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Book Review

The Great War and the birth of modern medicine

Thomas Helling

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Historians, journalists and writers often contrast the First World War with conflicts of previous centuries based on its highly industrialised nature and scale. They write how horse-drawn wagons and mounted infantry made way for highly mobile machines. They also note how industry, alongside government and society, co-operated more closely than before to build a growing number of new technologies. Such developments saw aircraft, tanks, submarines and chemical weapons make their military debut in this global conflict. Armies also carried out logistics and supply operations on a greater scale and over wider distances than before. In addition, belligerent nations mobilised more manpower and over greater geographical distances than ever before. The number of mutilated men and war dead due to the destructive power of weapons and munitions was also greater than ever experienced. Apart from the physically maimed, the psychological impact of the horrors of the war gained new proportions and intensity. For these reasons, it is hardly surprising that the conflict between 1914 and 1918 became known as the Great War since every aspect of the war occurred on a 'greater' scale. At the same time, the war can be described as 'great' due to its beneficial contribution to humankind – as unlikely as that might seem. Due to the war, a greater number of lives could be saved by medical personnel than claimed by hostilities if weighed on a balance sheet over the long term. The most recent experience of the viral pandemic was evidence of this when governments, physicians and scientists dusted off the lessons learned from a century past. But, unlike them, their predecessors often did not have such advantages at the turn of the twentieth century. The contributions of these men, and occasionally women, gave birth to modern medicine, as Thomas Helling's latest publication suggests. The outcome of the war was therefore not only destructive but also constructive since new knowledge, technology and incentives ushered in a new age of medicine from which future generations benefited and are still benefiting.

In *The Great War and the birth of modern medicine*, Helling describes how governments, private enterprises, wealthy benefactors, civil organisations and societies, military authorities, doctors, scientists, and a host of other individuals from different backgrounds and disciplines, offered time, finance and other forms of support. Their main aim was to restore soldiers' health to such an extent that men could return either to the battlefield or to civilian employment. Such collaboration occurred globally across universities,

hospitals and other institutions near the front lines and far from it. For instance, pioneers such as the French surgeons Maurice Marcille and Antonin Gossett mobilised surgical teams on the Western Front close to the trenches to stabilise soldier-patients, who were then moved along the chain of evacuation behind the front lines for further treatment (Helling, 2022, p. 4). At the same time, far from the European battlefields, surgeons used scalpels and knives for the first time to restore men's cosmetic appearance and essential functions, such as chewing and talking. The New Zealand-born surgeon Harold Gillies – often referred to as the "Father of Plastic Surgery" – was largely responsible for these advancements in reconstructing devastating and disfiguring facial injuries (Helling, 2022, p. 8). However, not all developments had their origins in the war itself. Many medical improvements were based on past knowledge as well. For instance, Hugh Owen Thomas developed the Thomas splint to immobilise compound fractures and other injuries based on his experience of treating dockworkers in Liverpool (Helling, 2022, pp. 219–220). He died of pneumonia in 1891, long before the war erupted. However, his nephew, the gifted surgeon Robert Jones, continued using the splint even while serving in the British Territorial Force during the war. By 1917, most aid posts on the Western Front carried these splints. In contrast, as Helling shows, not all contributions to modern medicine were as definite or concrete (p. 260). In other cases, the war offered only an opportunity to begin understanding the impact of warfare on soldiers' health.

One such area was some of the earliest studies conducted on post-traumatic stress disorder (PTSD). Some cases resembling PTSD were already reported in previous conflicts but on a much smaller scale. Arguably, the highly industrialised nature of warfare at the turn of the century had a markedly new and different effect on the minds of men. Already in late 1914, the first cases of unexplained paraplegia were reported (p. 232). Examinations showed that those all had the trappings of traumatic spinal cord contusion but without any signs of external injuries. Similar reports followed, accompanied by more unexplained symptoms. These included but were not limited to mutism, shivering, insomnia, emotional instability, blindness, amnesia, hallucinations and a host of others without any visible physical wounds. Some physicians classed these men as suffering from 'shell shock' and others as 'war neurosis', 'neurasthenia', 'hysteria', 'mental anaphylaxis', or 'emotional shock', to name but a few. Regardless of the diagnosis, men who suffered from the psychological scars of war were often ostracised as unmanly, shirkers, malingerers or cowards. In 1920, two years after the conclusion of the war, the British Parliament appointed a committee of inquiry into these cases. Another two years followed before the committee concluded in its report that they disparaged the term 'shell shock' and other variants, and that there was no link with cowardice. Unfortunately, the findings of the committee were slow in penetrating public perceptions and the stigma surrounding those who had PTSD – some of which remain to this day. However, the war did offer an opportunity for early research on trauma, which has since grown into an important research field.

Throughout the book, Helling not only discusses advancements in modern medicine but also considers the individuals who made these contributions. He highlights that many medical specialists, such as physiologists, found ways to travel to or serve on the Western Front – not so much out of duty, patriotism or a sense of adventure, but rather because the war front offered them a human laboratory of sorts. However, despite the training these

professionals received, many were plagued by the bodily mutilations caused by war. Like the soldiers, they were not immune to the horrors of the war. Even surgeons noted in their reminiscences the sights and sounds, which at times influenced their clinical observations and measurements. For some, it was too much to bear in conjunction with the long hours and limited resources. They sometimes opted to return home. For others, decisions between who should be treated and who should be left to die also haunted them. "These were the ones at whom surgeons smiled and simply walked past" (Helling, 2022, p. 65).

Fortunately, not all of Helling's narrative is doom and gloom. He often includes quirky and colourful anecdotal descriptions of individuals, which humanise them and makes each page a riveting read. One such character is the very wealthy Anne de Rochechouart de Mortemart, the Duchesse d'Uzès, heiress to the Veuve Clicquot Champagne house. She advocated for women's rights and was one of the founding contributors to The French Union for the Suffrage of Women (p. 18). Apart from these interests, one of the newest inventions, the automobile, bewitched her. This fascination could explain why she received one of the first speeding tickets in the Bois de Boulogne west of Paris in 1898. When war erupted, she not only qualified as a nurse and opened her home to war wounded but also made a social and economic capital contribution to one of the first mobile surgical ambulances to the front (Helling, 2022, pp. 18–19). She is but one of the many animated characters who grace the pages of Helling's book.

Despite such praise, some aspects of the *Birth of modern medicine* leave the reader wanting. Notwithstanding the vivid descriptions, the book is devoid of any diagrams, sketches or photos, which would have made for a welcome addition. Furthermore, there is no glossary or even an appendix with some definitions at the end. This is sorely missed. Novice readers, in particular, might become confused or lost in the narrative at times. At the same time, besides the extensive bibliography of sources consulted, Helling simplifies medical complexities and jargon for the average reader. Such an accomplishment is no small feat considering that Helling is a professor of surgery and the head of General Surgery at the University of Mississippi and not a journalist, historian or non-fiction writer. His crisp and rich writing style is all the more impressive, considering his background.

However, this accomplishment in one area does not entirely make up for the limitations in another. Like most contemporary literature on the First World War, the book tends to focus on the Western Front and the contributions made by the British, French and Americans. Some mention is made of advancements in other areas of Europe, such as Germany and Italy, but little if any on the further corners of the world. Discussions on treatment and experiences of medical personnel in other war theatres are also largely absent. As a result, most readers interested in the topic will not be surprised by the themes covered. These include but are not limited to medical innovations in blood transfusions, antiseptics, anaesthesia, the treatment of shock, gas gangrene, the use of mobile X-ray units, developments in the chain of evacuation and triage and others. Many might have gleaned some top ten or twenty list of medical innovations on the war scrawled on some internet website. However, the finer details and how these developments unfolded would not be described as deftly as in Helling's book. For these reasons, some local readers might wonder whether this pricey work is worth a plastic swipe when converted to the South African rand. And yes, it is.

For several reasons, the book is relevant to the more advanced but also novice readers on topics related to the history of war and medicine. For one, South African soldiers benefited from these medical advancements. Private D Beattie, who served in the 2nd South African Infantry Brigade in East Africa during the First World War, is one such individual (RCS Archives, Beattie). A gunshot wound caused some loss of bone in his chin and jaw, which not only affected basic functioning but also caused some disfigurement. He was transferred to England in 1919 for medical treatment. Initially, he suffered from depression and refused treatment. However, his mental state improved significantly after surgeons at Queen Mary's Hospital repaired most of the damage through several reconstructive surgeries. Beattie was repatriated the following year (RCS Archives, Beattie). Beattie was merely one of many who benefited from developments in reconstructive surgery, which arguably influenced to what extent he reintegrated into civilian life. Without the reconstruction, he might have become a social recluse who would have had to survive on a state pension or worse. Readers and researchers will surely make similar connections between the treatment of other South African soldier-patients and advancements during the First World War as in Beattie's case.

Another reason the book may be relevant to local readers is that of the South African contributions to modern medicine. As Helling himself highlights (p. 285), none of the medical developments can be credited to only one individual, as the work is the product of a larger collaborative project. Similarly, as a Johannesburg physician, GT du Toit, wrote some decades after the war, "[t]he team-work of plastic surgeon, orthopaedic surgeon, radiologist, specialist in physical medicine and the various therapists have developed a machine capable of far greater achievement than any isolated man" (Du Toit, 1954, p. 730). One member of this global team was Maj Maurice G Pearson. He immigrated to South Africa in 1901 after completing his studies. During his first year in South Africa, he acted as district surgeon at Alicedale in the former Cape Province. After a year in this position, he moved to Durban, where he worked as a surgeon and ophthalmologist in general practice. When war erupted, he enlisted in the South African Medical Corps. During his time on active service in France, he contributed significantly in terms of treating thick thighbone or femur fractures. The results achieved by him and his team led to the War Office placing him in charge of a 'femur hospital', the Edmonton Special Military Surgical Hospital in England (Metcalfe, 1919, pp. 72–73; RCS Archives, Pearson). He was but one of several such individuals.

If none of these reasons seems convincing, potential readers could consider the following. Many medical advancements and technologies, such as the Thomas splint, are still used today. Even perhaps more interesting is that, despite its use for over a hundred years, academics are still researching the application of this splint, showcasing its relevance in modern medicine in our contemporary world (see Hoppe et al., 2015). The same applies to the prevention and treatment of PTSD. These and other areas explored by Helling make his book particularly relevant to current researchers and practitioners, since it could aid their understanding and provide context for their own field of interest.

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Endnotes

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