4*

Symptomatology

It has to be borne in mind that the cases described were not investigated until, on the average, several weeks after the start of the illness. Anxiety manifestations were by far the commonest complaints, the symptoms in order of frequency being:

Feelings of anxiety with trembling and jumpiness	66	Panic attacks	15
Sleeplessness	47	Suicidal:	
Headache	43	Actively	5
Unsociability	37	Passively	7
Anxiety dreams	35	Hysterical conversions:	
Depression	33	Leg	16
Irritability	30	Arm	2
Preoccupation	27	Visual	6
Amnesia for whole or part of traumatic experience	25	Auditory	3
Giddiness	23	Tics	4
Effort syndrome	21	Voice	3
Spontaneous emotional out- bursts	19	Stuttering	6
		Enuresis	3

There were three main groups—the anxious, the depressed, and the hysterical. Much overlap existed, yet the dominant affective disturbance usually made it possible to place a man in one of these classes. Typically, the anxiety cases showed tremors and jumpiness, especially to noises, disturbed sleep, and anxiety dreams involving war imagery. They also had frequent headaches, restlessness, and occasional giddiness. By the time the men reached this hospital the exhaustion described by many writers in the early stages of war neuroses must have been overcome.

We have included the effort syndrome group in the anxiety neuroses, as without exception they showed anxiety symptoms at some stage. In a few cases it was interesting to watch the development of effort syndrome accompanied by a corresponding diminution in the experience of anxiety—a process which could be likened to the development of a conversion symptom. Panic attacks occurred in about a quarter of the anxiety cases, usually precipitated by a passing aeroplane, train, or motor-car. Less common in this group were gastro-intestinal disturbances, 2 patients having diarrhoea and 3 vomiting and gastric pain. The 3 with positive Wassermann reactions were found in the anxiety group, but the psychological picture of these men differed in no way from that of the other cases.

As mentioned, the groups were not clearly demarcated. Thus many of the anxiety group had conversion symptoms, and 20 of them showed a well-marked depressive trend. Depression was the dominant feature in 13 men. These cases did not show the characteristic depression of melancholia, though in 2 of them a typical psychotic depressive picture with self-reproach eventually developed. The common depression appeared to be chiefly a state of futility and a withdrawal of interest from the outside world, with a consequent irritability towards its incursions. Five of the depressed cases were suicidal. Suicidal impulses, however, were not confined to the depressives, as some of the men with anxiety states reported transient suicidal impulses, mainly of a passive character, shortly after the onset of the illness. Several of those showing depression stated that if forced to return to battle they would rather commit suicide than experience again what they had undergone. The depressed group showed to a conspicuous degree the importance of constitutional and hereditary factors. Before a review of the group as a whole was made my colleagues and I were given the impression that the depressed patients tended to be the older men, especially those with families. In fact, the age and the proportion of married men with children in this group were almost identical with those in the group as a whole. There was a previous history of pronounced emotional disturb-

ance, however, in 90% of this group, and a positive family history was reported in 70%.

Hysterical manifestations occurred for the most part in the leg (16 cases). Of 4 men with tics 3 had had the symptom in earlier years. The cases designated hysteria were those in which "conversion" of the affective disturbance to a somatic disorder was superficially complete—i.e., they exhibited the paralysed function but denied any emotional upset. Their attitude typically was: "If only my leg were right I would be quite fit."

Although all patients were sent as psychoneurotics, it was found that a few were psychotic. Two proved to be hallucinating schizophrenics, while 2 depressed cases eventually revealed a typical melancholia. A few other depressed patients became so strongly suicidal that removal to a hospital for psychotics had to be recommended despite the fact that a true melancholia was not present. Mixed reactions occasionally made classification a matter of doubt, especially in the anxious-depressed cases, and since 7 of the depressed group had a history of recurrent attacks of depression they were more accurately labelled "cyclothymic."

A consideration of the total personality would have led to a different label being given to many of the cases. The long-standing histories of maladaptation, the emotional detachment of many to the revival of traumatic experiences (even after administration of intravenous anaesthetics such as pentothal or cyclonal), and, above all, the extent to which their emotional integration depended on their proximity to wives and mothers, would have made "psychopathic personality," in particular the schizoid type, more accurately descriptive of a large proportion of the cases. Exemplifying the underlying psychopathic trend in many were frequent breaches of regulations. To anyone accustomed to the over-conscientious conduct of anxiety neurotics in peacetime, the difference in behaviour of these men was most striking even when allowance was made for the compulsive character of many of the misdemeanours.

The following list shows the distribution in the symptom groups.

Anxiety neurosis	42	Psychopathic personality (temperamental instability)	8
Anxiety neurosis with hysterical conversions	20	Schizophrenia	2
Conversion hysteria	14	Traumatic diathesis after cranial injury	1
Depression and cyclothymia	13		

Intelligence, as tested in a proportion of the whole group, was of the same level in the different symptomatic groups except in the case of the conversion hysterics, whose average intelligence was about two years lower than that of the other groups.

Treatment

There is no doubt that many of the unfortunate disputes over the treatment of war neuroses have arisen from the publication of so-called "cures" without adequate follow-up data. As every psychotherapist knows, certain psychoneurotic symptoms can be removed rapidly by a wide variety of methods, but the rapidity of removal by so-called "simple" procedures would appear to be closely correlated with liability to recurrence of the same or other disturbances. For example, the men with conversion hysteria had their symptoms alleviated by persuasion, suggestion, and, in a few uncooperative or unresponsive cases, by one or two cardiazol convulsions. But when the question of returning to units arose many of these symptoms developed afresh. Few of our anxiety cases showed any improvement with such "simple" procedures, even when these were combined with sedation. (It must be mentioned again that most of our cases had already resisted "simple" treatment.) Abreaction was essential with most of the anxious

patients. Often the reluctance of the patient to revive his nightmarish experiences was overcome by very slight emotional release, which produced far better results on sleeplessness than did sedatives. Sometimes the traumatic experience was scarcely verbalized, yet when brought to the threshold of articulation sufficient affective discharge appeared to take place (e.g., through all the bodily expressions of acute anxiety) for an appreciable improvement to be felt. Intravenous anaesthetics were most useful where amnesic gaps could not be filled in unaided. Nevertheless the end-product of abreactive treatment was for the most part a highly anxious individual. Usually a diffusely anxious state became canalized into phobias of certain situations, mostly connected with the noise of aircraft or explosions, with a feeling of comparative ease between the phobic experiences. Where the residual phobic anxiety was too disturbing more radical treatment, involving deeper childhood anxieties, had usually to be undertaken. Twenty-five of the cases required treatment of this more extensive character, lasting two to three months, in order to secure enough freedom from symptoms for discharge from hospital.

The depressed group tended to recover under reassurance and sedatives, and in a few slower cases one or two convulsions led to improvement.

Psychopathology

As contrasted with suggestion and reassurance, any form of analytic treatment, however slight, gives some degree of insight into the aetiology of the illness. Obviously, on account of time requirements, no case could be treated along orthodox psycho-analytic lines, so that the psychopathological factors studied tended to be those at superficial levels.

At a conscious level the common disturbing factors were fear of death and an impotent rage against what were felt to be overwhelming odds. This rage was often excited to a paralysing degree by the slaughter of women and children or by the loss of friends. On those men whose fathers had died in the last war the fear of death probably had a more profound effect. It could also be said to involve deep levels in all the cases—as though it derived from a childhood fear of attack by fantastically powerful "bogymen." The feeling of helplessness in face of danger was made more acute by the insecurity arising from the peculiar features of mechanized warfare.

The outstanding feature of the deeper psychology appeared to be a basically insecure attitude towards the outside world. This attitude was manifested in many ways, particularly in the excessive dependence upon those figures with whom security was felt—namely, their families. It was as though these men had always unconsciously dreaded the assertion of their independence as a dangerous aggressive process. To attempt it was to incur the wrath of parents, whose vengeful attitude was a magnified image of their own feelings. Rather than risk this talionic vengeance they appeared unconsciously to adopt a role of bondage to them, so that the devotion was as much a deep compulsion as a virtue. Their dependence was made conspicuous by repeated requests to be allowed to return home, usually with the explanation that a short spell there would make a great improvement despite the fact that most of them had already had sick leave. After air raids on their home areas the compulsive nature of these wishes could sometimes be pointed out successfully—e.g., when the men admitted that at home they would be far more anxious than their relatives. In the depressed cases there seemed to be a doubt even of this security with families, the result being that these men acted as though compelled to isolate themselves. They were often unable to write

home, or if they went home they were unsociable and irritable; a few lost all sexual desire in this phase.

There can be no minimizing the importance of this separation anxiety, which in our opinion is a psychopathological factor probably not enough appreciated in general on account of its being concealed in cases undergoing psychotherapy in peacetime—that is, amidst their emotional props. Moreover, it is almost certainly one of the greatest factors governing the pronounced negative therapeutic reaction of these cases compared with the neuroses of peacetime. It was the rule to have treatment accepted gratefully, with relief of symptoms, until the threat of continuing the separation by a return to duty became a menace to the patient. Then the desire to leave the Service became explicit. It could not be said, however, that malingering entered into this attitude, which was based on the powerful dread of isolation from love and security. Interpretation of this situation usually improved the symptom-picture up to a point, but to change the underlying weakness of the dependent ego was too great a task for any short period of treatment, even in favourable cases.

In those men with recurrent anxiety dreams the infantile character of the anxiety was often perceptible. For instance, though modelled on battle scenes, the dream's might be located near their childhood homes, or the manner in which the individual was the unique object of persecution by the enemy suggested childhood nightmares in which the ogre or witch was replaced by the aeroplane. Where one outstanding incident had occurred, such as shipwreck, the dream was usually a more persistent repetition of the trauma; yet soon after abreactive treatment began, perhaps with superficial explanations, there was a tendency for infantile dreads to become more transparent.

As already mentioned, the depressed cases showed a state of resignation and withdrawal plus a sense of futility rather than a feeling of loss or sadness; and they revealed a greater incidence of predisposing signs and family instability.

The factors determining the choice of illness form too large a problem for discussion here. It might be noted, however, that in the conversion hysterics there was a lower average intelligence, while wounds and blast as traumatic experiences were slightly more common. (Because of the small numbers this difference was of uncertain significance.) A general feature of the hysterical group was a strong latent feminine trend; and, indeed, deep identification with family figures, especially parents, could be discerned in several cases throughout the series—for example, in the assumption of symptoms from which a parent at one time suffered.

Results

Before describing the results of treatment some general considerations will not be out of place. If therapy aims merely at getting the patient into approximately his state before breakdown a fair percentage of "cures" might be obtained. But with simple suggestive or sedative treatment the patient is left as prone to further breakdown as before. On the other hand, with any form of analytic treatment (including abreaction) it is assumed that some lessening of the tendency to subsequent breakdown should result. Our experience has been that the treatment of patients with a view to elucidating causal factors, even when the symptom-disturbance appeared slight, showed in the large majority of cases that the personalities were structurally so weak and unstable that return to further combatant service was quite out of the question. It is possible that the circumstances in which treatment was carried out might have had a bearing on the adoption of this view. All our patients had been far removed from

the neighbourhood of battle, with a consequent heightening of the dread of return. In the last war treatment in France, with continuity of the military atmosphere and the absence of such a retreat, perhaps enabled a larger fraction of patients to return to duty. It is far more likely, however, that the greater understanding and knowledge of the psychoneuroses to-day would not have agreed with such a course, as, indeed, actual results proved by 1918.

On account of the low percentage of cures the question arises: what is the value of psychotherapeutic units in war? The answer to this may be given by referring to analogous problems in other fields of medicine. For instance, what percentage of dyspeptics, cardiac weaknesses, or a host of other conditions are "cured"? Such patients are admitted to hospital for observation and investigation followed by a "treatment" which enables them to maintain a prescribed regime. The function of psychotherapy is in many respects similar. Certain personality weaknesses are akin to many organic conditions in that they cannot be radically altered (except perhaps by a lengthy treatment of unwarrantable cost). The patient is brought to hospital in an acute state because he has been subjected to a strain beyond the limits of his emotional integration. He needs help, if only to recover his former adaptations, and in the course of treatment the environment with which he may be expected to cope successfully may be ascertained. The enormous number of pensions for war neuroses following the last war shows that mere discharge to civil life is not sufficient. Nor, in our opinion, is treatment in hospitals enough. Men have usually to be discharged to their homes when the severity of their symptoms is so reduced that they will not further tolerate the inevitable restrictions of hospital life. Sometimes symptoms are still disturbing, and it is desirable that provision for subsequent psychotherapeutic help, say in out-patient clinics, should be made to aid these men towards successful adjustment. Such help, of course, could only be an accessory in the task of placing these cases in a useful role in society—a task essentially socio-psychological.

The average period in hospital for sufficient improvement to lead to discharge was about seven weeks. By this time, in our series, 15 men were much improved, 65 improved, and 20 little changed (the last group included transfers to other hospitals).

The eventual disposal, of course, is a separate problem from the treatment of symptoms, for previous history has to be strongly emphasized when deciding the question of return to service. For example, depressed patients mostly made a complete symptomatic recovery; but where there was a history of recurrent attacks at intervals of less than a year, or where the degree of depression had been suicidal, discharge from service was recommended. Discharge from service was also advised for anxiety cases with bad histories, for gastric cases, and for most cases of effort syndrome. Strong dependence on the family was also taken as a bad prognostic sign, since Army conditions do not permit of men being categorized so as to remain near their homes. In the hysterical group visual and massive gait disturbances were thought to warrant discharge because of the total incapacity produced by any recurrence.

Of the groups based on previous history all of Group 1 (men with previous psychoneuroses) and a large fraction of Group 2 (men with character disturbances or latent psychoneurotic conditions) were discharged. In Group 3 (men with previous temperamental instability) just over one-half were returned to service, though, according to follow-up reports, not with much success; three of these men returned to hospital within a few weeks. With most of this group there seemed to be a feeling that it was time for another change, and their consciences were satisfied

with having "done their bit." The older men in Group 4 (no previous history) were discharged; but most of the younger half returned to duty, many to full service.

External factors had also to be considered in disposal; for instance, though some men might have been regarded as fit for a lower grade of service, subsequent breakdown was likely if recategorization meant doing work which did not employ their talents in some useful way, or which, in an ambitious conscientious man, would interfere with promotion.

Of those men returned to a lower grade of service it was learned from follow-up inquiries that 4 were afterwards discharged from other hospitals. Follow-up replies were not obtained for all cases, but from those received about half the men were stated to be serving satisfactorily. Thirteen men were transferred to other hospitals: 7 because of psychosis or suicidal impulses, 3 for anti-syphilitic treatment, and another 3 for other treatments. It is probable that 10 of these were eventually discharged (the 7 with psychosis or suicidal impulses, plus 3 of the others) and that the remainder returned to duty in a lower category.

The final results, then, might be stated thus: 72 men were discharged from service, 19 returned to a lower grade of service, and 9 returned to full duty.

Summary

Observations on 100 men suffering from psychoneurosis following combatant service showed that 80 of them had had previous traits indicating emotional instability. The illness of 36 men was merely an aggravation of previous psychoneurosis, and in 33 it was associated with a definite predisposition to breakdown. Temperamental instability, revealed by frequent changes of job, was present in 11. Of the 20 men with no previous history one-half were much older than the rest of the group, and the disturbances in the younger half were mild.

Some observations are made on the possible selection of these cases and on their treatment and psychopathology.

When the liability to further breakdown was taken fully into account the recommendations for future disposal led to 72 of the group being discharged, 9 returned to full duty, and 19 returned to a lower grade of service.

[Since the above paper was written a new scheme has been developed whereby it will be possible to have psychoneurotic soldiers placed in work suited to them and, if necessary, near their homes. This highly commendable innovation will be followed with much interest.]

I wish to express gratitude to the Department of Health for Scotland for permission to refer to these cases; to Dr. C. D. Bruce, physician-superintendent of the hospital, and to my colleagues, for much helpful criticism; and to my wife for most of the work involved in tabulation.

REFERENCE

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J. V. Greenebaum, W. Felson, and M. Zeligs (*J. Pediat.*, 1941, **18**, 799), who give the history of a fatal case in a female infant aged 1 year, recall that acute interstitial myocarditis is a rare form of heart disease which was first described by Fiedler in 1890. The clinical picture is one of progressive myocardial failure unassociated with the usual causes of myocardial damage. In 1929 Scott and Saphir were able to collect only 38 cases in the literature, the youngest of which was in a child aged 3 years. The diagnosis is very difficult, and according to Maslow and Lederer, writing in 1933, has never been made before death. The disease should be borne in mind in cases of prolonged tachycardia in infants and children in whom no other cause for it can be found.

FRAGARINE: AN INHIBITOR OF UTERINE ACTION

(Preliminary Communication*)

BY

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In certain areas of Herefordshire and Worcestershire, and probably elsewhere, it is a common practice for women to use an infusion of dried raspberry leaves to allay the pains of labour. The same "tea" is also employed empirically, with apparently satisfying clinical results, in severe cases of dysmenorrhoea. It seemed, therefore, that an investigation into the pharmacological aspects of raspberry leaves might be interesting, and in May, 1940, with this end in view I approached Mr. E. C. Bennison, chairman of the Advisory Committee of the School of Pharmacy, Birmingham. Mr. Withell, head of the School of Pharmacy, kindly undertook to prepare extracts and to isolate, if possible, any active principle that might be present. This work was started in August, 1940, and when enough material was obtained the extracts were submitted to Prof. J. H. Burn, University Department of Pharmacology, Oxford, for pharmacological trial. In March, 1941, I received from Prof. Burn the following account of his observations.

"I began by making experiments in the spinal cat, in which relaxation of the uterus is readily observed. If an infusion of raspberry leaves is made in the same way as tea, and if this infusion is concentrated by evaporation under reduced pressure, then an injection of an amount of infusion equivalent to about 2 grammes of dried leaves produces a momentary fall in the blood pressure, followed by a conspicuous rise, and simultaneously a relaxation of the uterus of the non-pregnant cat. It will be remembered that the sympathetic innervation of the uterus is inhibitor.

"This effect resembled that which is produced when a dose of nicotine is injected, which simultaneously produces a rise of blood pressure and relaxation of the uterus. The action of nicotine is known to be due to stimulation of the suprarenal gland resulting in liberation of adrenaline, and also to the stimulation of sympathetic ganglia resulting in a discharge of inhibitory impulses down the hypogastric nerves. It was found that the initial fall in blood pressure played no part in the action on the uterus, because in cats anaesthetized with chloralose no initial fall of blood pressure was observed.

"In further experiments, in which the suprarenal glands were first excluded from the circulation and in which the hypogastric nerves were cut, the injection of raspberry extract produced no relaxation, and, indeed, the effect observed was a small but well-maintained contraction.

"Further experiments were then done on the isolated uterus removed from the body and suspended in a bath. It was found that the extract produced a contraction of the uteri of both the cat and the guinea-pig, fairly prolonged in action and much more likely to represent any effect which may be observed by patients drinking raspberry tea. It is interesting to observe that the amount of extract producing an effect in the bath on the isolated organ is about 1/100 part of the dose which is taken by a patient drinking 10 oz. of a 5% infusion of dried raspberry leaves. The dose of pituitary extract which must be added to the bath to produce a similar effect is also about 1/100 part of the human dose.

"Attempts are being made to concentrate and purify the active principle responsible for the action on the isolated uterus. We do not know at present whether this principle is the same as that which produces inhibition of the uterus in the anaesthetized

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