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Rehabilitation and restoration: orthopaedics and disabled soldiers in Germany and Britain in the First World War

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Rehabilitation and restoration: orthopaedics and disabled soldiers in Germany and Britain in the First World War

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This article offers a comparative analysis of the evolution of orthopaedics and rehabilitation within German and British military medicine during the Great War. In it, we reveal how the field of orthopaedics became integral to military medicine by tracing the evolution of the discipline and its practitioners in each nation during the war. In doing so, however, we document not only when and why both medical specialists and military officials realized that maintaining their respective national fighting forces depended upon the efficient rehabilitation of wounded soldiers, but also how these rehabilitative practices and goals reflected the particularities of the military context, civilian society and social structure of each nation. Thus, while our comparison reveals a number of similarities in the orthopaedic developments within each nation as a response to the Great War, we also reveal significant national differences in war-time medical goals, rehabilitation treatments and soldierly ‘medical experiences’. Moreover, as we demonstrate, a social and cultural re-conceptualization of the disabled body accompanied the medical advancements developed for him; however, this re-conceptualization was not the same in each nation. Thus, what our article reveals is that although the guns of August fell silent in 1918, the war’s medical experiences lingered long thereafter shaping the future of disability medicine in both nations.

Keywords: disability; rehabilitation; orthopaedics; military medicine; Germany; Great Britain

Introduction

For Europeans, the massive casualties of the Great War were unparalleled. In addition to the lives sacrificed by so many soldiers, many survivors lost body parts, senses and minds. Not only was the scale and severity of the physical trauma wrought on the bodies and minds of the men unprecedented, but modern medicine had few resources in place for coping with such devastation. As the severely wounded casualties appeared in significant numbers, medicine seemed unable to offer recourse from the disabling technologies of mechanized warfare.

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Much of the scholarly work that has centred around war and medicine has been broad in focus. The monographs and edited volumes that have been produced centre on a range of topics from the organization of hospitals to the control of disease (Eckart and Gradmann 1996; Cooter, Harrison, and Sturdy 1998; Cooter, Harrison, and Sturdy 1999; Reznick 2005; Eckart and Neumann 2006). They have also generally concentrated on a single national story (Angetter 2004; Harrison 2004, 2010; Hofer, Prüll, and Eckart 2011). Few historians have explored the story of how one medical specialism coped with and responded to the widespread injury of soldiers on the battlefield or what actually happened to the seriously wounded soldier during the conflict itself (Linker 2011; Perry 2014). Indeed, the war’s aftermath, which for most soldiers accompanied severe wounding, is rarely discussed by historians of medicine. The medical experiences of permanently disabled soldiers, in and out of the armed forces, have been relatively understudied in favour of a concentration on specific conditions, diseases and injuries which are often centred around medico-military organization.

This article marks an attempt to add to the medical history of the First World War, while also considering the many ways that these responses fundamentally transcended the soldiers they aimed to heal and ultimately reflected the particularity of the civilian societies and social structures from which they stemmed. Firstly, our article explores the ways that two of the largest belligerent nations, Germany and Britain, handled the treatment of certain groups of wounded soldiers. Relatively, early in the conflict, orthopaedic specialists on both sides realized that the maintenance of their respective national fighting forces depended upon the efficient restoration of the wounded soldier. Thus, the responsibility for restoring function to the wounded became vital to the war effort and orthopaedists in both nations treated millions of soldiers with fractures and wounds to their extremities. It is through these developments that military medicine, particularly orthopaedics, became a significant component of the management of manpower resources in both armies during this war.

Moreover, in addition to comparing the emergence of orthopaedics as a specialty becoming integral to military medicine in both nations during this war, our article also examines some of the significant national differences in the strategic focus, treatment regimes and rehabilitation programmes that evolved in each nation as part of the care regimen for permanently wounded soldiers. As this article reveals, despite some similarities in evolving medical procedures, the healing and treatment of severely injured soldiers in each country developed within different medical, social and cultural contexts, and this article will explore the consequences of these differences. In doing so, our goal is to both underscore the importance of national context when examining the intertwined histories of war and medicine, while also pointing out the longer term implications of these differences.

At the outbreak of war, medical education, military organization and welfare systems in European states diverged widely and these differences have
created inherent difficulties in finding and making meaningful national comparisons. Mark Harrison notes that the medical profession had developed differently in the two nations (Harrison 1999, 13). Thus, these long-standing differences mean that there are few existing studies which comparatively analyse the medical and indeed the rehabilitative practices of Germany and Britain. Some historians, however, have endeavoured to unpack national differences in other aspects of military medicine in order to make meaningful assessments. In his article, comparing British and German pathology during the First World War, Cay-Rüdiger Prüll argues that ‘modern medicine has evolved on distinctly national lines’, and he demonstrates persuasively how these political, cultural and historical traditions permeated the discipline. His research shows how Germany’s pathologists developed a more specific research and experimental agenda which they labelled ‘war pathology’ (Kriegspathologie), whereas British pathologists did not develop a specific plan as a result of the war, instead they offered their expertise to other medical specialisms (Prüll 1999). Mark Harrison has suggested that general conscription in the German armies might be one explanation for the apparent readiness with which that nation’s medical men adopted military values (Harrison 2010).

However, one should also consider the fact that with the establishment of the Kaiser Friedrich Wilhems Institut in 1795, the Prussian Army was one of the first militaries to incorporate military medicine into its organization and training. British doctors only began to integrate themselves into the armed forces in 1898 when the Royal Army Medical Corps was created (Whitehead 1999, 6). Yet, despite the differences in the organization of and association with military medicine, when the war broke out in 1914, the armed forces in both countries were short of experienced doctors and surgeons, and looked to civilian medical practitioners to fill their ranks. Consequently, some similarities are evident as both countries prepared their medical corps for mass warfare.

Although similarities can be outlined, it is important to note that national and historical differences should consistently underpin our analysis. In her book, The War Come Home: Disabled Veterans in Britain and Germany 1914–1939, Deborah Cohen (2001) compares the post-war welfare provisions for disabled British and German servicemen and concludes that British disabled veterans were not provided for by the state in the same way that their German counterparts were. Moreover, in her focus on explaining the relationships of these disabled veterans with their respective states, her study missed important national differences in the ‘medical experiences’ of the soldiers – and how this might have factored into support for, or disillusionment with, the state (Cohen 2001). Yet, some publications have made more meaningful comparisons. In his book, Before My Helpless Sight: Suffering, Dying and Military Medicine on the Western Front, 1914–1918, Leo van Bergen explores the experiences on the western front of soldiers from Britain, Germany, France and Belgium. Van Bergen adroitly circumvents the problem of contextual difference by focusing on specific themes in one distinct theatre of war. As a result of
avoiding these directly comparative links, his book is more of a meditation on the commonalities of war experience from battle to death than an in-depth comparison of national systems, organizations or even attitudes (van Bergen 2009).

Overall, this article will build on the comparative work that has been undertaken so far, and explore the complex relationships between medicine, the military and the state. It will delineate national differences in military medicine and offer meaningful comparisons of trauma care, orthopaedics, and rehabilitation during the First World War in Germany and Britain.

**Before the war: British and German orthopaedics**

In the years before the war, orthopaedists in the German Empire had been developing as a specialty mostly devoted to the treatment and care of congenitally disabled children. They did not, in the main, provide acute trauma care, nor did they usually treat adult patients. One primary explanation for this development is that under the German social insurance system set into place during the 1880s, two specific branches of medicine – traumatology and worker insurance medicine [*Arbeiter-Versicherungsmedizin*] – had evolved to treat accident victims, most of whom, not surprisingly, were injured while engaged in industrial or agricultural work (Gumprecht and Pfarrius 1913). Moreover, as Greg Eghigian has pointed out, the pension system which evolved as a part of German social insurance encouraged a popular feeling of entitlement to financial compensation for injury, not long-term recuperative medical care (Eghigian 2000, 132–135). Thus, while traumatologists and those physicians practising worker insurance medicine focused on the care of accident victims, orthopaedists were left to focus on those patients whom few other medical professionals wanted to treat: the impoverished and congenitally disabled children who did not qualify for treatment under Germany’s social insurance system. In 1913, their professional association dropped the word ‘surgery’ from their name and officially became the German Orthopaedic Association while also incorporating physiotherapy and massage into their treatment regimens (Neumann 2001). Thus, throughout the nineteenth and early twentieth centuries, orthopaedists had been steadily demarcating their patient population and treatment procedures and by 1914 orthopaedists in the German Empire were more generally concerned with the conservative therapies of bloodless surgery and the treatment of the nation’s so-called ‘crippled children’ (Thomann 1995; Perry 2014).

In Britain, the picture was similar – orthopaedists spent much of their time treating children. The first orthopaedic hospital in Britain, and only the second in the world, opened mainly to treat congenital deformity in children, and this concentration lasted into the late nineteenth century. As Anne Borsay has noted, children were often the patients of orthopaedists, mainly because they had a chance of cure, as the regimes of splinting were more conducive to
curing the softer bones of children (Borsay 2006). The charitable system of medical orthopaedic care that operated in Britain throughout the nineteenth and early twentieth centuries was geared towards the child patient as an object of charity, and tickets which paid for treatment were donated to a hospital by an individual or group. In the nineteenth century, orthopaedic surgeons rarely turned their attention to adults, who were often the victims of accidents which were referred to as ‘acts of god’ (Cooter 1993, 79). It was not until the late nineteenth century that orthopaedic surgeons began to treat fractures and other non-fatal traumatic injuries, as previously individuals had been treated by general surgeons in hospitals. Certain industries were considered fundamental to economic efficiency, for instance, mining, shipbuilding and large industrial projects such as the Manchester Ship Canal where a well-organized system of orthopaedic treatment was established in the 1880s. Economic expediency and a new valuation of labour drove the medical interest in industrial accidents, which in turn led to the creation of an organizational specialism (Cooter 1993, 103). Conversely, unlike Germany, the importance of a healthy workforce to the economic health of the state did not result in state intervention in medical care for the injured in Britain until just before the war. For those injured in industry, a system of compensation was operated from 1913, although the legislation came into being in 1911, with the National Insurance Act, which provided the means for workers to insure themselves against unemployment caused by accidents (Gilbert 1970, 103). For those British workers unable to insure themselves, no compensation was forthcoming. As surgery was often a last resort, owing to the dangers associated with infection and problems with anaesthetics, many orthopaedists used environmental techniques such as sunshine and fresh air as part of their patient’s therapy, which was not deemed progressive by other medical specialisms (Watson 1934, 16). Unlike Germany, there was no division of orthopaedics into two distinct groups. This may have been because many British orthopaedic surgeons also practised as general surgeons (Klenerman 2002, 6). The British Orthopaedic Association was not established until 1918. Roger Cooter notes the specialism of orthopaedics was often ‘the butt of medical jokes’ (Cooter 1993, 106).

The war and German orthopaedists

However, with the outbreak of war, orthopaedists, like most British and German medical professionals, were swept into each nation’s mobilization for war. Many found themselves assigned to unit Field Hospitals and Casualty Clearing Stations on the front. In Germany, some remained on the home front in order to prepare the nation’s civilian ‘cripple-care’ institutions, children’s homes and hospitals for convalescing soldiers. In Britain, military hospitals were established throughout the country, some of which specialized in orthopaedics, which eventually provided more than 20,000 beds and ‘curative’ workshops were also set up to rehabilitate the wounded (Watson 1930, 20).
Through the experiences, they gained in treating severely injured servicemen across these facilities, orthopaedists in each nation redefined their discipline and reinvented their treatment procedures.

In August 1914, the Munich orthopaedist Fritz Lange was dispatched to Cambrai in the north of France to work in a Bavarian Army field hospital. In the months that followed, Lange realized that the techniques he and other doctors used in hospitals in Germany did not transfer well into the war environment. The traction bandages originally designed to attach to sturdy hospital bed frames were useless on field stretchers, as were the soft plaster casts preferred by surgeons at the time. Ultimately deciding that the situation called for him to ‘break all the rules’, Lange devised new splints, which used the men’s own bodies for stability, and he made his casts from plaster-of-Paris – a material generally rejected by his colleagues. He also discovered that plaster-of-Paris could be used to make temporary ‘walking casts’ for the men, so they might move about on their own – necessary now that gurneys, trolleys and extra hands were not there to assist the wounded in getting around. At one point, he found himself improvising medical instruments as well, even bending silver table forks into surgical retractors because his military supplies had still not arrived (Lange 1959, 116–119).

All the while he made notes on his experiences and in 1915 Lange published a field manual for sanitation personnel entitled War Orthopaedics [Kriegs-Orthopädie]. In it, he detailed the ways in which ‘modern orthopaedics’ could respond to the wartime situation. Lange outlined techniques for setting splints, bandaging compound fractures, prepping the wounded for transport, making use of physical therapy and fitting amputees for prostheses – all wartime innovations which he had been perfecting in the field since 1914. His goal with the manual was to teach all military medical personnel – whether professionally trained specialists or not – how they could use or adapt orthopaedic procedures for each phase in a wounded soldier’s recovery. He forcefully argued that these techniques were crucial because, in his opinion, orthopaedics was all that stood between the German Empire and the ‘threatening crippledom’ of war. The war demanded the skills of all doctors, Lange argued, ‘especially orthopaedists, who, thanks to their technical expertise, can make themselves particularly useful to our wounded’ (Lange and Trumpp 1915, iii, 8).

This claim that the health and healing of the empire’s wounded soldiers would pivot upon the expertise of orthopaedists marked a significant shift in the discipline’s orientation and was one that would have surprised many doctors at the time – including most orthopaedists. Indeed, less than a year before the publication of War Orthopaedics, Lange had published the nation’s latest and most authoritative textbook in the field in which he underscored the fact that orthopaedics should be understood as distinct from both surgery and accident medicine. In the Lehrbuch der Orthopädie [Handbook of Orthopaedics], he argued that ‘experience had shown that the treatment of orthopaedic injuries demanded more patience, more dexterity, and more technology, than that of
acute [injuries], which rather required quick and responsive surgery’ (Lang 1914, v). For these reasons, he argued, accident victims and their treatment should remain outside the scope of modern orthopaedists [emphasis added]. And, reflecting this professional consensus, the pages of the Handbook of Orthopaedics concentrates on the treatment of congenital conditions and growth deformities. There is very little discussion of or reference to trauma medicine, rehabilitation therapies or artificial limbs in the manual (Lange 1914, passim). However, by the time he wrote War Orthopaedics, Lange had obviously reconsidered the utility of orthopaedics to trauma victims, because while he may have proclaimed that accident scenes and trauma clinics were no place for orthopaedists in 1914, just a year into the war, Lange had changed his thinking on this matter.

Indeed, Lange specifically wrote War Orthopaedics in the midst of the conflict so that he could widely circulate the significance of orthopaedics to military medicine. Although he admitted that the specialty had been of little use in previous wars, he argued that it was taking centre stage in the current one for two main reasons. On the one hand, he pointed out that this was because the old-fashioned techniques and primitive methods of the ‘old orthopaedics’ had offered limited results to patients before now. Even more importantly, however, he noted that very few casualties in earlier wars had the opportunity or need for orthopaedic treatments. For instance, noted Lange, although doctors in the Franco-Prussian War had performed a great number of amputation surgeries on the wounded, the mortality rate among those patients had been somewhere between 80 and 90%. That is, the majority of the soldiers in the 1870–1871 war had died from the surgery (or complications related thereto) thus making any follow-up or long-term orthopaedic care unnecessary. In the current war, the mortality rate from amputations had fallen to just 3%, however, and in his opinion, this made orthopaedics not just relevant, but indispensable (Lange and Trumpp 1915, 7–8). Lange also argued that while the absolute number of amputation surgeries being performed was much higher than during the German Wars of Unification (1864–1871), the incidence of amputation was statistically lower than in previous wars. Although he could not have predicted it at the time, Lange’s words were prescient. Of the 13.2 million men who served in the German armed forces during the war, 2.7 million were permanently disabled, including 67,000 amputees (Whalen 1984, 55–56; Bessel 1993, 275).

War Orthopaedics was more than just an orthopaedic how-to manual for general practitioners who found themselves in the field, however. In it, Lange was making a clear break with the ‘old orthopaedics’ of the past by including procedures specifically developed during the war, and also enlarging the field’s domain to include new patient categories and a role in shaping welfare policies. Many of the therapies were geared towards treating war injuries, others focused rather on adapting orthopaedic procedures to war conditions. For instance, instructions on transporting the wounded soldier included new methods for immobilizing the injured body so that further damage might be
prevented. Descriptions of physical therapy were included as part of healing a body part recovering from surgical intervention, such as reconstructed tendons. He outlined ways to use orthotics and other orthopaedic inserts to compensate for weak or injured limbs. Many of these were already established procedures modified to wartime conditions or re-fashioned somewhat for adult males. However, Lange also introduced a new domain to orthopaedics: artificial limbs, prosthetics and other devices for re-building the body of the disabled soldier. No longer focused primarily on the care and welfare of Germany’s so-called ‘crippled children,’ in War Orthopaedics, Lange was deftly manoeuvring the discipline permanently into a new area: the physical rehabilitation and restoration of severely disabled adults (Lange and Trumpp 1915, passim). And alongside this re-orientation of the medical specialty, they claimed that modern orthopaedics could return to the severely wounded soldier what one orthopaedist described as ‘precisely what that war had taken from him’: the full restoration of his body and his ability to be economically self-sufficient (Biesalski 1915).

Fritz Lange was not the only one to improvise in the face of mounting war-time casualties. The high rate at which soldiers were being wounded gave medical providers an unprecedented number of patients upon which to practice and perfect treatment techniques. Moreover, the concentration of doctors with different specialties working side-by-side in military hospitals and consulting with one another fostered discussion and ultimately transferred medical knowledge between professionals more quickly than in peacetime (von Schjerning 1920, 5). In addition to this informal knowledge transfer, throughout the war years, orthopaedists in Germany published innumerable articles, pamphlets and books detailing their innovations. In leading civilian medical journals, such as the Münchener medizinische Wochenschrift and the Zeitschrift für Krüppelfürsorge, they recounted the various ways in which they were responding to the challenge of healing soldiers and their successes in ‘reclaiming’ the bodies of the wounded (Koehler 1921, 124–130. BA-MA PHD 6/163/12). Some of these journals even printed Feldärztliche Beilage, issue supplements which concentrated on military medicine. In 1916 orthopaedists hosted professional conferences in Cologne and Berlin to present their innovations to each other and standardize new treatments (von Schjerning 1920, 6). In addition to these empire wide meetings, some individuals, such as Hermann Paal, gave informal educational talks and medical salons on the home front (Paal 1915). Whether at home or in France, Germany’s orthopaedists were on the frontlines of soldier care, and they used their experiences to carve out this new sphere of expertise for themselves.

The war and British orthopaedists

Unlike Lange’s War Orthopaedics, and other manuals written for German orthopaedists, there were very few manuals written for British orthopaedic
surgeons during the war, although there were more that reflected the war experience after 1918. The majority of the spread of information regarding changes to practice and innovations for British doctors were published in the civilian medical journals, the *Lancet* and the *British Medical Journal*. It was to these civilian journals that many medical practitioners turned in order to read about new advances, changes in practice and the efficacy of new techniques. Often the British journals’ index would contain the word ‘war’, so that all articles pertaining to the relevant subject would be easily located. Indeed, one of the only British books published during the war, Robert Jones’ *Notes on Military Orthopaedics*, which was released in 1917, was a compilation of all of his articles published in the *British Medical Journal*.

In Britain, orthopaedic medicine was also altered rapidly by the war. When the war broke out, there were relatively few orthopaedic surgeons, physiotherapists and specialist nurses (Watson 1930, 19). Indeed, it has been argued by Roger Cooter that there were few that had any experience of treating patients with traumatic injuries (Cooter 1993, 108). Through the efforts of orthopaedic surgeons such as Robert Jones, and as the war progressed, orthopaedics gained a reputation for good results. These men, and the practice of orthopaedic surgery became a medical success of the Great War, lauded by the Army Medical Service, and themselves, for repairing broken bodies, systemizing treatment and in doing so, returning soldiers to the battlefield as soon as possible.

As in Germany, practices and treatment methods that had served British orthopaedic surgeons well in civilian life had to be rethought or changed. For instance, the irrigation and suture of wounds had to be abandoned when it became evident that this practice was causing an increased number of deaths owing to infection (Grey 1919, 127). Amputations were divided into primary and secondary amputations, with the advice that ‘as much of the limb as possible should be saved’. Primary amputations were considered a life-saving procedure, and often performed at the Casualty Clearing Stations fairly immediately, and secondary amputations were conducted when the patient’s condition was more stable (*Injuries and Diseases of War* 1918, 60–61). Often primary amputations had to be re-operated on several times to ensure that the bone was sufficiently covered by muscle and skin to facilitate the use of an artificial limb.

Considering very few of these orthopaedists were experienced at performing procedures associated with trauma such as amputation, there were a very high number of amputations conducted at the beginning of the war. Indeed, 80% of all gunshot wounds resulted in amputation (Frankau 1922, 298). Eventually, the old practice of amputating compound fractures was rejected for badly shattered bones. It was argued that this was only necessary when blood vessels and nerves were destroyed (Grey 1919, 52). As the war progressed, surgeons used their increasing knowledge derived from experience and growing expertise and skills to save a number of limbs, setting badly broken arms and legs into Thomas splints. In 1915, Robert Jones had persuaded the Army Medical Service to use the splint and other variations which his uncle, Hugh
Owen Thomas, a bonesetter from Liverpool, had devised (Cooter 1993, 106). The Thomas splint, in combination with the stretcher suspension bar, was vital to properly fusing broken bones. If limbs were properly splinted, the patient had a much better chance of surviving injury, and not having the consequence of a limp through a badly set fracture. It was argued that the use of the Thomas splint reduced mortality from compound fractures by at least 30% (Grey 1919, 49).

In addition, numerous lives were saved when military surgeons adopted the method of debridement, cleaning the wound, cutting out damaged tissue and removing debris so the chance of infection was lessened. Roger Cooter argues the main reason for the reduction in amputations was the regular use of Dakin’s solution from 1916, which effectively cleaned the wound of contaminants that could cause infection (Cooter 1993, 111). Cooter also contends that orthopaedic surgeons had to abandon the principles of no-touch antiseptic surgery (Cooter 1993, 110). Conditions at the front ensured that surgery was conducted under very basic conditions. As noted in a book on military surgery,

> Here is no brilliantly lighted and fully equipped theatre, here his patients do not come before him in spotless apparel, here he has not unlimited skilled assistance, here no aspect ritual is possible, here he must be content with very simple things. And through it all he must keep cool, he must hurry, he must be thorough, he must be gentle and careful in every possible way. His is the responsibility to make or mar a man for life. (Grey 1919, 2)

British orthopaedic surgeons were also aided by earlier developments in medical technology and practice. Technology such as the mobile X-ray machine, common on the battlefield by 1917, helped the orthopaedic surgeon pinpoint more precisely the location and extent of a fracture in order that the correct treatment regime could be undertaken. Surgeons were able to do much better repairs which saved many soldiers’ limbs from amputation. Nonetheless, approximately 41,000 British soldiers lost one or more limbs.

Similar to the case of Fritz Lange in Germany, experienced orthopaedic surgeons such as Naughton Dunn joined the Army and were instrumental in providing their expertise in preventative and corrective surgery for the war wounded. After he joined the Royal Army Medical Corps in 1915, Dunn was appointed regimental medical officer with the Mediterranean Expeditionary Force and posted to the island of Lemnos, where he treated casualties from the Gallipoli campaign. He was sent back to Britain after bouts of typhoid, dysentery and hepatitis and spent some time recovering. After his illness, Dunn treated a number of soldiers at the flagship orthopaedic hospital – the Military Orthopaedic Hospital in Shepherd’s Bush – with his old mentor Robert Jones. Like Jones, Dunn prescribed conservative treatments of splinting, electricity and massage, and did not recommend surgery initially. In his articles, Dunn
noted the conditions particular to military surgery, including septic wounds and compound fractures which complicated treatment regimes, and which few surgeons had been exposed to in great numbers.

Dunn’s mentor, Robert Jones, was the most influential orthopaedic surgeon in Britain (Watson 1934). Unlike many orthopaedic surgeons at the outbreak of the war, he had extensive experience with victims of trauma. He was appointed consulting surgeon to the Manchester Ship Canal in 1888, where he designed a comprehensive accident service, which formed the basis of the system he implemented during the war and which he initially established in Liverpool (Cooter 2004). Owing to this work, in 1916, Jones was appointed director of military orthopaedics by Sir Alfred Keogh who was director-general of the Army Medical Service. Many influential orthopaedic surgeons such as Jones and Dunn worked in mainland Britain in specialist hospitals, and did not perform surgery in Casualty Clearing Stations near the front line. There was a reason for centring expertise in Britain. Although the soldiers had already endured painful amputation, more was in store for them when they arrived in the orthopaedic hospital. In many cases, when a soldier arrived at the large orthopaedic centres, the hurried efforts of the surgeons in the Casualty Clearing Station had to be repaired, excess skin had to be cut away, and further operations to remove additional bone were performed (Chisolm 1919). Experienced orthopaedic surgeons in British hospitals who had often trained under Jones had time to create a better stump for an artificial limb. There seemed to be less concentration on skilled surgery on the front line. Much of this came from Jones who was fundamental to the success of orthopaedics during the First World War. His organization, international reputation and influence with the Army Medical Service meant that orthopaedics certainly attained a higher profile than it had when it was principally geared towards the treatment of crippled children.

German orthopaedics, rehabilitation and the disability shift

As orthopaedists in both nations were busy attending to the injuries of war, many were also engaged in campaigns to shift the public perception of German ‘war cripples’. For instance, at the same time that Lange was stressing the importance of early orthopaedic intervention in the care of wounded soldiers in the pages of War Orthopaedics, Germany’s leading expert in the care of disabled children, the Berlin-based orthopaedist Konrad Biesalski, launched an empire-wide campaign designed to re-educate Germans on the correct ‘bodily capacity’ [körperliche Leistungsfähigkeit] of the disabled soldier. Through pamphlets, public speeches, medical expositions, educational films and the popular press, he and others sought to re-cast the image of the ‘crippled soldier’ in the public’s eye.

In booklets such as Kriegskrüppelfürsorge, Biesalski aimed to convince wounded soldiers and their families that their bodies could be restored to full
health and working capacity. With revised therapies, new treatments, and above all the intervention of modern medical technology, orthopaedists claimed to be able to return to the severely injured veteran precisely what the war had ‘taken’ from him – his independence and economic self-sufficiency. Orthopaedists in Germany assured the injured, his family and the home front population that they could send the severely wounded soldier back to work so that he would not be a burden on anyone – whether family member, charity or society as a whole. Indeed, according to Biesalski what threatened the rehabilitation of the wounded patient most was not the severity of his injury, but rather the manner in which he was perceived and treated by the general public (Biesalski 1915, 13–14).

Biesalski and others contended that the recent innovations in disability care and welfare called for revised social and cultural expectations for the ‘crippled.’ He characterized these new cultural attitudes that Germans should adopt in the pages of War Cripple Welfare when he wrote,

> Only the sentimental sop says: “How can anyone be so heartless as to expect a poor man who has lost his hand for the fatherland and who has endured so much pain to go back to work – especially when it is clear that a one-handed man can’t do anything.” Whereas the healthy, socially-conscious mind responds rather: ‘The maimed man should return to earning his own bread – not just for himself but also for the sake of dependents – so that he doesn’t end up doubting on both God and mankind and fall victim to misery and poor relief. Because the heroes of this war deserve more than that, rather, they should become once again upright, economically independent members of our Volksgemeinschaft [national community].’ (Biesalski 1915, 13–14)

Germany’s orthopaedists stressed that returning to work was important not only so that the disabled soldier might secure his own economic future, but also in order that he might continue to contribute to the economic prosperity of the nation. In fact, a closer look reveals that not only did orthopaedists believe that the severely injured could be returned to work, but that, in fact, these men had a patriotic obligation to do so.

This idea – to re-create economically and physically self-sufficient Germans from those who in previous eras had been labelled by many as ‘useless cripples’ – was actually a fairly radical one in Imperial Germany. To repair and return the permanently injured body to the workforce, rather than to simply compensate its ‘owner’ with a monetary pension, challenged the practices within the empire’s social insurance system as well as the military’s own pension programme. Before the Great War, the German social insurance system had relied upon insurance courts and panel doctors to determine how much future income an invalided worker was likely to lose due to his injury – whether permanent or temporary – and then financially compensate him accordingly. Instituted by Bismarck in the 1880s as part of a series of measures to quell the restless urban proletariat, German social insurance was oriented
towards maintaining social order, not healing the wounded populace. Pensions, not rehabilitation, were the order of the day in Imperial Germany (Whalen 1984; Eghigian 2000).

As of 1915 then, orthopaedists were beginning to reconsider the value of the pension system. Now that modern medicine could return to these men what the war had taken from them – the ability to work and earn a living – it seemed unnecessary to many of them to award injured soldiers with invalid pensions. Indeed, as Biesalski himself pointed out, the war-invalid must no longer expect the German State to financially support him simply because he had lost an arm or leg. This compensatory practice was outdated, belonging to a past when it had not been possible to replace lost limbs or fully restore the working capacity of disabled men. Repeatedly, he argued that instead of becoming a financial burden to the state, the war-injured ought to say to himself,

Yes! I don’t need to remain a useless cripple, I may once again eat my own bread [Eigenbrot] with my family and I will be the same man that I was before, even up to the little injury I have endured and that I accept–for the sake of the fatherland – as a sign of honour. (Biesalski 1915, 17)

Here, Biesalski is clearly identifying working and earning one’s ‘own bread’ as part of the disabled veteran’s continuing responsibility – even duty – to his nation and its future well-being. He is suggesting that patriotism and individual pride ought to inspire the wounded man to overcome his ‘little injury’ and continue living his life as he had before the war. Indeed, that the orthopaedist compared a severe battle wound to a ‘little injury’ suggests not only that the soldiers themselves should not exaggerate their sacrifices, but that these injuries perhaps deserved less attention from the public, as well.

It is precisely this shift in the perception of the disabled soldier which was perhaps the most radical war-time medical innovation in the German Empire. The war-time revolutions in medical treatment for the so-called ‘cripple’ initiated a wholesale re-conceptualization of the maimed body. What had once been perceived as an immutable bodily state was now being re-imagined as a conditional one. No longer were the severely injured considered permanently and irrevocably incapacitated. Because of war-circumstances orthopaedists medicalized physical disability in the empire – transforming it from a social concern to a medical one. What had previously been a condition ‘treated’ by social welfare via the disbursements of pensions was transformed into a medical one that could be healed by doctors. Because of the technological revolution in artificial limbs combined with the invention of rehabilitation, for the first time in German medicine, these injuries were temporary conditions which could be overcome (also see: Conrad 2007).

Although this educational campaign was primarily aimed at Germans on the home front, the message also found an audience among military authorities.
In March 1915, Karl von Seydel, the Surgeon General of the Bavarian Army, recalled Fritz Lange from his post on the Western front back to Munich. Citing recent innovations in the healing and rehabilitation of severely wounded men, von Seydel had decided to create Medical Advisory Boards for overseeing the Bavarian Army’s convalescent care facilities – and he was bringing orthopaedists into this organization. Lange was being re-assigned to the home front as an advisor to the Medical Department of the Bavarian 1st Army Corps. As the casualties continued to mount, von Seydel had realized that a man like Fritz Lange was of far more value in Munich helping the military build and operate its own orthopaedic workshops for healing disabled soldiers than with the field hospitals at the front (BayHStA, I GenKdo AK, SanA 413, directives 4-2-1914, 3-3-1915).

That same year, the War Ministry established the Centre for Artificial Limb Testing [Prüfstelle für Ersatzglieder] in Berlin. This institute was charged with the careful testing of each new prosthetic device created during the war. During the war, countless recovering amputees were used as test subjects for determining the suitability of these limbs for the industrialized workplace (BA-Berlin. R3901/8730. Denkschrift über die Abbau, 5). To gather these devices, the War Ministry sent questionnaires to the Medical Offices in each Army Corps soliciting information regarding the prostheses they were using in their reserve hospitals – including detailed descriptions of their design, manufacture and even images. The Ministry also requested samples of these artificial limbs be sent to Berlin for evaluation and inclusion in a permanent public exhibit on new developments in prosthetic technology (BayHSta/Abt. IV, Stv GenKdo IAK SanA 308).

Over the course of the war, more than 300 devices were designed and as the numbers of these inventions increased, the War Ministry established branches of the office to help alleviate the pressure on the Berlin headquarters and speed up the process (BA-Berlin. R3901/8730. Denkschrift über die Abbau, 5). Using these methods of ergonomics and kinesiology, orthopaedists and engineers tested the efficiency and measured the productivity of these new prosthetic creations. Orthopaedists also advised engineers and technicians on how to better design new devices, drawing on their own experiences and the experiences of the office’s test subjects (BA-Berlin. R3901/8730, ‘Denkschrift über die Prüfstelle für Ersatzglieder, e.V. Dresden’ 4-1-1921, 3-5). Less than a year into the war, military officials had clearly recognized orthopaedics as central to the care of Germany’s severely injured servicemen and actively incorporated these specialists and their expertise into the constellation of care being provided to wounded soldiers.

As the conflict continued and casualties mounted, however, maintaining manpower resources became increasingly important on both sides of the war. With reserves of able-bodied men significantly dwindling, military officials in both nations were searching for replacements and substitutes. Whereas, Britain could draw reinforcements from her Dominions, colonies and eventually the
United States, the German Empire did not have such reserves at her disposal. Instead, the military turned to the nation’s orthopaedists and demanded that they speed up and maximize further the recovery and service potential of Germany’s severely wounded soldiers.

When things turned especially desperate during the winter of 1917, the new director of the Reserves and Labour Department, General Gottfried Marquard, issued a decree specifically regarding the mustering of convalescing soldiers into the war economy. In order to ensure the absolute maximum ‘extraction’ of all available labour, he ordered that all work-capable (Arbeitsverwendungsähig: AV) soldiers in the military hospitals, central mustering stations, reserve troops and recuperating companies be readied for war work. Additionally, he ordered that every wounded man be immediately relocated to a reserve hospital’s workshop for re-training and he urged the accelerated release of even just partially recovered soldiers from the facilities if they could work. Disabled soldiers no longer designated as fit for war duty were to be re-assigned within the war industry. Finally, those disabled soldiers who refused to cooperate or take up such work voluntarily were to be commanded to it under ‘doctor’s orders’ (SHAD. KA (P) 18189. Erlass des Kriegsministeriums (Kriegsamnt), 2-2-1917, Nr. 110/1.17. AZS 6). Rather than discharging the disabled and demobilizing him back into civilian life, the military began to re-mobilize the permanently injured into war-time industries, disciplining harshly those who failed to comply with their medical ‘therapy’.

In the face of such a desperate shortage of manpower, military authorities continued to look for ways to more effectively mobilize the recovered labour of severely injured and disabled soldiers. Take, for example, the changes implemented at the military hospital in Dresden. In late 1917, General Hermann von Broizem, commander of the XIIth Army Corps, began forming so-called ‘Economic Battalions’ (Wirtschafts-Bataillonen) of disabled soldiers who could be mobilized quickly to meet the specific needs of a particular war industry when necessary. Arguing that ‘the recruitment of convalescing soldiers and the construction of Industrial Workshops has not only resulted in the bodily strengthening of the sick, but has also spoken volumes for the needs of the war economy’, von Broizem had concluded that it was essential to form easily deployable battalions of these restored men within these military hospitals. Keeping them at the ready would allow for the even more efficient deployment of disabled and convalescing soldiers into industry, or so he argued, because they were essentially independent military formations placed under the authority of the general army commander. Both a representative of the Deputy War Office [Kriegsamstelle] and a battalion doctor were to be assigned to each of these Economic Battalions for evaluating their work potential. The physical examination was thus performed by a medical expert, but monitored by a military representative who could override a medical evaluation with which he did not concur. Moreover, doctors themselves could face severe punishment if superiors determined that they were holding back men healthy enough to be
released as fit for some category of service. In this way, military authorities attempted to speed up recovery time to meet the demands of the army itself – and not those of the injured soldier. By 1917, the extreme conditions of war had led to the manpower needs of the military being prioritized over the medical needs of the injured soldier (SHAD. KA (P) 18188. ‘Begründung der Errichtung von Wirtschafts-Bataillonen’).

The creation of these Economic Battalions is a clear instance of how one Saxon Corps within the German Army sought to mobilize wounded and disabled soldiers within war-related industries while also keeping them under strict military supervision. By 1917, military doctors and the Deputy War Office in Dresden were creating a way to meet the material needs of the military while also still contributing to the civilian labour and consumer economies. Using the orthopaedic advancements developed as a response to the widespread trauma of war, German military authorities were able to ‘recycle’ the disabled within the nation’s wartime economy while bypassing not only individual will, but also civilian labour authorities (such as trade unions), thus bringing the military leadership closer to its goal of the ‘total mobilization’ of the Empire.

Rehabilitation in Britain

In many ways, wounded British soldiers were provided with new treatment and therapies similar to wounded soldiers in Germany. Unlike the German rehabilitation focus on returning disabled soldiers to work, disabled soldiers did not take part in the war effort. Whether or not a soldier was discharged depended principally on the time that it took for him to recover. In his *Healing the Nation*, Jeffrey Reznick notes that prior to 1916, cases that resulted in permanent disablement were discharged if they did not respond to a short period of treatment (Reznick 2005, 120). However, this proved costly to the War Office in manpower and significant numbers of men were returned to Britain. Unpopular decisions such as the introduction of conscription caused the War Office to rethink this strategy. Indeed, Robert Jones asserted that the methods employed by orthopaedic surgeons, such as himself, would help to reduce the manpower shortage.

The key to rehabilitation in orthopaedics in Britain and in Germany was the curative workshop. These workshops were similar to establishments that had been set up before the war to train disabled children to take up employment and centres for workers injured in industry. Roger Cooter argues that owing to the success of these institutions in Britain, the ‘military came to believe, and ultimately to invest, in Jones’s orthopaedics’ (Cooter 1993, 118). The first of these flagship centres opened in 1916 at Shepherd’s Bush in London. Formerly a workhouse infirmary, the specialist centre contained a range of specialists such as surgeons, physiotherapists and nurses (Reznick 2005). As Jones had predicted, the therapies employed at Shepherd’s Bush
were highly effective. Indeed, more than three quarters of the first group of soldiers who were treated at Shepherd’s Bush, and who went through the curative workshops, returned to the front (Osgood 1925, 140).

However, there were significant numbers of men for whom the war was over. Many of these men were amputees, and the severity of their injury meant that they would be returned to civilian life. The curative workshops at establishments such as Shepherd’s Bush also performed an important function for these men, as no longer were they discharged peremptorily – they were provided with training so that they could succeed in civilian life. Reznick notes that there were important criteria for the type of training provided for the soldiers in curative workshops. The work had to be vocational and move the body in a therapeutic fashion and the trades had to provide long-term employment in growth industries in order to provide them with a living wage (Reznick 2005, 123).

Efforts made to retrain British disabled soldiers were met with a combination of fortitude and resistance. According to De Groot, disabled soldiers were concerned that their pensions would be further reduced or removed if their function was improved as a result of their therapy (de Groot 1996, 257). In the early years of the war, pensions were awarded on a loss of earning capacity, however in 1917, pensions were awarded on percentage scale. Joanna Bourke notes that after 1917 ‘the question came to centre on whether a man was better or worse off if he had lost this, that or the other part of his body’ (Bourke 1996, 65). So the explanation as to why disabled soldiers were unwilling to work may have changed as the war progressed, although the Pension Committees maintained a reputation for harshness when pensions were awarded. Although disabled soldiers may have resisted work therapy, other forms of treatment were popular and may have been instrumental in the reconfiguration of the disabled soldier as a civilian, no longer involved in the war, indeed less likely to be swayed by military discipline or a sense of duty.

For many disabled British soldiers, playing sport was the most popular means of recovery and rehabilitation. Britain saw itself as a sporting nation, and sport was tied up in notions of fair play, teamwork and endeavour, many of the notions associated with Britishness. Richard Holt contends that sport was ‘a national institution and beneficial for Britain’ (Holt 1990, 6). Thus, many of these men would see a physical and a moral value in playing sport. Generally, orthopaedic surgeons at the military hospitals prescribed sport and games for those who suffered fractures and amputations. This was an extension of the regimes of fresh air, sunshine and gentle exercise that had been prescribed for disabled children under orthopaedists’ care before the war (Anderson 2011). Moreover, sporting therapy introduced movement, teamwork and camaraderie, which was also considered important for recovery.

In addition to the physical benefits that sport provided, it also enabled the wounded men to gain confidence to take up a position in the community. There were two distinct types of sporting therapy in rehabilitation, although it is not obvious that this was the intention of those who were prescribing the
treatment. For the wounded who would return to the front, it was hoped that the men who recovered from their wounds would also be able to cope with the mental strain of battle. As they were away from the front for many months, participation in sport, especially during their period of recovery, provided them with the means to gain confidence in their masculine identity as soldiers. Some games were specifically geared towards returning to the front, and employed military equipment which aided the men in familiarizing themselves with objects required to be a soldier. In 1916, a sports day at an auxiliary hospital for recovering wounded in the south of England included bomb throwing, where marks were given for distance and accuracy (East Kent Gazette 1916).

The ultimate aim of the rehabilitative process for the War Office, and indeed the orthopaedist, was for the wounded men to return to the front. In this way, orthopaedists were similar to other specialists, most notably psychologists and psychiatrists who worked at specialist hospitals in mainland Britain, and who were also employed in returning men to the field of battle.

For those who were permanently disabled, sports played before the war were reintroduced. Sports such as tennis, football and cricket were played and served to reinforce a distinctly male identity, and efforts were made to provide disabled ex-servicemen a similar opportunity to revisit their full corporeality to play sport. Endeavours to organize sporting events in which war disabled featured, and publicity surrounding them, were organized during the war. Country Life reported on ‘the glorious pluck and cheerfulness’ of amputee patients at Roehampton Hospital as they played variations of football and tennis in the grounds (Country Life 1915). Sporting competitions were held partly to raise money for institutions, and also to provide opportunities for disabled ex-servicemen to demonstrate their sporting ability to a curious public. Many men were patients in hospital for an extended period of time, and games provided a diversion from monotonous hospital life. Sports days held at hospitals like Roehampton, the main limb-fitting hospital for amputees, which held its first sports competition in 1916, were attended by crowds of visitors, who were reportedly impressed by the men’s prowess using their artificial limbs. Gate receipts from the Roehampton sports days went towards the maintenance of the hospital (Alper 1997, 11).

There is no evidence to suggest that there were particular instructions from the War Office ordering games for disabled ex-servicemen. Sport was an accepted part of life in the Services; a resumption of games for the injured restored fitness in both body and mind. Although war had left a permanent legacy for some, the inclusion of physical recreation offered an opportunity to regain control and revisit their pre-war lives. The playing of sport or resumption of some type of physical activity was a way for a disabled man to re-establish his masculinity, and demonstrate that disability had not affected his interest or ability on the quintessentially masculine playing field. F.W. Heath, publisher and journalist, made special reference to the effect that sport had after his arm was amputated. He wrote, ‘looking back, I realize that I was wise
in concentrating on games. However, indifferent some of my efforts may have been they gave me back confidence in myself, and new health and strength’ (Heath 1956, 196). The maintenance of health was important, as there was long-running concern by the state surrounding the potential cost of disabled ex-servicemen after the war. Sport provided a combination of physical and emotional therapy, and disabled British soldiers embraced it more enthusiastically than work therapy.

The major difference between the British and the German case was that although the War Office and associated orthopaedists provided training in curative workshops for those with permanent disabilities, British disabled soldiers were retrained solely as civilians. The concentration on sport and games re-established masculine norms that many of the soldiers recognized from their daily lives before the war. Military sport was often based around drill and physical exercise. Games were less common. Taking up activities with their newly altered bodies, such as tennis, cricket and other games played before the war, was important for their physical and mental recovery. Activity and movement were fundamental to the traditional regimes advocated by orthopaedists such as Robert Jones, and sport built on this therapy with an element of enjoyment. Support from the public for these sporting endeavours meant that they were viewed positively by the authorities and by the medical profession. The British state was building an army of heroes, but they were an army of civilians, for whom a grateful public celebrated and who expected a level of fiscal support from the state. Unlike disabled German soldiers, the disabled British soldier’s contribution to the war was over.

Conclusion: orthopaedics and the management of modern warfare

On 12 May 1917, German military authorities issued an order banning the dissemination of all medical publications on orthopaedics and artificial limbs outside the German Empire. Coming from the inner echelons of the Supreme War Office [Kriegsamt], the directive stated that ‘it has recently become known that the British government is showing great interest in our achievements in artificial limbs and is expending all efforts to acquire this information’ (BayH-StA/Abt. IV, Stv GenKdo I, AKSanAm 459. Directive from the Kriegsamt. Kriegsministerium. 12-5-1917). For these reasons, the War Ministry had now forbidden the sale, distribution and sharing of all prosthesis-related publications and images. Whether the German Supreme Command truly believed that British spies were trying to steal the nation’s innovations in rehabilitation technology or whether they simply aimed to hide from the enemy how desperate their situation was, we may never know for certain. Nonetheless by the Spring of 1917, orthopaedic medicine and its contributions to artificial limb technology had become a matter of national security and the rehabilitation efforts of Germany’s orthopaedists were being counted among the Empire’s war-time state secrets. Because Britain did not experience the acute manpower crisis that
Germany did during the war, we do not see the same extreme militarization of orthopaedics take place among the British – despite the development of similar medical treatments and technologies. Thus, as we have maintained throughout this article, medical innovations during war need to be examined in their specific national, cultural and above all military contexts in order to fully grasp their ramifications for both the nation-at-war and the disabled soldier. The role of orthopaedics in the management of modern warfare was – as our article has demonstrated – not the same in both nations. Moreover, the ‘medical experiences’ of the soldiers whom German and British orthopaedists treated diverged widely and reflected particularized national cultural values and war-time economic concerns.

In addition to the immediate contributions of orthopaedists to the management of the human material in each nation’s fighting force, however, we also see that the national-specific trajectory of orthopaedics in each country had long-term implications for disabled persons in the years after the war. In Germany, the treatment regimens and therapies developed during the war specifically for disabled soldiers were extended to disabled civilians with the passing of the 1920 Law for the Severely Disabled, which extended the rehabilitation treatments and services developed for the nation’s disabled soldiers to all citizens. At the same time, the law also mandated that only those doctors thoroughly trained in orthopaedics were deemed qualified to treat or evaluate the disabled patient. Thus, what had been initially developed specifically for soldiers trickled down to the civilian population, effectively granting thousands of other Germans access to modern rehabilitation – something they did not have before the war. Moreover, the law simultaneously acknowledged this field as the medical domain of orthopaedists, bringing the once marginal field to the forefront of disability care in Germany (Gesetz 1920, 179–180). While on the one hand this marked a seminal advancement in the welfare of Germany’s disabled population, one can see in this collapse of civilian and military disabled persons a more nuanced explanation for how or why some of the nation’s veterans might have felt as though they no longer occupied their special status as ‘war heroes’ when they found themselves categorized and thrown together with the so-called ‘peace cripples’.

In Britain, the case was very different. On the state level, the Ministry of Pensions was established in 1916 and its purpose was to support veterans and in particular disabled veterans. Unlike Germany, there was no legislation that linked disabled veterans and disabled civilians. The only legislation passed in the immediate post-war period was the Blind Persons Act in 1920, which encompassed new regulations for the care of the civilian blind. Much of the unrest surrounding issues of support for disabled people after the war came from civilians. For example, there was a March on London in 1920, where blind people, as part of the labour movement, protested against their lack of fiscal and social support. Blind veterans were notably absent from this discussion, indeed, their voices were not raised in public protest in the
post-war period, although many privately complained about the parsimony of the Pensions Committees.

The reason for disabled veterans’ public silence was mainly owing to the levels of support they received from charities and the public. Special charities such as the British Legion, which provided support with negotiating the vagaries of the pension system, and providing moral and economic support, ensured that disabled veterans had a place to air their grievances (Wootten 1963; Brown 1971; Barr 2005). Disabled veterans were constructed as a special class of disabled people, their heroic sacrifice of their bodily gift to the nation ensured that they were the focus of charitable onus. In the same way that the public had donated to hospitals on behalf of the Red Cross and Order of St John during the war, the public continued to be generous donors of time and money, after the war. Any potential dissent was quietened by disabled veterans’ established status as heroes and they were supported by grateful public and charitable concerns.

While it has been argued by some that the First World War established the specialism of orthopaedic surgery, Roger Cooter argues more convincingly that this is a superficial understanding of a much more complex and nuanced history (Cope 1959, 185; Cooter 1993, 105–136). Despite the advances in orthopaedic treatment and the organisational systems that came out of the war, orthopaedic surgeons in Britain were not able to transfer this to civilian practice. Essentially, orthopaedic surgeons in Britain returned to the area where they had started. After the war, they continued to treat disabled children and returned to the civilian system of individual private practice. In Germany, not only were orthopaedists placed at the head of the nation’s disability care and welfare system, the field itself was recognized as a medical specialty, becoming a required subject in medical education by 1924 (Eulner 1970, 394–395). Unlike Germany, where the medical expertise of orthopaedists was recognized by educational, insurance and state authorities, in Britain, many traumatic injuries became the preserve of the general practitioner and the voluntary hospitals once more.

Finally, our examination of the British and German development of orthopaedic practice in war highlights some important similarities and differences in military medicine. Orthopaedic specialists on both sides realized that the maintenance of their respective national fighting forces depended upon the efficient restoration of the wounded soldier. It was through these developments in orthopaedics that the specialism became integral to the management of manpower resources in both armies. For those who could not be returned to the front, rehabilitation systems were established and refined by military authorities in each nation in order to make their severely wounded servicemen useful, in the British case as useful citizens, in the German as workers who could continue to contribute to the war effort.

We have demonstrated that the treatment regimes of severely injured soldiers in each country developed within different medical, social, political
cultural and military contexts. Our comparative approach has allowed us to complicate or draw more nuanced conclusions than a single national study. Conversely, it also demonstrates that ‘medicine and the management of modern warfare’ still has a very ‘nation-specific’ story to tell. Medicine generally, and orthopaedic medicine more specifically, did not ‘manage warfare’ in the German and British armies in identical ways. Instead, the medical management of warfare is an interweaving of national histories, developing systems, technical advances, competing interests and relationships that reflect a multitude of complexities.

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References


**Archives**

BA-Berlin: Bundesarchiv Berlin.

BayHStA: Bayerisches Hauptstaatsarchiv.

SHAD: Sächsische Hauptstaatsarchiv Dresden.