



## FEATURE

## CHRISTMAS 2017: TIME AND PLACE

## Different shell, same shock

One hundred years on from the first world war, **Stoyan Popkirov and colleagues** review the German and British medical films that tell the same story of illness and healing

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In both war and illness, we tell stories to frame our suffering. We create cultural narratives of national ideology or neurophysiology to cope with adversity. And those stories are not always beholden to history or histology but instead to creating meaning.<sup>1</sup> One narrative with cultural tremors that reverberated throughout the 20th century, sparking changes in politics and medicine alike, was that of shell shock during the first world war.<sup>2-4</sup>

Never fully defined, at times overused, and even banned, shell shock became as much a story as a diagnosis. Its causes and presentations varied greatly, from blasts to breakdowns and from blindness to paralysis, shaped as much by the terror of those affected as by the conceptual frameworks of the times (↵). The incomprehensible new horror of industrialised warfare manifested itself in a severe and mysterious epidemic affecting tens of thousands of soldiers on both sides of the war. It was a medical conundrum that led to a crisis in military personnel and needed to be understood urgently given the ongoing deadlocked war. Initial theories of blast related neuropathology were soon abandoned in favour of psychological aetiologies.<sup>2-4</sup> The presentations of shell shock were recognised as functional disorders, highlighting beyond any doubt that “hysteria” could affect men too, and in large numbers.

One way in which the story of shell shock was told was through the recently developed technology of film. Before the subsequent plethora of dramatised war movies, physicians produced short medical films showcasing actual patients and their ailments, as well as their treatment and recuperation.<sup>5,6</sup> These were some of the first medical films, made mainly to promote treatment strategies and to aid training of health professionals.<sup>5</sup>

In Britain, Arthur Hurst (1879-1944), a general physician treating men with shell shock in Hampshire and Devon, recorded

a 27 minute film called *War Neuroses* in 1917-18.<sup>5,7</sup> Around the same time in Germany, the professor of neurology in Hamburg-Eppendorf, Max Nonne (1861-1959), produced a similar 11 minute film *Funktionell-motorische Reiz—und Lähmungszustände bei Kriegsteilnehmern und deren Heilung durch Suggestion in Hypnose*.<sup>6</sup>

Both movies have recently been made freely available online. Looking at them through the opaque lens of time, we see striking similarities on several levels. They portray the same functional neurological disorders,<sup>8</sup> refer to similar treatment approaches, and show the same spectacular restoration of health. Furthermore, the two films are both authentic artefacts of medical history and staged works of storytelling.

### Telling stories through film

In Hamburg, Nonne documented his successful suggestion-based treatment of shell shock by producing a film that shows 14 patients with various neurological dysfunctions related to combat trauma.<sup>4,7</sup> Each case is preceded by a brief title card stating the condition, followed by a portrayal of the symptom and then the restitution of normal function after treatment. The film starts with a soldier who developed severe stutter after a shell explosion. The man is shown almost naked, contrasted against a black backdrop, struggling to articulate. He is opening his mouth widely and awkwardly, in a way that allows us to grasp his inability to produce a coherent sound even in a silent movie (↵). Then the imposing figure of Nonne himself appears in a long white coat, and an excerpt of his “suggestive-hypnotic” treatment is shown, as he manipulates the face and mouth of the soldier<sup>9</sup> (although some see these gestures as merely highlighting the dysfunction<sup>4</sup>).

“After the cure,” as the intertitle informs us, we see the man in the company of his doctor, now talking effortlessly. This pattern of presentation is then repeated for men with various forms of tremor, paresis, dystonia, spasms, and complex hyperkinetic movement and gait disorders (⚡). Each soldier is cured by a treatment only alluded to, never properly shown, creating the sense of an almost miraculous cure for a mysterious illness.<sup>4</sup> This film was meant to document and popularise Nonne’s successful approach, and it did so by framing it in the most basic archetypal narrative structure of bare crisis, magical intervention, and complete convalescence, 14 times in a row.

In all probability none of these patients was severely affected neurologically when the movie was made.<sup>4,6</sup> Nonne usually recruited “cured” patients for his many demonstrations, instilling their previous symptoms through hypnotic suggestion, which was reversed shortly afterwards.<sup>9,10</sup> This reproducibility of symptoms was considered a feature of shell shock, and the restaging of symptoms, treatment, and health for demonstration purposes was considered entirely justified.<sup>4,9</sup>

Hurst’s movie follows a less rigid structure, narrating the fate of 18 British men with shell shock treated at the Royal Victoria Hospital in Netley and at Seale Hayne in Devon as the war was ending.<sup>5</sup> The functional neurological disorders shown are surprisingly similar to those in Nonne’s film, comprising mostly tremors, spasms, paresis, and complex hyperkinetic movement and gait disorders.<sup>7</sup> Treatment mainly relied on suggestion, supplemented by occupational therapy, and is usually only alluded to by means of title cards.

The story arc of “puzzling disability”—“behind-the-scenes treatment”—“complete rehabilitation” is repeated, often in a more dramatic and engaging form than in the German film. For example, we follow Private Meek from a devastating state of amnesia, mutism, and paralysis, sitting contortedly in a wheelchair, to complete recovery, applying his pre-war proficiency in basket making (⚡). Similarly, Sergeant Bisset, unable to walk properly after being buried alive by debris from an explosion, is shown with normalised gait after two months (⚡). Cases are framed dramatically by adding personal details and contrasting the horrific combat related injuries with bucolic scenes of basket weaving, cow herding, and feeding chickens.

The film ends with a fully staged battle re-enactment, referred to as “The battle of Seale Hayne,” that provides a backdrop to the soldiers’ stories. But this is not the only enactment in the movie. Careful observers have noted that the background to the scenes showing Sergeant Bisset before and after recovery include the same nurses, bystanders, and smoke rising from the chimney, showing that it was a re-enactment rather than an authentic medical record (⚡).<sup>5</sup> It is not known how many of the other cases were staged.

An interesting parallel exists between the involuntary enactment of neurological dysfunction in a primal attempt at sense making<sup>11</sup> (or, in neurocomputational terms, at reducing uncertainty),<sup>12</sup> and its reiterated enactment for medical documentation, prompted and directed by physicians trying to impose a secondary narrative of illness and healing.<sup>4,6</sup> Few historical artefacts capture the interlinked narratives of personal and societal crises as succinctly as these two wartime medical films, produced independently yet seemingly in concert on both sides of the front lines.

## Creating meaning

Current models of functional neurological disorders are returning to concepts that were popular before the era dominated by Freudian (psychological trauma) theory. It is increasingly

accepted that beliefs about bodily dysfunction can trickle down the hierarchical neural architecture of the brain to produce “expected” symptoms beyond the conscious control of patients.<sup>12,13</sup> Similarly, medical dogma will guide doctors in their perception and treatment of disease, moulding it into preconceived shapes in the process.<sup>1,2</sup> Both neural systems and medical sciences rely on determining the most likely interpretations using pre-existing ideas to reduce uncertainty (with what statisticians call probabilistic inference). To underestimate top-down influences in this complex interplay of thoughts and currents, to neglect the power of ideas and ideology, is to misunderstand how our brains work.

Shell shock persists in the English language as an expression of overwhelming surprise, the stuporous reaction to the devastatingly unexpected (unlike its German equivalent *Granatfernwirkungsfolgen*, which has slipped out of common parlance). In medical textbooks, having temporarily occupied the same pages as “hysteria” and “neurasthenia,” shell shock has been reduced to a footnote, making space for “functional neurological disorders,” which is the contemporary umbrella term for movement, sensory, or speech disorders commonly seen in shell shock.<sup>8</sup> Since disorders of cognition and mood such as anxiety, panic attacks, and nightmares were also considered manifestations of shell shock, it has often been described as a precursor of “post-traumatic stress disorder,” although the symptoms are mostly different (⚡).<sup>2</sup>

The history of shell shock, so vividly encapsulated in these two films, reminds us that whatever names we choose for such illnesses, however scientifically minded the stories we tell of them are, they will often be both descriptive and prescriptive, creating meaning with each retelling. Furthermore, a century later, when functional disorders of the nervous system are once again coming into the focus of scientific inquiry,<sup>8</sup> and when the political unity of Europe is being newly challenged, these films remind us that our struggles are not new, national, or hopeless.

Max Nonne’s film *Funktionell-motorische Reiz—und Lähmungszustände bei Kriegsteilnehmern und deren Heilung durch Suggestion in Hypnose* (Allgemeines Krankenhaus Hamburg Eppendorf, Germany, 1917) can be accessed online at <http://www.filmportal.de/video/funktionell-motorische-reiz-und-laehmungszustaende-bei-kriegsteilnehmern-und-deren-heilung-dur>. Arthur Hurst’s film *War Neuroses* (Netley, 1917) can be downloaded from the Wellcome Collection online library at <http://catalogue.wellcomelibrary.org/record=b1667864>.

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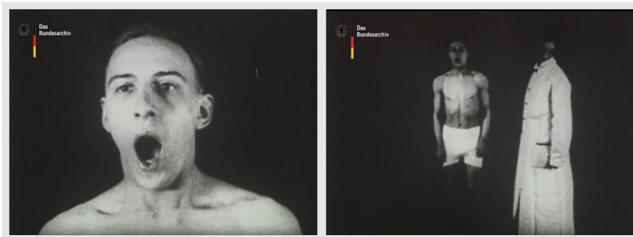
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## Table

**Table 1 | Features of shell shock and related disorders**

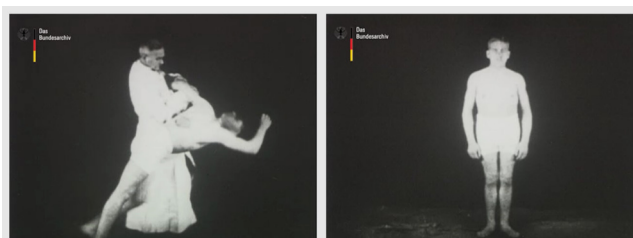
Characteristic	Shell shock	Functional neurological disorders	Post-traumatic stress disorder
Date of use	1915-1920s (banned by British army in 1917)	21st century* (functional nervous disorder used in 19th century)	1978 <sup>†</sup> to present
Triggering stressor	Yes (military combat)	No‡	Yes (severe psychological trauma)
Limb weakness, movement disorders, blackouts, speech impairment	Yes	Yes	No
Exhaustion, impaired memory, poor concentration	Yes	Yes	Yes
Flashbacks, situational hypervigilance and avoidance	No	No	Yes

## Figures



Patient 1 in Max Nonne’s film shown struggling to articulate (left), and then, after being cured, talking normally in the company of Nonne (right)

[Image: BUNDESARCHIV]



Patient 11 in Max Nonne’s film is shown struggling to stand or walk due to “severe convulsions with astasia-abasia” (left), and then, after being cured, standing calmly (right)

[Image: BUNDESARCHIV]



Private Meek in Arthur Hurst’s film is shown sitting contortedly in his wheelchair (left), and then, after being cured, standing and helping others with basket making (right)

[Image: WELLCOME TRUST]



Sergeant Bisset in Arthur Hurst’s film is first shown in September 1917 with a severe gait disorder, requiring two crutches, and then in November 1917 walking upright without walking aids. Note the identical background in both clips, which casts doubt on the authenticity of the purported timeline

[Image: WELLCOME TRUST]