



## Legacy of the 1914–18 war 2

# Battle for the mind: World War 1 and the birth of military psychiatry

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This is the second in a Series of three papers about the legacy of the 1914–18 war

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The 100th anniversary of the outbreak of World War 1 could be viewed as a tempting opportunity to acknowledge the origins of military psychiatry and the start of a journey from psychological ignorance to enlightenment. However, the psychiatric legacy of the war is ambiguous. During World War 1, a new disorder (shellshock) and a new treatment (forward psychiatry) were introduced, but the former should not be thought of as the first recognition of what is now called post-traumatic stress disorder and the latter did not offer the solution to the management of psychiatric casualties, as was subsequently claimed. For this Series paper, we researched contemporary publications, classified military reports, and casualty returns to reassess the conventional narrative about the effect of shellshock on psychiatric practice. We conclude that the expression of distress by soldiers was culturally mediated and that patients with postcombat syndromes presented with symptom clusters and causal interpretations that engaged the attention of doctors but also resonated with popular health concerns. Likewise, claims for the efficacy of forward psychiatry were inflated. The vigorous debates that arose in response to controversy about the nature of psychiatric disorders and the discussions about how these disorders should be managed remain relevant to the trauma experienced by military personnel who have served in Iraq and Afghanistan. The psychiatric history of World War 1 should be thought of as an opportunity for commemoration and in terms of its contemporary relevance—not as an opportunity for self-congratulation.

### Introduction

World War 1 was unprecedented in terms of its scale and the suffering experienced by combatants. In the UK alone, 5·7 million served in the armed forces, 761 000 were killed, and, by conservative estimates, 1·2 million were wounded or fell sick.<sup>1</sup> Psychiatric casualties, which were known at the time by various labels including shellshock, disordered action of the heart, and neurasthenia, might have accounted for a quarter of hospital admissions.<sup>2</sup> In the context of a war of attrition, the treatment of psychological disorders assumed great importance. Low return-to-duty rates, or extended periods of convalescence, undermined the fighting strength of the British Expeditionary Force.

With shellshock high on the military agenda, in this Series paper we assess how new thinking during World War 1 shaped and defined mental illness in the longer term and to what extent these innovations affected World War 2 and contemporary conflicts in Iraq and Afghanistan. We address the conventional narrative that investigations into the causation and treatment of shellshock laid the foundations for an era of psychological enlightenment, and question whether the apparent advances in military psychiatry during the war were as well founded and effective as claimed by doctors during the conflict. To allow us to address these complex issues with some depth, we have focused mainly on the British experience.

### Shellshock

The term shellshock, which encapsulated the experience of artillery bombardment, arose spontaneously but was given medical credibility by CS Myers in a *Lancet* paper<sup>3</sup>

published in February, 1915. A retrospective analysis of 200 randomly selected files of war pensioners with a diagnosis of shellshock showed that the disorder was characterised by a range of functional physical symptoms, such as exhaustion, palpitations, shortness of breath, tremor, joint and muscle pain, dizziness, and headache, together with nightmares, persistent anxiety, and difficulty sleeping.<sup>4</sup> Shellshock was a catchall label for the somatisation of traumatic experience, rather than a narrowly defined psychological disorder. Although it had some features in common with post-traumatic stress disorder (PTSD), such as startle reaction, distressing recollections of the event, difficulty concentrating, and nightmares, it was not the same disorder by another name.<sup>5</sup>

Because shellshock had no pathognomonic signs or symptoms, several causative explanations were possible. Frederick Mott, director of the London County Council's pathology laboratory at Claybury Asylum, had established an international reputation for his research into the neuropathology of mental illness. Appointed by the War Office to investigate shellshock, he postulated that the disorder had a physical origin. Mott interpreted the disorder as a form of concussion caused by the blast of exploding ordnance,<sup>6</sup> “commotio cerebri”.<sup>7</sup> In extreme cases, he believed that it could be fatal if intense commotion affected “the delicate colloidal structures of the living tissues of the brain and spinal cord” arresting “the functions of the vital centres in the medulla”.<sup>8</sup> This hypothesis led Mott to microscopically examine the brains of servicemen killed by blasts to identify cerebral lesions and neuropathology that could inform the treatment of servicemen who had been exposed to lower levels of physical trauma. Mott also noted similarities in

the symptoms of carbon monoxide poisoning and those reported by shellshocked soldiers who had been buried by an explosion.<sup>9</sup>

Mott saw patients in the Maudsley neurological section of the 4th London General Hospital in Camberwell. By contrast, Myers, as consulting psychologist to the British Expeditionary Force, studied servicemen in France, observing them in their military context. He noted that a direct connection between the symptoms of shellshock and close proximity to an explosion was tenuous, and suggested a psychological explanation.<sup>10</sup> He interpreted shellshock as a conversion disorder experienced by soldiers unable to cope with the strain of combat.<sup>3</sup> Myers argued that functional symptoms—such as loss of memory, paresis, and the apparent inability to speak, hear, or see—resulted from soldiers repressing or splitting off memory of a traumatic experience. Symptoms, he thought, were the product of an unconscious process designed to maintain the dissociation. In his view, a serviceman had to recall and acquire “volitional control” of the repressed events “if he [was] to be healed”.<sup>10</sup> Army commanders reluctantly acknowledged a psychological cause for shellshock because it afforded an opportunity to return such casualties to active duty.

After his unsuccessful attempt to identify an unambiguous pathological cause of shellshock, Mott increasingly acknowledged the role of “psychic trauma” in the disorder. By the end of 1915, first-hand contact with many shellshocked soldiers invalided from France led him to revise his causal theories. First he acknowledged that, when exposed to terrifying or prolonged combat, a soldier without any predisposition to mental illness “will succumb, and a shell bursting near may produce a sudden loss of consciousness, not by concussion or commotion but by acting as the ‘last straw’ on an utterly exhausted nervous system”.<sup>11</sup> Second, to explain why only some soldiers got shellshock (in some cases after only a short period on the front line), Mott explored the possibility of an inherent vulnerability to stress. An American colleague of his at the Maudsley, Captain Julian Wolfsohn, researched the heredity of 100 shellshocked patients and reported that 74% had “a family history of neurotic or psychotic stigmata” compared with 10% of wounded control patients.<sup>12</sup> “My experience now based upon statistics,” Mott wrote, “proves conclusively that by far the most important factor in the genesis of war psycho-neurosis is an inborn or acquired tendency to emotivity”.<sup>13</sup> The evolution of Mott’s understanding, based on his laboratory research and his practice as the senior clinician at the Maudsley, showed the value of the linkage of neurology and psychiatry.

The diverse group of clinicians who gathered at Maghull Military Hospital, near Aintree, Liverpool, investigated a wide range of hypotheses to explain shellshock.<sup>14</sup> Grafton Elliot Smith, a professor of anatomy, and TH Pear, a psychologist, proposed an anthropological explanation for shellshock: an army at war emphasised the control of emotion while encouraging the fighting spirit and loyalty

to comrades. Hence, the only sanctioned escape route for a terrified or war-weary soldier was a wound or disease. Shellshock gained credibility among troops because it presented as an organic illness and permitted behaviour proscribed by army discipline. Shellshock, Elliot Smith and Pear noted, was an “inadequate title for all those mental effects of war experience which are sufficient to incapacitate a man from the performance of his military duties”.<sup>15</sup> Thus, they came close to saying that shellshock was an attractive diagnosis for servicemen because it provided a credible way to get excused from frontline service. Indeed, of the three explanations advanced for the disorder during World War 1 (physical, psychological, and, finally, social), the social explanation would eventually dominate the views of the War Office Committee of Enquiry set up in 1920 under the chairmanship of Lord Southborough, albeit with an emphasis on conscious motivations as opposed to the unconscious processes postulated by WHR Rivers, William Brown, and Myers.

A medically qualified anthropologist with a research interest in psychoanalysis, WHR Rivers proposed a psychodynamic model for shellshock, arguing that the disorder arose when hastily implanted defence mechanisms collapsed when faced with “strains such as have never previously been known in the history of mankind”.<sup>16</sup> Alternatively, he argued that events on the battlefield triggered memories of a repressed childhood conflict. Rivers reported a case of an Royal Army Medical Corps doctor whose claustrophobia was so severe that he could not occupy a frontline dugout.<sup>17</sup> Through abreaction and dream analysis, Rivers discovered that the doctor had repressed the traumatic memory of having been locked in a cupboard as a child. Breakdown on the battlefield was interpreted as having been predicated by an earlier formative experience. Nonetheless, to explain why only a minority of those soldiers exposed to combat broke down, the traumatic event was deemed secondary and the personality of the soldier primary.<sup>18</sup> Character mattered to the men educated in Edwardian Britain who fought in World War 1, not least because it underpinned the class system. The psychological line taken by Rivers might partly account for his appeal to modern audiences and contemporary authors, such as Pat Barker, even if his influence on treatment and policy during the war itself was largely marginal.<sup>19</sup>

### Forward psychiatry

The Battle of the Somme brought shellshock to the fore. Between July and November, 1916, 419 600 British soldiers were killed or wounded, among who was a rising tide of psychiatric casualties. To maintain its fighting strength, the British Expeditionary Force needed to return as many soldiers as possible to the front line as quickly as possible. The French had set up forward neurology centres (designed to diagnose and treat psycho-somatic disorders and obviating the need for referral to base hospitals) during the summer of 1915, and claimed high return-to-duty

rates.<sup>20</sup> Myers borrowed their strategy and recommended the creation of four specialist units in a position of safety but within the sound of gunfire. Called not yet diagnosed nervous (NYDN) centres, they had three core characteristics: proximity (close to the battlefield), immediacy (rapid referral from the frontline), and expectation of recovery (given a short period of rest, soldiers were encouraged to believe that they would be restored to active duty), given the acronym PIE.<sup>21</sup>

Forward psychiatry was attractive to commanders because the further a serviceman was evacuated from the trenches, the less likely his return to a front-line unit. In the year to 30 June, 1917, for example, of the 731 service patients discharged from Maghull Red Cross Hospital near Liverpool, only 153 (20.9%) returned to military duty, while 476 (65.1%) were invalided from the forces.<sup>22</sup> Furthermore, forward psychiatry was a straightforward regimen: soldiers were fed, allowed to rest, and then put on a programme of graduated exercise, culminating in route marches. Physicians with a prewar interest in psychoanalysis, such as William Brown and Frederick Dillon, encouraged abreaction for severe cases, although opportunities for such treatment at overcrowded base hospitals were few. By contrast, William Johnson and Dudley Carmalt Jones, who both ran NYDN centres, postulated that the exploration of traumatic experiences could disrupt natural healing processes. The weekly audit of shellshock returns by the medical command, Carmalt Jones recalled, contributed to the “vicious” competition between the various NYDN centres and between “rival methods of treatment for the return of patients to their units”.<sup>23</sup> The monitoring process encouraged doctors to publish inflated return-to-duty rates, claiming that 60–90% of admissions were restored to frontline combat.<sup>24</sup> A retrospective analysis of admission and discharge records for a PIE unit showed that only 17% of patients returned directly to their units: 35% went to convalescent camps and 20% to combat-support roles in base areas (table 1).<sup>26</sup> Despite the favourable publication bias, forward psychiatry remained controversial because commanders believed that it encouraged invalidity, and others including

Gordon Holmes thought that military psychiatrists did not have the determination to serve as effective gatekeepers. As a result, PIE was dropped from military protocols during the interwar period.<sup>27</sup>

During World War 2, forward psychiatry was readopted as a battlefield intervention after another manpower crisis. In May, 1941, when the port of Tobruk on the Libyan coast was surrounded by German forces, a “war neurosis clinic” was set up in an underground shelter. Opportunities for evacuation were few, so doctors had no choice but to treat psychiatric casualties within the fortress hospital. Exposed to the sounds of battle but protected by concrete, 207 men were treated during 4 months. Of the 70 soldiers diagnosed with so-called anxiety neurosis, 35 were returned to frontline duty; of 62 soldiers in so-called fear states (so defined because “their fear was not unfounded”), 33 went back to duty and of these five relapsed once in fighting units.<sup>28</sup>

Expediency encouraged the continued adoption of PIE methods. In July, 1942, the term exhaustion was adopted by the Eighth Army to describe psychiatric casualties in the Western Desert of North Africa. The label was coined by Brigadier GWB James, the senior psychiatrist attached to the Eighth Army and a decorated veteran of World War 1, who believed that 2 years of hard campaigning had fatigued troops both physically and mentally.<sup>29</sup> Chosen to avoid medical terminology, exhaustion implied a temporary state that would resolve itself after a short respite from combat. A specialist unit with 200 field ambulances to treat breakdown on the battlefield was opened and given the neutral title Army Rest Centre. Once the north African campaign had ended, James reviewed hospital statistics and concluded that 90% of admissions to forward psychiatric units were retained by the army, though “in practice a fairly constant 30% returned satisfactorily to combatant duty”.<sup>30</sup> A retrospective study of US troops fighting in Italy showed a similar percentage returned to frontline duty as a result of PIE methods.<sup>31</sup>

However, questions were raised about the effectiveness of the intervention in the absence of follow-up data.<sup>32</sup> Two US Army psychiatrists, Majors Ludwig and Ransom, researched the effectiveness of forward psychiatry. They randomly selected 312 infantry soldiers who had been treated at two PIE units in northwest Europe and returned to frontline duty and followed them up by sending letters to their commanding officers. The response rate was 90.4%. Only 84 (27%) soldiers remained at duty with a performance rating of “good” or “fair”.<sup>33</sup> Treatment in most cases was of only short-term benefit: “the high rate of readmission seen in the cases of acute “pure” anxiety states (38.2%) suggests that such acute episodes, at least with the methods of therapy employed, produced rather lasting loss of resistance to further combat stress”.<sup>33</sup> Although it returned few combat soldiers to frontline units, forward psychiatry prevented premature discharge from the armed forces by engaging soldiers in combat-support roles or linking them to programmes of occupational therapy.

	n (%)
Returned to active duty	606 (16.9%)
To other hospitals in France	687 (19.2%)
To convalescent camps	1257 (35.1%)
By ambulance train to base hospitals	286 (7.9%)
To base duties	700 (19.6%)
Not recorded	44 (1.2%)
Total	3580 (100%)

Data derived from Admission and Discharge Books for 4 Stationary Hospital, Jan 24, 1917 to July 2, 1917.<sup>25</sup>

**Table 1: Outcomes of discharged patients treated for shellshock at a not yet diagnosed nervous centre near St Omer between Jan 2, and Nov 9, 1917**

## Breakdown on the battlefield

During World War 1, commanders and doctors wrestled with the issue of battlefield breakdown. Now that PTSD is an accepted disorder, soldiers exposed to terrifying events can legitimately be referred for hospital treatment even though they have not been physically wounded. However, this notion was alien to military doctors in 1914.

Gordon Holmes, consultant neurologist to the British Expeditionary Force, argued that enduring symptoms in the absence of a lesion or other organic signs constituted malingering, a conscious strategy to avoid the perils of trench warfare. He was a painstaking researcher, but lacked empathy and was of a quarrelsome nature. By contrast with Myers, with whom he became increasingly frustrated by what he saw as a failure to deal with the growing volume of shellshock referrals, Holmes thought that military discipline, rather than hospital treatment, was the appropriate management for such cases.<sup>34</sup> He acknowledged that soldiers could be mentally exhausted after prolonged or intense combat but deemed a short period of rest in a place of safety sufficient to restore most to frontline duty. Holmes required an objective pathological change to justify a hospital admission and thought of shellshock in the absence of an injury as a form of character weakness. To offer a medical diagnosis for what were, in his view, personality traits legitimised a lack of determination and encouraged invalidity, Holmes thought.<sup>35</sup> Today, a tough and unsophisticated policy towards mental illness is popularly thought to have led to the execution of servicemen with shellshock, as evidenced by the case of Harry Farr.<sup>36</sup> In reality, more than 200 000 British soldiers had psychological and psychosomatic disorders. 306 soldiers faced a firing squad, far from all of whom were diagnosed with shellshock—some had committed non-military capital offences.

Nonetheless, simulation of illness and malingering were issues faced by military doctors. Although contemporaries argued that both were rare, little objective evidence is available. The belief held by Holmes and others—ie, that shell shock was, in essence, the creation or exaggeration of symptoms to escape frontline duties—seemed to legitimise the use of brutal forms of treatment, such as electric shock (faradisation) or isolation therapy. Doctors, such as Mott and Carmalt Jones, who used these techniques in a mild form, argued that an “imposing array of electric machines, coloured lights, and other strong suggestive influences” increased doctors’ ability to re-educate patients, and that any false medical explanations were justified by their efficacy.<sup>8</sup>

The signing of the armistice did not lead to a resolution to the debate about the nature of shellshock and associated treatment. To provide policy guidelines for future conflicts, the War Office set up the Southborough committee of inquiry. The committee received evidence from commanders, regimental medical officers, and specialist physicians, and concluded that shellshock was almost completely avoidable. They accepted the view of Lieutenant

Colonel Lord Gort VC that shellshock was “practically non-existent” in “first-class divisions” and should be thought of as “a form of disgrace to the soldier”.<sup>37</sup> Gort, who had served in the Grenadier Guards and would go on to command the new British Expeditionary Force that returned to France in 1939, argued that high morale, *esprit de corps*, leadership, careful selection of recruits, and training were sufficient protection against psychiatric casualties. This conclusion was wholeheartedly accepted by the British Army and reaffirmed in July, 1939, at a conference chaired by Lord Horder and attended by service doctors, specialist physicians, and senior civil servants.<sup>38</sup>

Not until midway through World War 2 was this historic judgment revised. In summer 1939, the term shellshock was proscribed (rather than restricted as in 1917), and a memorandum in the *British Medical Journal* emphasised that no war pensions for psychological disorders would be awarded during the conflict—all cases were to be assessed once the war had ended.<sup>39</sup> However, secondary gain, defined as any advantage that a patient might secure beyond treatment (including compensation, attention, sympathy, or reduced punishment), was thought to be capable of undermining the benefits of trauma therapy. To minimise these adverse effects, acute psychiatric trauma was distanced from mainstream medicine, and the new label, exhaustion, first used in the Western Desert, was applied in other theatres of war to suggest that breakdown was not a form of illness but a temporary state.

This draconian policy, however, did not survive in a functioning democracy. There were stirrings in the House of Commons after Dunkirk, and, by 1943, the British authorities were clearly aware that all servicemen have a breaking point. Commandos, fighter pilots, and captains of escort vessels, many with awards for valour, were now beginning to appear in psychiatric wards of military hospitals and their breakdown could not be ascribed to poor selection and training or to constitutional vulnerability.<sup>40</sup> Doctors were forced to accept that protective factors had a limited life.

In 1943, Gilbert W Beebe, a sociologist, and Michael E DeBaKey, later a pioneer cardiac surgeon, investigated killed or wounded soldiers for two theatres of war in 1944, the Southwest Pacific and the Mediterranean, and for the 34 and 45 US Divisions between October and November, 1943.<sup>41</sup> Admissions to neuropsychiatric units were closely correlated with the total numbers of wounded men, with the exception of the Southwest Pacific where incomplete data and a failure to recognise the nature and importance of psychiatric casualties were proposed to explain this anomaly, and suggested that battle intensity was the causative factor. A later study by Beebe of unit losses in a representative sample of 2419 soldiers who had fought in the Mediterranean and European theatres established an association between physical casualties and the occurrence of combat stress reactions.<sup>42</sup> Similar findings have subsequently been reported for Canadian troops in

	World War 1 pensions	World War 2 pensions
Wounds and injuries	504 000 (37.5%)	122 572 (24.4%)
Rheumatism	84 855 (6.3%)	7943 (1.6%)
Heart disease	118 995 (8.9%)	19 814 (4.0%)
Epilepsy	8436 (0.6%)	1766 (0.4%)
Neurological and mental disorders (excluding epilepsy)	84 681 (6.3%)	50 060 (10.0%)
Others	542 161 (40.4%)	299 281 (59.7%)
Total	1 343 128 (100%)	501 436 (100%)

Data are n (%). Data derived from 28th Report of the Ministry of Pensions for the period to March 31, 1953.<sup>46</sup>

**Table 2: A comparison of UK war pensions by diagnosis**

the Italian campaign<sup>43</sup> and the Israel Defence Forces in the Yom Kippur War.<sup>44</sup>

### Interpretations of trauma

Before 1914, mental illness was generally thought of in terms of heredity and degeneration but by 1918, many clinicians had acknowledged that the environment could also have an important role.<sup>45</sup> Nonetheless, the traumatic event was judged secondary: the personality of the soldier remained the primary explanation why only some soldiers broke down in combat.<sup>17</sup> The proportion of war pensions awarded by the UK government for neuropsychiatric disorders did not vary substantially between the two world wars (table 2), suggesting that progress towards an era of psychological enlightenment was gradual.

The formal recognition of PTSD by the American Psychiatric Association in 1980 was a turning point in causative theory. During both world wars, the individual soldier—whether because of his genetics, family history, upbringing, or the effect of repressed conflict from childhood—was held responsible for his breakdown. PTSD reversed this causal explanation. The traumatic exposure, referred to as criterion A, was now primary. Everyone, whether citizen or soldier, was potentially vulnerable to the new psychiatric disorder.

### Shellshock and mild traumatic brain injury

During World War 1, allied troops were at substantial risk of head injury from artillery bombardment, mortar attacks, and mines; 60% of deaths were caused by shrapnel.<sup>47</sup> Lieutenant Colonel John Rhein, consultant in neuropsychiatry to the American Expeditionary Force, reported that “concussion experiences, that is to say those in which a man states he had lost consciousness or memory after having been blown over by a shell occurred in about 50% to 60% of cases” admitted to his forward neurological hospital at Benoitte-Vaux at Benoitte-Vaux, 30 km south of Verdun.<sup>48</sup>

UK and US troops deployed to Iraq and Afghanistan and subjected to rocket and mortar attacks and the pervasive threat of improvised explosive devices have

also had head injuries.<sup>49,50</sup> American service personnel concussed by exploding ordnance in Iraq and Afghanistan are currently diagnosed with mild traumatic brain injury, a new label for what is often described as the signature injury of these conflicts. The term was first used in a medical journal in 1992 to describe head injury after motor accidents,<sup>51</sup> and although used for concussive incidents, the term did not receive public recognition until it was applied to US service personnel deployed to Iraq. In 2005, the Defense and Veterans Brain Injury Center that 59% of injured soldiers returning from Iraq sustained at least a mild traumatic brain injury in combat.<sup>52</sup> The problem, however, was how to assess the effects of this seemingly common trauma.<sup>53</sup>

In terms of symptoms, the effects of a mild head injury and those of a stressful or terrifying experience are often difficult to differentiate, not least because in the context of combat the former is frequently associated with the latter.<sup>54</sup> Studies of US and UK troops who have been deployed to Iraq or Afghanistan have shown a strong association between mild traumatic brain injury and PTSD,<sup>55,56</sup> although the noteworthy difference in the prevalence of the disorder, high in US armed forces, remains largely unexplained. The stigma of mental illness is deeply ingrained in military culture, so, understandably, service personnel are more accepting of mild traumatic brain injury than PTSD. Part of the appeal of a diagnosis of shellshock was that the disorder was categorised at first as a neurological injury; affected soldiers were entitled to wear a wound stripe and met the criteria for a war pension.<sup>57</sup>

Diagnostic labels are important in terms of not only career prospects and self-esteem, but also effects on outcomes. A longitudinal study of patients admitted to an accident and emergency department with a mild head injury showed that patients who think that their symptoms have serious and negative consequences are at increased risk of an enduring postconcussional disorder.<sup>58</sup> Negative beliefs held with conviction can help to maintain symptoms and restrict functioning—a finding that had led the British Army to restrict the use of the term shellshock in 1917 to a specialist opinion. Today, UK military medical authorities recommended that the term concussion be used in preference to mild traumatic brain injury.

### Discussion

Before World War 1, mental illness in the UK was consigned to the asylum system: self-contained, inpatient units operated in isolation from district general hospitals and medical schools. Designed to provide a calm and therapeutic environment distant from urban pressures, these increasingly large hospitals inadvertently fostered stigma and marginalised the discipline of psychiatry. Shellshock brought psychological disorders to the fore and engaged the broader medical community.

Although departments of psychological medicine were set up and undergraduate teaching in psychiatry began



during the interwar period, another world war was needed to effect the integration of the specialty to mainstream medicine. Many of the innovations pioneered during World War 1 failed to gain a substantial footing once the conflict had ended. Forward psychiatry and trauma-based psychotherapy, selection, and screening all fell into this category, although small-scale and medium-scale inpatient units were more successful. The Maudsley Hospital, which had treated 12 400 shellshocked servicemen between 1915 and 1919, reopened in February, 1923, for Londoners with mental illness. Treatment incorporated many of the therapeutic techniques developed during World War 1.<sup>59</sup> An atmosphere of cure was especially promoted through exposure to sunlight, emphasis on bodily health, occupational therapy, and physical exercise. As World War 1 drew to a close, Maurice Craig had persuaded Sir Ernest Cassel to fund a hospital for functional and nervous disorders to treat psychosomatic illness arising in the workplace and home. Opened in May, 1921, at Swaylands, Penshurst, the Cassel Hospital had 60 beds and TA Ross, a shellshock doctor, was appointed as the first medical director.

Forward psychiatry was the clinical intervention that military psychiatrists needed to justify their role. Although the acronym PIE was not devised until the 1960s, the intervention was widely practised during World War 2, and was subsequently used in the Korean, Vietnam, Iraq, and Afghanistan wars. Yet compelling evidence for its efficacy remains elusive, largely because of the strong selection biases that operate in the decision to retain someone near the battlefield, and the impossibility of ever mounting a definitive randomised controlled trial.

## Conclusions

The traditional narrative of World War 1—that a brutal and unthinking high command failed to innovate or to learn from mistakes—is now thought to be overly simplistic. Historians have noted an evolution in tactics and training, and insurmountable technical limitations (the absence of radio communication and unreliable and underpowered engines) are explanations for why military offensives had limited gain. Conversely, the development of chemical weapons and the discovery of effective treatments for toxins showed that cutting-edge science was applied on the battlefield.<sup>60</sup>

Equally, the conventional wisdom that World War 1 ushered in an era of psychological enlightenment, as doctors discovered the mysteries of shellshock is also in need of revision. The Southborough committee of inquiry set up to distil the psychological lessons of the conflict recommended the training of military psychiatrists, avoidance of medical labels such as shellshock, greater care in the selection of recruits, and management systems in which morale and *esprit de corps* were emphasised, in the belief that these policies would all but eradicate psychiatric casualties. However, these recommendations

### Search strategy and selection criteria

The National Archives catalogue was comprehensively searched using keywords “shell shock”, “neurasthenia”, and “war neuroses”. Scientific papers published in the UK during the period of World War 1 were searched using similar keywords, journals not included in Web of Science and PubMed databases were searched by hand. Material was included in terms of its direct relevance to treatment of shellshock; reports not supported by clinical evidence or outcome data were not included.

did not prevent breakdowns in World War 2. Only towards the end of that conflict were the close links between physical and psychological causalities and the fact that everyone has a breaking point recognised.

Contemporary trauma psychiatry is dominated by the notion of PTSD, the most clinically significant diagnostic and causative change in the specialty during the late 20th century. However, as successful as this diagnosis has been in delineating psychological responses to life-threatening events, it may have led to the loss of an older and more inclusive interpretation of distress. A much longer tradition exists of psychosomatic illness, shown by shellshock and other war syndromes. Responses to terrifying events or protracted exposure to stress during World War 1 were far more varied than the constellation of symptoms associated with PTSD. Some soldiers and veterans presented with disordered action of the heart, which was characterised by chest pain, palpitations, and shortness of breath, but with no sign of cardiac disease; others had photophobia and had to wear dark glasses for the remainder of their lives, but did not have detectable optic lesions. Shellshocked veterans continued to present with tremor, dizziness and, in extreme cases, bizarre movement disorders long after the guns had ceased to fire. Understanding of these disorders and interventions to treat them has largely been lost, and yet patients still present with these syndromes in outpatient departments and GP clinics. Perhaps much can still be learned from a conflict that involved so many in what some have characterised as a vast human experiment in stress.

### Contributors

EJ researched contemporary publications and archival material, and wrote the first draft. SW commented on the draft and added further material.

### Declaration of interests

EJ is employed by the Institute of Psychiatry and is the programme leader for an MSc in war and psychiatry. SW is an honorary civilian consultant adviser in psychiatry to the British Army and a trustee of Combat Stress, a UK charity that provides service and support for veterans with mental health problems. We declare that we have no competing interests.

### References

- 1 Prost A. The dead. In: Winter J, ed. *The Cambridge history of the first world war, volume 3, civil society*. Cambridge: Cambridge University Press, 2014: 561–91.
- 2 Winter J. Shell shock. In: Winter J, ed. *The Cambridge history of the first world war, volume 3, civil society*. Cambridge: Cambridge University Press, 2014: 310–33.

- 3 Myers CS. A contribution to the study of shell shock. *Lancet* 1915; **185**: 316–20.
- 4 Jones E, Hodgins-Vermaas R, McCartney H, et al. Post-combat syndromes from the Boer war to the Gulf war: a cluster analysis of their nature and attribution. *BMJ* 2002; **324**: 321–24.
- 5 Jones E, Vermaas RH, McCartney H, et al. Flashbacks and post-traumatic stress disorder: the genesis of a 20th-century diagnosis. *Br J Psychiatry* 2003; **182**: 158–63.
- 6 Mott FW. The effects of high explosives upon the central nervous system. *Lancet* 1916; **187**: 331–38, 441–49.
- 7 Mott FW. The microscopic examination of the brains of two men dead of commotio cerebri (shell shock) without visible external injury. *BMJ* 1917; **2**: 612–15.
- 8 Mott FW. Mental hygiene in shell shock during and after the war. *J Ment Sci* 1917; **63**: 467–88.
- 9 Mott FW. War neuroses and shell shock. London, Henry Froude and Hodder & Stoughton, 1919.
- 10 Myers CS. Shell shock in France 1914–18, based on a war diary. Cambridge: Cambridge University Press, 1940.
- 11 Mott FW. Mental hygiene and shell shock during and after the war. *BMJ* 1917; **2**: 39–42.
- 12 Wolfsohn JM. The predisposing factors of war psycho-neuroses. *Lancet* 1918; **191**: 177–180.
- 13 Mott FW. War Psycho-neurosis (II). The psychology of soldiers' dreams. *Lancet* 1918; **1**: 169–72.
- 14 Jones E. Shell shock at Maghull and the Maudsley: models of psychological medicine in the UK. *J Hist Med Allied Sci* 2010; **65**: 368–95.
- 15 Elliot Smith G, Pear TH. Shell shock and its lessons. Manchester: University Press, 1917.
- 16 Rivers WHR. An address on the repression of war experience. *Lancet* 1918; **191**: 173–77.
- 17 Rivers WHR. A Case of claustrophobia. *Lancet* 1917; **2**: 237–40.
- 18 Jones E, Wessely S. A paradigm shift in the conceptualization of psychological trauma in the 20th century. *J Anxiety Disord* 2007; **21**: 164–75.
- 19 Barker P. Regeneration. London: Viking, 1991.
- 20 Lévi A. Shell shock, commotional and emotional aspects. London: University of London Press, 1919.
- 21 Artiss KL. Human behaviour under stress: from combat to social psychiatry. *Mil Med* 1963; **128**: 1011–15.
- 22 Salmon T. Medical Department of the US army, Vol X, neuropsychiatry. Washington, DC: Office of the Surgeon General: 1929.
- 23 Carmalt Jones DW. War-neurasthenia, acute and chronic. *Brain* 1919; **42**: 171–213.
- 24 Brown W. The treatment of cases of shell shock in an advanced neurological centre. *Lancet* 1918; **2**: 197.
- 25 Admission and discharge Books for 4 Stationary Hospital Jan 24, 1917 to July 2, 1917. National Archives; MH106/1465–MH1478.
- 26 Jones E, Thomas A, Ironside S. Shell shock: an outcome study of a first world war 'PIE' unit. *Psychol Med* 2007; **37**: 215–23.
- 27 Jones E, Wessely S. "Forward psychiatry" in the military: its origins and effectiveness. *J Trauma Stress* 2003; **16**: 411–19.
- 28 Cooper EL, Sinclair AJM. War neurosis in Tobruk. *Med J Aust* 1942; **2**: 73–81.
- 29 James GWB. Narrative, resume, comments and conclusions concerning Middle East Force from September 1940 to July 1943. *Typescript* 1955; **2**: 98–99.
- 30 James GWB. Psychiatric lessons from active service. *Lancet* 1945; **246**: 801–05.
- 31 Glass AJ. Effectiveness of forward neuropsychiatric treatment. *Bull US Army Med Dep* 1947; **7**: 1034–41.
- 32 Drayer CS, Glass AJ. Introduction. In: Glass AJ, ed. Medical department, United States army, neuropsychiatry in World War II, volume 2, overseas theaters. Washington, DC: Office of the Surgeon General, Department of the Army, 1973: 2–23.
- 33 Ludwig AO, Ranson SW. A statistical follow-up of effectiveness of treatment of combat-induced psychiatric casualties; returns to full combat duty. *Mil Surg* 1947; **100**: 51–62.
- 34 Holmes G. Report of Conference, London, (TNA, PIN15/2402/15B, 10 November 1939, 12).
- 35 Shephard B. A war of nerves, soldiers and psychiatrists 1914–1994. London: Jonathan Cape, 2000.
- 36 Wessely S. The life and death of Private Harry Farr. *J R Soc Med* 2006; **99**: 440–43.
- 37 Southborough L. Report of the War Office committee of enquiry into "shell shock". London: HMSO, 1922.
- 38 Shepard B. 'Pitiless psychology': the role of prevention in British military psychiatry in the second world war. *Hist Psychiatry* 1999; **10**: 491–524.
- 39 Anon. Neuroses in war time, memorandum for the medical profession. *BMJ* 1939; **2**: 1199–201.
- 40 Jones E. "LMF": the use of psychiatric stigma in the Royal Air Force during the second world war. *J Mil Hist* 2006; **70**: 439–58.
- 41 Beebe GW, DeBakey ME. Battle casualties: incidence, mortality, and logistic considerations. Springfield, IL: Charles C Thomas, 1952.
- 42 Beebe GW, Apple JW. Psychological breakdown in relation to stress and other factors. In: Variation in psychological tolerance to ground combat in World War II, final report. Washington, DC: National Academy of Sciences, 1958: 88–131.
- 43 Jones E, Wessely S. Psychiatric battle casualties: an intra- and interwar comparison. *Br J Psychiatry* 2001; **178**: 242–47.
- 44 Levav I, Greenfeld H, Baruch E. Psychiatric combat reactions during the Yom Kippur War. *Am J Psychiatry* 1979; **136**: 637–41.
- 45 Ross TA. Lectures on war neuroses. London: Edward Arnold, 1941.
- 46 Ministry of Pensions. 28th Report of the Ministry of Pensions for the period to March 31, 1953. London: HM Stationery Office, 1953, appendix 4, 9746.
- 47 Sheffield G. Forgotten victory, the first world war: myths and realities. London: Headline, 2001.
- 48 Rhein JHW. Neuropsychiatric problems at the front during combat. *J Abnorm Psychol* 1919; **14**: 9–14.
- 49 Xydakis MS, Fravell MD, Nasser KE, Casler JD. Analysis of battlefield head and neck injuries in Iraq and Afghanistan. *Otolaryngol Head Neck Surg* 2005; **133**: 497–504.
- 50 Warden D. Military TBI during the Iraq and Afghanistan wars. *J Head Trauma Rehabil* 2006; **21**: 398–402.
- 51 Newman BJ, Kay T. Evidence for brain dysfunction following mild traumatic brain injury (mTBI). *Arch Phys Med Rehabil* 1992; **73**: 955.
- 52 Warden DL, Ryan LM, Helmick KM, et al. War neurotrauma: the Defense and Veterans Brain Injury Center (DVBIC) experience at Walter Reed Army Medical Center (WRAMC). *J Neurotrauma* 2005; **22**: 1178.
- 53 Holm L, Cassidy JD, Carroll LJ, Borg J; Neurotrauma Task Force on Mild Traumatic Brain Injury of the WHO Collaborating Centre. Summary of the WHO collaborating centre for neurotrauma task force on mild traumatic brain injury. *J Rehabil Med* 2005; **37**: 137–41.
- 54 Jones E, Fear NT, Wessely S. Shell shock and mild traumatic brain injury: a historical review. *Am J Psychiatry* 2007; **164**: 1641–45.
- 55 Rona RJ, Jones M, Fear NT, et al. Mild traumatic brain injury in UK military personnel returning from Afghanistan and Iraq: cohort and cross-sectional analyses. *J Head Trauma Rehabil* 2012; **27**: 33–44.
- 56 Hoge CW, McGurk D, Thomas JL, Cox AL, Engel CC, Castro CA. Mild traumatic brain injury in US Soldiers returning from Iraq. *N Engl J Med* 2008; **358**: 453–63.
- 57 Raynor MW. Psychiatry at the front in the American armies. *State Hospital Quarterly* 1918; **4**: 301–06.
- 58 Whittaker R, Kemp S, House A. Illness perceptions and outcome in mild head injury: a longitudinal study. *J Neurol Neurosurg Psychiatry* 2007; **78**: 644–46.
- 59 Jones E, Rahman S, Woolven R. The Maudsley Hospital: design and strategic direction, 1923–1939. *Med Hist* 2007; **51**: 357–78.
- 60 Jones E. Terror weapons: the British experience of gas and its treatment in the first world war. *War Hist* 2014; **21**: 1–21.