Prior to 1914 the attention of R.A.M.C. officers so far as preventive medicine was concerned was chiefly directed to the infectious diseases. The late war, while vindicating the wisdom of the preventive measures adopted, has shown that there are other as important causes of wastage. For instance, minor septic complaints and such ill-defined conditions as myalgia accounted for a large percentage of the ineffectives.

Functional nervous disorders too, became increasingly prevalent as the war went on. The obscure nature of these conditions and the dramatic symptoms such as mutism and loss of memory displayed by the sufferers aroused much popular interest and sympathy, and the common belief that the sufferers were the victims of an injury to the brain caused by shells bursting in close proximity added thereto. This interest culminated in a Parliamentary demand for an inquiry into the origin and nature of the disabilities which had been labelled "shell-shock." A War Office committee of inquiry presided over by the Right Honourable Lord Southborough, G.C.B., G.C.M.G., G.C.V.O., K.C.S.I., was appointed in August, 1920. It has recently completed its inquiry and has presented a report which has now been published.

The items of reference to the Committee covered a wide field. They were as follows:

"To consider the different types of hysteria and traumatic neuroses, commonly called shell-shock, to collate the expert knowledge derived by the Service Medical Authorities and the medical profession from the experience of the war, with a view to recording for future use the ascertained facts as to its origin, nature and remedial treatment, and to advise whether by military training or education some scientific method of guarding against its occurrence can be devised."

The Committee heard a large number of witnesses representing opinions on the military, medical and legal aspects of the inquiry and were able from the evidence put before them to arrive at unanimity in their findings and their recommendations.

This evidence, considerable extracts from which appear in the report, expresses the opinion of both medical and combatant officers who served with the Forces, either in the front line or at the bases, in executive or administrative capacities.

It is demonstrated that the term "shell-shock" has proved a gross
and costly misnomer, and should be eliminated from medical nomenclature.

An extract will best show how the term arose. "It was born," as the report states, "from the necessity for finding at the moment some designation thought to be suitable for the number of cases of functional nervous incapacity which were continually occurring among the fighting units. Undoubtedly shell-shock signified in the popular mind that the patient had been exposed to, and had suffered from, the physical effects of the explosion of projectiles. Had this explanation of the various conditions held good, no fundamental fault could have been found with the term. But with the extension of voluntary enlistment, and afterwards the introduction of conscription it was discovered that nervous disorders, neurosis and hysteria, which had appeared to a small degree in the Regular Army, were becoming astoundingly numerous from causes other than shock caused by the bursting of high explosives. It was observed in fact that these conditions were perpetually occurring, although the patient had not suffered from commotional disturbance of the nervous system caused by bursting shells. It even became apparent that numerous cases of shell-shock were coming under the notice of the medical authorities where the evidence indicated that the patient had not even been within hearing of a shell burst. On the other hand it became abundantly plain to the medical profession that in very many cases the change from civil life brought about by enlistment and physical training was sufficient to cause neurasthenic and hysterical symptoms, and that the wear and tear of a prolonged campaign of trench warfare with its terrible hardships and anxieties, and of attack and perhaps repulse, produced a condition of mind and body properly falling under the term 'war neurosis' practically indistinguishable from the forms of neurosis. . . . Once their nature had been determined it was possible for the medical man who was previously familiar with the handling of cases of nervous and mental diseases to place each case under its proper caption. But only a comparatively few medical men prior to the war had had an opportunity of becoming thoroughly familiar with this very distinct branch of medicine, and it frequently occurred that a medical officer who was not so happily placed, found himself in the position of having to deal with large numbers of such cases. Under the circumstances, therefore, with the official adoption of 'shell-shock' as a technical term, with the feeling of not being justified in making a more definite diagnosis, with the desire to avoid the stigma to the patient of describing his condition as a mental disorder, the medical officer preferred, or was driven, to include any particular case under the more general but less implicating heading of 'shell-shock.'"

The cases which were grouped under this loose term "shell-shock" divided themselves into three main classes:—

(1) Genuine concussion without visible wound as a result of shell explosion. These cases were relatively few.
(2) Emotional shock, either acute in men with a neuropathic predisposition, or developing slowly as a result of prolonged strain and terrifying experiences, the final breakdown being brought about by some relatively trivial cause.

(3) Nervous and mental exhaustion the result of prolonged strain and hardship.

In many cases the three factors of commotional and emotional shock and exhaustion were combined in varying proportions.

The report confirms the conclusion which had already been generally accepted by the medical profession, that the war produced no new nervous disorders, but simply aggravated and coloured forms already recognized in civil life.

The Committee inquired into these disorders under the headings:

(1) (a) Commotional disturbance; (b) and/or emotional disturbance.

(2) Mental disorders.

They chose the term commotional shock rather than concussion, since the evidence given showed that commotion or concussion of the central nervous system might be brought about either by direct aerial percussion and repercussion in closed spaces or that the man might by the aerial compression be blown along a road or into the air, or might be struck by sandbags or collapsing dug-outs, etc. In many cases it is impossible to decide whether the case is one of concussion by forcible contact with solid substances or one of commotion due solely to aerial percussion transmitted through the skull and spine to the cerebro-spinal fluid.

It is the commotion to the brain, whether there has or has not been concussion, which causes the symptoms, and therefore the Committee adopted this term for the cases which were labelled “shell-shock without visible wound.”

They held the opinion, however, that in fatal cases of genuine concussion, gross and naked-eye haemorrhages would most likely be found post mortem. In commotion cases, on the other hand, the haemorrhages are microscopic, resulting from the rupture of small vessels in the substance of the brain. They explain the presence of blood in the cerebro-spinal fluid which was found during life when lumbar puncture was performed soon after the injury. Attention is drawn to the fact that similar minute haemorrhages are found in cases of carbon monoxide poisoning, and in the opinion of the Committee a number of the cases reported as “death from shell-shock without visible wound” may in reality have died from carbon monoxide poisoning.

So prevalent did shell-shock become during the war and so difficult was the diagnosis between emotional and commotional shock, that many and detailed instructions were issued as to diagnosis, and an Army Form—W.3436—was introduced for the purpose of obtaining evidence from reliable sources as to the patient’s proximity to a shell burst. In practice this form failed to attain its object in numerous cases. Medical officers should
therefore study those sections of the Report which deal with the distinguishing features of commotional and emotional shock and shell-shock wound.

In the early stages the two conditions can rarely be mistaken by the trained observer, but in the later stages symptoms may readily be misinterpreted.

Important distinguishing points are as follows:

In true commotion or concussion there is complete loss of memory of the causal accident. It is not possible to recover this memory by any therapeutic measure.

Evidence of direct injury such as ruptured tympanum (if there has been no pre-existing ear disease), contusion epistaxis, and, more rarely, signs of organic injury to the central nervous system, will aid in the diagnosis.

In concussion as opposed to neurosis of emotional origin, there is complete absence of emotional instability.

Whether or not shell-shock should be classified as a battle casualty led to much discussion during the war. The sufferings of the patients were very real, in numerous instances the disabilities sustained were as serious as those from gunshot wounds. On the other hand, it was held by certain observers that no patient who failed to show visible signs of external wounds should be classified as a battle casualty. Though it was recognised that such a rule would inflict hardship on individuals it was felt to be a wise one from the point of view of maintaining morale in fighting troops.

In view of the evidence submitted and the uncertainty and complications attending the mode of origin of the neuroses of war, the Committee state definitely their recommendations as to inclusion of such patients amongst battle casualties.

They consider that concussion or commotion attended by loss of consciousness and evidence of organic lesion of the central nervous system should be regarded as a battle casualty. That no case of psycho-neurosis or mental breakdown, even when attributable to a shell explosion, should be so regarded, and that doubtful cases should be decided by a board of experts after observation of the patient in a neurological hospital.

These recommendations if accepted should considerably lighten the task of the Executive Medical Officer in the future in dealing with such cases.

How the term shell-shock arose has already been explained: a section of the Report deals with the causation of the conditions grouped under this designation.

The most potent cause of all is the emotional effect produced by the bursting of high explosives acting as an immediate agent with the stress of battle or severe mental stress of any kind acting as the accompanying latent factor.

In the majority of cases of war neurosis it is agreed that there already existed a congenital or acquired predisposition to pathological reaction, and that this constitutional characteristic was of vast importance. Acute illnesses such as malaria and dysentery, acted as predisposing causes.
At the same time it appears certain that under the conditions of modern warfare, any individual, even if of sound nervous-physical constitution, may break down on the nervous side.

Responsibility, especially in those ill adapted to bear it, acted as a contributory cause of breakdown.

Other contributory causes were inaction under fire, exhaustion, fatigue, sleeplessness, warfare gases, alcohol, syphilis, and the acute infectious diseases.

Alcohol did not appear to be a potent cause in the British Army. In a series of 100 cases of shell-shock and 100 cases of wounds under his care, Sir Frederick Mott found that the use and abuse of alcohol were less common among the shell-shocked than among the wounded.

Treatment of war neurosis in forward areas and at the base is discussed at length in the report, and the conclusions of the Committee may be summarised as follows:

No soldier should be allowed to think that loss of nervous or mental control provides an honourable avenue of escape from the battlefield. Slight cases should be kept in battalion or divisional areas when the only treatment necessary is rest, comfort and heartening for return to the front.

More serious cases require treatment by experts in nervous disorders in special centres which should be as near the front as possible.

When evacuation to the base is necessary, treatment should be conducted apart from the ordinary sick and wounded. Invaliding to the United Kingdom should be exceptional.

An atmosphere of cure is the essential of treatment, and the personality of the physician is all-important.

Though the hypnoidal state and deep hypnotic sleep have their uses, in the majority of cases the simplest forms of psychotherapy—explanation, persuasion, and suggestion—give the best results. Freudian psychoanalysis is not recommended.

It will be seen from the above that the Committee were impressed by the necessity for a clear and definite policy in dealing with these disorders, since the evidence before them showed clearly that not only might neuroses become contagious in a unit, and therefore prove a cause of serious wastage, but that injudicious treatment might do serious damage to the patients themselves since they are in a very suggestible state.

The conclusions of the Committee on the question of cowardice in relation to shell-shock are of interest to those medical officers who have been called upon to give evidence as to the mental and nervous condition of men accused of such serious crimes as cowardice and desertion in the face of the enemy.

It is recognized that the military view of cowardice is justified. No army could accept the proposition that cowardice in the face of the enemy should be looked upon as nothing but a nervous disorder. But fear is the chief factor both in cowardice and emotional shock. Fear is an emotion
common to all, but if a man fails to exercise self-control when capable of
doing so, he is a coward. The Committee frankly admitted that it is just
here that the difficulty lies, i.e., in deciding whether a man is or is not
guilty of cowardice. But in each case, the question must be answered:
has or has not the individual crossed the border-line which divides normal
emotional reaction from neurosis with impairment of volitional control?
In cases when there is any reasonable doubt of the individual’s power of
control, experienced medical opinion should be sought, and the man’s whole
personal and family history, so far as it is obtainable, should be reviewed in
coming to a decision.

Though the report contains much valuable information regarding the
treatment of cases of war neurosis, perhaps the sections most interesting
to the Army medical officers are those dealing with prevention.

How far is it possible in the examination of recruits to exclude men
liable to neuroses, and when admitted to the Services to prevent them
suffering therefrom under the conditions of modern war?

In dealing with recruiting, the Committee extended their inquiry into
an examination of the pre-war standards of fitness and the methods of
medical examination of recruits before and during the war.

The report itself and the evidence quoted show how complete was the
breakdown of the pre-war system when faced with the enormous numbers
of recruits who came forward in 1914—a breakdown accentuated by the
withdrawal of the trained recruiting staffs on mobilization.

Although the instructions contained in A.M.S. Regulations referred
briefly to examination for mental and nervous stability, it is evident that
insufficient attention was paid to this part of the medical examination until
well on in 1916:

Instructions issued by the War Office on the subject failed to reach those
most concerned. As a result, numbers of men quite unfitted to withstand
the strain of war were admitted to the Service, and many of these broke
down without even going overseas.

The Committee conclude that every endeavour should be made at the
time of enlistment to ascertain the nervous and mental condition of the
candidates both from their previous histories and present condition. They
recommend that the following should be included as instructions to medical
officers engaged in recruiting duties:—

1. Where a candidate for entry into any of His Majesty’s Naval or
   Military or Air Force Services is required to certify in writing that he has
   not to the best of his belief suffered from certain specific conditions,
   ‘insanity’ and ‘nervous breakdown’ shall be included.

2. Where a candidate is called upon to reply verbally to questions as
   to his previous health, ‘insanity’ and ‘nervous breakdown’ shall be
   included in the questions.

3. A proved history of insanity or epilepsy shall entail rejection.

4. The following directions be included in instructions issued to
medical officers who are employed in the examination of candidates for His Majesty's Naval, Military, and Air Force Services: 'In examining a candidate the medical officer will observe the demeanour of the candidate and the degree of intelligence with which he responds to questions and directions.' ‘He will ask him a few simple questions about his childhood, family, occupations, etc., and from the replies should be able to form an estimate of the mental capacity, power of attention, memory, emotivity, and general mental calibre of the candidate.'”

“Further information may be gained by observing the facial expression and conformation of the skull, nose, jaws, palate, and pinna (hydrocephalus, microcephalus, evidence of injury or other physical stigmata, may be noted). Every examination will include Romberg’s test, observation of the pupils as to regularity of outline, size and equality, reaction to light. The patellar reflexes will be tested—others if necessary. The presence of tachycardia, tremor or sweating, if persistent, constitutes a serious disability. Candidates who present well-marked signs of nervous instability or serious mental defect should be rejected. In estimating the degree of mental or nervous instability presented by a candidate, the medical officer will consider to what extent the condition is likely to be a bar to effective military service, rejecting the unfit, obtaining a colleague’s or specialist’s opinion in dubious cases, and recommending special observation during training for those whom he accepts in spite of a minor degree of mental or nervous defect.

“A note will be made on the mental and nervous stability of each candidate on the Medical History Sheet.”

It is recommended that in order to provide for the expansion of recruiting on mobilization, not only all regular R.A.M.C. officers, but also all those of the Special Reserve and Territorial Force should undergo a prescribed course of instruction in the methods of examination of recruits and the physical and mental standard required.

Although such training may involve extra expense in peace time it would undoubtedly save enormous sums in war. The evidence quoted in the report shows that large numbers of men were passed into the Army by medical officers inexperienced in the examination of recruits; such men broke down under training, filled the hospitals at home, never did a day’s soldiering with the forces overseas, and finally added to the pensions lists.

Again, the evidence quoted in the report shows that in 1914-15 the number of recruits examined by individual medical officers in a single day was such as to preclude anything beyond the most cursory examination for gross physical defects.

To safeguard against similar mistakes in future it is recommended that careful routine examination of each recruit should be insisted on, that medical history sheets be completed as in peace, and that returns be rendered daily as to the numbers examined by each medical officer, and
Editorial

457

that observance of these instructions be ensured by frequent visits of an
inspecting officer.

It is, however, to be remembered that on general mobilization the Deputy
and Assistant Directors of Medical Services in Commands and Districts
would be fully occupied with the provision of hospital accommodation, sanita-
tion, and mobilization of units, etc. It is doubtful, also, whether the
A.D.’s. and D.A.D.’s of Hygiene would be able to devote adequate time to
such duties. If, therefore, this recommendation is accepted—and it would
undoubtedly save much wastage after enlistment—it would appear to be
necessary to detail selected officers for this work on mobilization.

The Committee further consider that as soon as possible after mobiliza-
tion is ordered, individual recruiting medical officers should be superseded
by boards, and that if compulsory military service is introduced the sectional
method of examination and grading adopted by the Ministry of National
Service should be introduced. It is emphasised that selection for particular
arms of the Service is the function of posting boards and not of examining
medical boards.

Even with such elaborate precautions it is impossible to make a full
examination of the mental and nervous stability of candidates at the time
of enlistment. Further observation should therefore be carried out during
the recruit’s training. This necessitates the closest co-operation between
executive medical officers and commanding officers, instructors, and all those
who are responsible for training.

Just as the medical officer watches over the recruit’s physical develop-
ment in the gymnasium, so he should study his mental development, paying
attention to such things as petty military crime, slovenliness, unsociability
in the barrack room, etc. In this way a further number of unstable indi-
viduals may be eliminated before joining their units.

The report deals with the prevention or lessening of the incidence of
shell-shock under four headings:—

(a) The time of enlistment.

(b) The training period.

(c) The active service period.

(d) The hospital period.

The measures outlined above for ensuring adequate medical examination
of candidates for enlistment cover the recommendation under (a).

As regards the remaining periods the essential measure is the inculca-
tion of morale.

It is not considered that anything can usefully be done in training to
produce the physical conditions of the front line or to give special instruc-
tion in shell-shock and how to resist it. The Committee content themselves
with laying down the broad principle that training should aim at:—

(a) The inculcating of the highest possible standard of morale, disci-
pline, esprit de corps, esteem of officers, and confidence, both individually
and collectively; and
Editorial

(b) Ensuring and maintaining mental, physical and moral fitness and technical efficiency.

The length of training in the last war was inadequate owing to the incessant demand for men. The inevitable result was the high incidence of nervous disorders. Such incidence is lessened by prolonged and judicious training.

To carry out such training a high standard of efficiency is required in officers, and it is pointed out that all officers, both staff and executive, should be trained in a study of character so far as it is applicable to military life. Special instruction in the psychoses and psycho-neuroses as they occur in war should be given to R.A.M.C. officers, and selected officers should be encouraged to specialize in the study of these disorders.

In the active service period in addition to the maintenance of a high standard of morale the following are factors of importance in prevention or lessening the incidence of shell-shock: the careful selection of front line medical officers and close co-operation between them and the executive officers of units; short shifts of duty in the front line; adequate rest and organized recreation behind the line; the avoidance of monotony so far as possible by change of front, etc.; early diagnosis of incipient breakdown and treatment within divisional areas; retention of early cases in army areas: leave home if properly used: the controlled use of rum.

The employment of such terms as shell-shock, N.y.D., nervous D.A.H., or other designations which may become catchwords, is condemned, and emphasis is laid on the necessity for good sanitation and comfort in billets, rest camps, base depots, etc.

It will be seen that while none of the recommendations are of a revolutionary nature the report itself marks a new era in military medicine in that it points out that in modern war the mental and nervous stability of the soldier is as important as physical fitness. In the future, as pointed out by one witness, organization, training and administration should be based on a psychological foundation, if we are to teach troops to withstand the stress and horrors of modern warfare.
Shell-Shock

*J R Army Med Corps* 1922 39: 450-458
doi: 10.1136/jramc-39-06-05

Updated information and services can be found at:
http://jramc.bmj.com/content/39/6/450.citation

**Email alerting service**

*These include:*

Receive free email alerts when new articles cite this article. Sign up in the box at the top right corner of the online article.

**Notes**

To request permissions go to:
http://group.bmj.com/group/rights-licensing/permissions

To order reprints go to:
http://journals.bmj.com/cgi/reprintform

To subscribe to BMJ go to:
http://group.bmj.com/subscribe/