# Institutions, Individuals and Artificial Limb Provision in the Two World Wars in Britain

Louise Gail Bell

Submitted in accordance with the requirements for the degree of Doctor of Philosophy

The University of Leeds

School of History

September 2024

Intellectual Property and Publication Statements.

I confirm that the work submitted is my own and that appropriate credit has been given where reference has been made to the work of others.

Acknowledgements.

The biggest of all my thanks has to go to my main supervisor Professor Jessica Meyer. Jessica took a chance on me back in 2018, when I first had the flicker of a thought of doing a PhD, and stuck with me through years of failed funding attempts until we were finally successful and this thesis was finally able to come to fruition. Without her guidance, support and belief in this research (and me) I wouldn't have got through the last 4 years. Likewise, Professor Graeme Gooday has been there throughout to offer a critical eye and guidance in the history of technology, which this thesis has greatly benefitted from.

I have been fortunate to be able to undertake this project thanks to AHRC CDP funding. With this came a return to working with The National Archives and the support of two supervisors there: Dr Laura Robson-Mainwaring and Dr Will Butler. Everyone there has been so welcoming and supportive when I have been on site, and it has been a joy to be back amongst old colleagues again! The Academic Engagement team have also been paramount with getting us involved in TNA activities as well as helping everyone understand just what being a CDP PhD student means. Linked to this, the administrative support from Sarah and Claudia on behalf of the CDP has been invaluable and we are all extremely grateful for everything they had to put up with.

Being funded by a Collaborative Doctoral Partnership award has been extremely rewarding and I am very grateful for the opportunities and experiences it has afforded me. More importantly, there is such a strongly supportive cohort to fall back on and I am ever grateful for that. I have made so many new friends through the CDP scheme, but particular love goes to Liz, Leena, Jade, Graham and Alfie. CDP support has also brought me the joy of creating the UK Disability History and Heritage Hub. What started out as a conference led by myself, Isabelle Lawrence and Sam Brady has now turned into a network with the support and dedication of Kirstie Stage, Alexandra Morris and Alice Conibere.

It has also been a pleasure to be a part of the School of History at Leeds. To all my fellow PGRs in the department, thank you for being so kind and generous with your time, and for creating a lovely cohort to be part of, and for the genuine friendships forged. Thank you also to the staff that have come along to papers, helped with ideas, and ultimately been welcoming. My particular thanks go to Dr Alexia Moncrieff for supporting me even before I was a part of the department! I have also been fortunate to be part of the community in the School of Philosophy, Religion, and History of Science. Life as a PGR would have been very different without the friendships I forged among other PGRs in this department, and I'll always be thankful to Dan, Isobel and Stefan for welcoming me, despite me being an "outsider".

To all my "Herstory" girls: the group chat, the meet ups, and the support have definitely kept me sane. A particular shout out goes to Sarah, who I met when she was doing her PhD and who has now been here for me on my journey too!

To Cosmin, Jordan and Martin: Leeds would never have been the same without this friendship group and it has been so important to me to have friends who don't fully understand what I'm doing, but have been fully supportive anyway. For all the pints, laughs, and music, thank you!

But, enough about Leeds! I would never have got through a day of the PhD without all the support from everyone at home in Scotland! To my best friend, Gemma, for always supporting me through every (potentially stupid) decision I've made since high school, and for always being there with a meme or a pint to make things lighter. Thanks to my sister Jennifer for always being there, and for giving us Oliver (baby pics and cuddles definitely helped in this final year). And finally, none of this would have been possible without my Mum and Dad. They have always fully supported me (and my sister) and I wouldn't have made it through this PhD without that love and support.

One last thank you has to go to every member of staff at the archives and museums that I have undertaken research at who have helped me, given me a friendly smile, and just given up their time and knowledge for me. Research cannot happen without the help of such people and they deserve all the acknowledgement for the work they do!

## Abstract

This thesis examines the work undertaken in the limb fitting centres set up across mainland Britain from their opening in the First World War through to the end of the Second World War. Exploring two conflicts and the interwar period, allows this thesis to explore where there was a continuation in the care provided to limbless ex-servicemen, but also how some aspects changed between the two wars. It explores questions of what limb design looked like and who was manufacturing these limbs. It also raises questions around expertise and who was regarded to have this expertise at different points in the care process – from limb fitters and instructors, to the limbless ex-servicemen themselves. This thesis ultimately questions whether this care was appropriate for the injuries these ex-servicemen had and how it impacted their lives in a post-war society. It has shown that these limb fitting centres created a state of welfare before the Welfare State by providing this support under their roofs, through bringing together these different experts into one space. They brought together this cohort of different actors to use their expertise and knowledge to provide for these limbless ex-servicemen. It enhances our understandings of post-conflict care by exploring the inter-war period and the Second World War, as well as the First World War.

This thesis brings together a number of historical approaches and methodologies from areas including disability history, welfare history, medical history, the history of expertise, material culture, and histories from below. Using these approaches allows this thesis to fully explore artificial limb provision in the time period of the two world wars, through the close reading of textual sources, oral histories and material histories. It is a study of the interactions of space, people, and objects.

Table of Contents

List of Illustrative Material

## Introduction

'We used to look upon Roehampton as a home. There was about a thousand lads in there' reminisced Private J in 1992, when asked about the care given to him in the aftermath of having a leg amputated as a result of an injury sustained during Battle of the Somme.[1] Like many of the men who returned from the two world wars missing a limb, Private J found himself passing through the doors of one of the main limb fitting centres set up across Britain. Mainland Britain, during the First World War, had three main limb fitting centres – one in each nation (although smaller sites did exist in other military hospitals across the country). Here, these men were not only fitted with artificial limbs but also trained in how to use them. Private J talks of 'getting on very well' with his willow artificial leg and evokes the idea of the sturdiness of it when relaying the noise made when 'the ball hit off it like it was the bat' when playing cricket.[2] Not just places of fitting and recreation, these limb fitting centres also helped train ex-servicemen in trades that they could return to once they had mastered their limbs. Private J, in his interview, also proudly talks of how much time he spent working and training in the engineering shed and was rewarded with a certificate to prove he had put in 100 hours.[3]

---

[1] Imperial War Museum (IWM) "Clarence Walter Harvey Jarman (oral history)" produced 07/12/1992, reel 3, online recording, catalogue number 12925, <https://www.iwm.org.uk/collections/item/object/80012654> (accessed 07/08/2023).

[2] IWM, "Clarence Walter Harvey Jarman," reel 3, online recording, catalogue number 12925, <https://www.iwm.org.uk/collections/item/object/80012654> (accessed 07/08/2023).
Playing sport was one manner in which these disabled ex-servicemen could subscribe to the 'norms' of society. There was also the added bonus of higher fitness levels achieved through sport, and the social aspect of getting together with other people and enjoying an activity such as football. Sport was also a part of service life. It maintained fitness levels, enforced discipline, and allowed for the idea of being part of a team to grow. The ability to take part in sports, even after injury, allowed these men to return to this feeling of belonging; it enforced the idea of something masculine.

[3] IWM, Clarence Walter Harvey Jarman, reel 3, online recording, catalogue number 12925, <https://www.iwm.org.uk/collections/item/object/80012654> (accessed 07/08/2023).

Private J is just one of the thousands of ex-servicemen who lost limbs in the two world wars, and it is important to start the thesis with his voice, as this is their history, and their lived experience is important amongst the institutional history that this thesis also uncovers. The main subject of the whole thesis is these limb fitting centres and the work undertaken there – from limb manufacturing, to limb fitting and instruction, to allowing these ex-servicemen to leave and be equipped to return to their homes with a suitable artificial limb. This thesis will examine the work undertaken in these limb fitting centres from their opening in the First World War through to the end of the Second World War and through this explores whether there was a continuation in the care provided or if aspects changed between the two wars. It will explore questions of what limb design looked like and who was manufacturing these limbs. It will also raise questions around expertise and who was regarded to have this expertise at different points in the care process. This thesis will ultimately question whether this care was appropriate for the injuries these ex-servicemen had and how it impacted their lives in a post-war society.

Private J's story is not an uncommon one. Around 41,000 men lost limbs in the First World War, and around 12,000 in the Second World War. This thesis explores the institutions and individuals involved in artificial limb provision in Britain in the two world wars. Centred around the limb fitting centres created for these disabled ex-servicemen, it explores the work undertaken at these newly created spaces which brought actors and experts from different parts of the chain of aid together under one roof – from the State, to medical staff, to limb fitters and instructors, limb manufacturers, and obviously the ex-serviceman himself. Through these different actors it examines the help offered to disabled ex-servicemen from the point of amputation until after an artificial limb had been provided. The artificial limb itself is a pivotal part of this history and this thesis uses this as a focal point for these different actors and different forms of care. It is a study of the interactions of space, objects, and people in the two

world wars. Using the period from 1914 to 1948, this thesis uniquely compares and contrasts the history of limbless ex-servicemen in two major conflicts.

Medicine and War:

War and medicine is now a vast area of study, ranging from official histories from the time, to a focus from a range of historians in the fields of military history, medical history, disability history, and social history. The First World War was the first conflict where the number of deaths from wounds outstripped those from disease. Shrapnel and machine gun fire destroyed men's flesh and left behind some of the worst injuries ever seen. New weapons caused complex wounds that needed new surgical techniques, in areas such as orthopaedics and plastic surgery. Wound care developed further.[4] There were also psychological wounds to contend with. These ideas of progress are what tend to shape analyses of medicine and war, as can be seen through the perennial question of, in Roger Cooter's phrase, is war good for medicine?[5]

Historians of military medicine have paid far less attention to the Second World War, than they have to the First World War. Harrison's *Medicine and Victory* gives readers an insight into medical work undertaken in all the main theatres of this conflict, covering everything from the

[4] Discussions of wounding and wound care can be found in: Andrew Bamji, *Faces from the Front: Harold Gillies, the Queen's Hospital, Sidcup and the Origins of Modern Plastic Surgery* (Helion & Company Limited, 2017); Roger Cooter, Mark Harrison, and Steve Sturdy (eds.) *Medicine and Modern Warfare* (Editions Rodopi B.V., 1999); Christine E. Hallett, *Containing Trauma: Nursing Work in the First World War* (Manchester University Press, 2011); Mark Harrison, *The Medical War: British Military Medicine in the First World War* (Oxford University Press, 2010) and Fiona Reid, *Medicine in First World War Europe: Soldiers, Medics, Pacifists* (Bloomsbury, 2017).

[5] Mark Harrison, "The Medicalization of War – The Militarization of Medicine," *Social History of Medicine,* vol. 9 (1996) pp.267-276, doi.org/10.1093/shm/9.2.267; Roger Cooter, "Medicine and the Goodness of War," *Canadian Bulletin of Medical History,* vol. 7 (1990) pp.147-159.

prevention of disease, to blood transfusion, to evacuation of troops.[6] Far-flung regions such as Burma are covered, but a notable omission is the treatment of troops once they reached home again, which is where the research interests of this thesis lie. Due to the book's focus on these theatres of fighting, no mention of disability, beyond psychological aspects of this conflict, are discussed within the pages – despite physical disability being a common outcome of war. The importance of manpower is highlighted throughout the book, and Harrison argues that the medical services played a pivotal role in keeping men on the front lines of the war.[7] The organisation of, and the respect for, the medical services is key to the story that Harrison tells in the pages of this book, as well as the argument that war and medicine is not just tied to the military, but to the whole of society.[8] The medical profession are important to this thesis, but others such as limb instructors and limb manufacturers are also pivotal to what this thesis explores. This builds on arguments from Cooter and his work on orthopaedics, and Gosling's work on payment and philanthropy in healthcare and hospitals (1918-1948) that social, economic and political contexts of Britain, and what was already happening within the country and society, are areas that 'historically-orientated' studies tend to be less concerned about.[9] For example, Cooter argues that orthopaedics becomes bigger not thanks to the war, per se, but that war accelerated what was already happening in this field in Britain, albeit for a short period of time.[10] In the immediate aftermath of war, these progresses often slow or come to a stand-still.

This thesis, therefore, takes up the mantle of examining the care provided for a small number of ex-servicemen, and civilians, in these conflicts. It does so by looking at the men who could

---

[6] Mark Harrison, *Medicine and Victory: British Military Medicine in the Second World War* (Oxford University Press, 2012).
[7] Harrison, *Medicine and Victory,* p.5.
[8] *Ibid,* p.281.
[9] George Campbell Gosling, *Payment and Philanthropy in British Healthcare, 1918-48* (Manchester University Press, 2017) and Roger Cooter, *Surgery and Society in Peace and War: Orthopaedics and the Organization of Modern Medicine, 1880-1948* (The Macmillan Press Ltd, 1993).
[10] Cooter, *Surgery and Society.*

not return to the front lines and explores the medical and rehabilitative care given to them in Britain, therefore going beyond the work of prominent historians such as Harrison. The medical aspect of this care is examined through the expertise of the medical staff and their power over the creation of a "perfect stump."[11] Anderson talks of the power and expertise that medical staff had in terms of creating this perfect stump, and whilst this thesis accepts the importance of this medical expertise, it moves these histories even further by exploring the other types of expertise that were at play in the limb fitting centres – in particular, the limb fitters and the limb instructors.

As a result of the centenary of the First World War, there has been more focus on the aftermath and legacies of this conflict and what it meant for societies globally, something which is still very much missing for the Second World War.[12] One of the prevailing legacies of the First World War was the number of men who returned disabled from the front lines. Projects such as *Men, Women and Care* (undertaken at the University of Leeds) and the work of historians Bourke and Cohen, have begun to explore the structures put in place in the aftermath of the war, both medically, socially and domestically, to aid these disabled men, but there are still many avenues that need to be explored.[13] For example, 41,000 men returned to Britain missing one or more limbs as a result of the First World War, and yet relatively little

[11] This builds on the work of Julie Anderson in her article "Jumpy Stump." See: Julie Anderson, "'Jumpy Stump': Amputation and Trauma in the First World War," *First World War Studies*, vol. 6, issue 1, Commemorating the Disabled Soldier (2015) pp.9-19, doi.org/10.1080/19475020.2015.1016581.

[12] Perhaps more focus will be afforded to the aftermath of the Second World War once the centenary for this conflict happens.

[13] See the Men, Women and Care website for more information on this project: <https://menwomenandcare.leeds.ac.uk/> and for outputs: Eilis Heather Louise Boyle, '*Do You Not Think I'm Entitled?' Visibility, Agency and Care Amongst Facially and Psychologically Wounded Veterans in Interwar Britain* (unpublished doctoral thesis, University of Leeds, 2020). Previous histories of the effects of war on men's bodies and the care provided for these disabled ex-servicemen can be found in works of historians such as: Joanna Bourke, *Dismembering the Male: Men's Bodies, Britain and the Great War* (Reaktion Books Ltd, 1999); Deborah Cohen, *The War Come Home: Disabled Veterans in Britain and Germany, 1914-1939* (University of California Press, 2001) and Julie Anderson, *War, Disability and Rehabilitation in Britain: 'Soul of a Nation'* (Manchester University Press, 2011).

solidifying work has been undertaken on this group.[14] Less work has been undertaken on the Second World War, but we do have Julie Anderson's *War, Disability and Rehabilitation in Britain,* which offers necessary insight into how economic, medical and social interests all formed a role in rehabilitation during and after this conflict, through a series of case studies highlighting the responsibility of the State, society and military authorities in this endeavour.[15] Ultimately, there is a gap in the literature regarding limbless ex-servicemen and the two world wars, although historians have completed in-depth histories for other major combatant nations in these conflicts.[16] My thesis builds on the work of Anderson - who ultimately looks at disability history and the body - by exploring the object (artificial limbs, in this case) in relation to the body.

The Body and War:

Prior to, and during, the First World War, men's bodies became a great concern to the British State. This was especially heightened after the concern around the unhealthy state of recruits for the South African War.[17] State intervention, particularly in urban areas, aimed to 'mould men's bodies into more appropriate shapes' through legislation relating to everything from

[14] Mary Guyatt, "Better Legs: Artificial Limbs for British Veterans of the First World War," *Journal of Design History,* Vol.14. No.4. Technology and the Body (2001) pp.307-325 (p.311) doi.org/10.1093/jdh/14.4.307.

[15] Anderson, *War, Disability and Rehabilitation.* Much of the work on the Second World tends to focus on big battles, Nazi Germany, or the Home Front. Even Dan Todman's two recent epics on *Britain's War* show little awareness of the effects this conflict had on the health and welfare of the British public as a whole. See: Daniel Todman, *Britain's War: Into Battle, 1937-1941* (Penguin, 2017) and Daniel Todman, *Britain's War: A New World, 1942-1947* (Penguin, 2021).

[16] John M. Kinder, *Paying with Their Bodies: American War and the Problem of the Disabled Veteran* (The University of Chicago Press, 2015); Marina Larsson, *Shattered Anzacs: Living with the Scars of War* (University of New South Wales Press Ltd., 2009); Beth Linker, *War's Waste: Rehabilitation in World War I America* (The University of Chicago Press, 2011); Heather Perry, *Recycling the Disabled: Army, Medicine, and Modernity in WW1 Germany* (Manchester University Press, 2014).

[17] Bourke, *Dismembering the Male,* pp.13-14. See also S. -M Grant "The Kindness of Strangers: Soldiers, Surgeons, Civilians, and Conflict Intimacies in the American Civil War," *Critical Military Studies,* 6:2 (2020) pp.140-159, doi.org/10.1080/23337486.2019.1613085, for discussion on health of men signing up for the American Civil War.

school medical inspections to factory acts.[18] During the war, the destruction and reconstruction of the male body attracted heightened attention, both politically and nationally, as Bourke has shown.[19] Medical examinations and categories of fitness were implemented for men wishing to join the army, however, as the war went on, medical boards frequently passed men who were deemed unfit, believing that the physical training given in the forces would mold their bodies in the 'appropriate fashion.'[20] Emma Newlands' work on the body begins to let us see more of the conversation around the corporeality of these soldiers, with regards to the Second World War.[21] Newlands argues that the procedures that turned men into soldiers were designed to control and organise these men's bodies in the pursuit of manpower efficiency, even when wounded.[22] Fear (felt by the servicemen) is a common theme throughout, and becomes relevant to my research when linked to fears over what could happen to men's bodies, or body parts. Examples are given of men who were afraid to lose arms and legs, with one even saying that the prospect of losing his legs was worse than death.[23] These fears of permanent disability and disfigurement also transferred to the face and genitals, all of which 'subscribed to a phallic sense of maleness,' continuing ideas seen in Bourke's work.[24] Limbs were important to the concept of a healthy male body, more so than, for example, facial disfigurement, as they were the 'tools' that men already had to work with and undertake employment with. Masculine trades typically used the limbs in work, and missing a limb easily created a barrier to working and to being able to wholly contribute to the economy. These injured men were 'entered into an official sorting process' in which bodies were treated in a system which was 'designed, first

---

[18] Bourke, *Dismembering the Male,* p.14; See also: Jay Winter, *The Great War and the British People* (Basingstoke: MacMillan, 1986).
[19] Bourke, *Dismembering the Male,* p.33.
[20] *Ibid.* p.174.
[21] Emma Newlands, "'Man, Lunatic or Corpse': Fear, Wounding and Death in the British Army, 1939-45, L. Robb and J. Pattinson (eds.) *Men, Masculinities and Male Culture in the Second World War* (Palgrave Macmillan, 2018) pp.47-70.
[22] Newlands, "Man, Lunatic or Corpse," p.49.
[23] *Ibid.* p.50.
[24] *Ibid.* p.51.

and foremost, to salvage and restore them to active duty.'[25] Ideas of masculinity are pervasive in histories of war and disability, and the idea of the "useful" body is at the centre of this.

Masculinity and gender are pervasive throughout histories of war, and are especially prevalent when looking at those 'war-maimed.' A new, less-masculine role was often assigned to the men who returned from war with a disability – attached to their economic capabilities and their need to be 'mothered' by both state and family.[26] Seth Koven highlights this idea in his article comparing 'crippled children' and those men disabled in the First World War.[27] The rehabilitation that was undertaken at the limb fitting centres was not aimed at allowing men to return to active duty on the front lines. It was however concerned with returning them to active duty on the economical front – returning a sense of masculinity by teaching them to use their new artificial limbs in trades and therefore allowing for potential future employment.

Rehabilitation is frequently the lens through which the disabled ex-serviceman is discussed, and is undoubtedly an important part of their journey, but often the focus is on this sense of usefulness. The centrality of work to masculine identity is a strong one, as discussed above, and rehabilitation played a pivotal role in allowing men to take up that masculine role once more. 'Essentially, the theory behind rehabilitation was that seriously injured and permanently disabled servicemen could be reconstructed and reused in different contexts,' argues Anderson in her book on rehabilitation in the Second World War.[28] Here, the word 'reconstructed' is particularly relevant to this thesis as men were literally given new body parts in the form of

---

[25] *Ibid.* p.64 See also: Bourke, *Dismembering the Male,* and Ana Carden-Coyne, *The Politics of Wounds: Military Patients and Medical Power in the First World War* (Oxford University Press, 2014).
[26] Jeffrey Reznick also discusses these ideas in his study of John Galsworthy and the work that he undertook with regards to disabled ex-servicemen in: Jeffrey S. Reznick, *John Galsworthy and Disabled Soldiers of the Great War* (Manchester University Press, 2009).
[27] Seth Koven, "Remembering and Dismemberment: Crippled Children, Wounded Soldiers, and the Great War in Great Britain," *The American Historical Review,* vol.99 no.4 (October 1994) pp.1167-1202, doi.org/10.2307/2168773.
[28] Anderson, *War, Disability and Rehabilitation in Britain,* p.2.

artificial limbs. The idea of reconstruction in terms of rehabilitation meant that they would have to mold themselves, their ideals, and their masculinities to these new lives, but still be productive men like society expected. Anderson also argues that the way in which the disability was caused had important implications for the ways in which the disability was viewed and the 'public's perceptions of such disability as deserving.'[29] It was the able-bodied who decided how a disabled body could be deemed as useful. The idea of rebuilding society and the nation after the war, of building a society that was worthy of these soldiers to return to, is also linked to the rebuilding of these men's bodies. Rebuilding these men was a way of rebuilding society after the devastations of war. Rehabilitation schemes were not a new construction just for the disabled of the world wars, however this was typically happening on a much larger scale during war time, and in specialised institutions (such as the limb fitting centres, or, as Anderson shows, Stoke Mandeville).[30] Reznick argues that the rehabilitation schemes brought into place during the First World War was reminiscent of work undertaken to aid the physically disabled and the mentally ill during the Victorian era.[31] Cooter also touches on this argument when discussing the growth of orthopaedics and how this stemmed from an increasing interest in the congenital deformities of children in the era before the war.[32] Still, Reznick argues, these existing therapies were swept alongside the concerns about efficiency, economy and post-war society to form this development of rehabilitation.[33]

One of the most famous examples of rehabilitation linked to the two world wars is explored by Bartlett in her article exploring themes of disability, work, and gender within the specific context of flower making in the Poppy Factory for disabled ex-servicemen.[34] The work

---

[29] Anderson, p.42. See also Cohen, *The War Come Home,* and Bourke, *Dismembering the Male*.
[30] Anderson, *War, Disability and Rehabilitation in Britain.*
[31] Jeffrey S. Reznick, *Healing the Nation: Soldiers and the Culture of Caregiving in Britain During the Great War (*Manchester University Press, 2004) p.117.
[32] Cooter, *Surgery and Society in Peace and War,* p.107.
[33] Reznick, *Healing the Nation,* p.117.
[34] Emily Bartlett, "Reassembling Disabled Identities: Employment, Ex-Servicemen and the Poppy Factory," *Journal of Social History,* volume 54, issue 1 (Fall 2020) pp.210-236, doi.org/10.1093/jsh/shz111.

undertaken in these factories positioned poppy making as a highly skilled, masculine occupation and used ideas of productivity and manufacturing within factories to paint this work in a very productive light. Through this rhetoric, the disabled ex-serviceman is shown to be successful, highly productive and a capable worker, which ties in to the idea of these disabled bodies being made efficient again through rehabilitation. This is contrasted with the flower making that occurred in disabled civilian populations, which was seen as highly unskilled and feminine. Perry's work on Germany also follows this narrative of economic productivity, and how "re-arming" these men made them productive citizens once more.[35] Carden-Coyne also reinforces this idea of the 'military medical machine,' both literally in the journey through the different stages of care, and how the body was something to be fixed and made productive.[36]

Expertise:

Much of the discussion around rehabilitation focuses on this ability to play sport or to undertake employment once more, but what this thesis explores is the more immediate physical rehabilitation which these men had to undergo. The stump had to be allowed the time to sufficiently heal and then the ex-serviceman had to be fitted for, and with, an artificial limb. This initial stage could not happen without the expertise of the surgeons and medical staff, and their skills in such operations and aftercare. After this there was the immediate training in how to actually walk with a new artificial leg or how to undertake movement with a new artificial arm. Being able to play football or become a carpenter were obviously signs of success in the rehabilitative journey, but a man had to be able to do even the most basic tasks with his new artificial limb first. These more immediate steps are under-discussed in the histories of

[35] Perry, *Recycling the Disabled,* p.1.
[36] Carden-Coyne, *The Politics of Wounds,* p.13.

disability and the two world wars, but the roles of the limb fitters and the limb instructors were both pivotal to the success of the limb fitting centres, as this thesis will show. Without the proper fitting of an artificial limb, or without proper training in how to make even the most basic of movements, these disabled ex-servicemen would have never been able to return to economic playing field. Overlooking the important jobs that the fitters and the instructors undertook creates a gap in this history of rehabilitation and reinforces a disability history that hinges too much on the medical history approach to these histories. These fitters and instructors were experts in the limb fitting centres and had very skilled jobs. In particular, the instructors themselves were disabled ex-servicemen who were proficient at using their artificial limbs and could pass on this knowledge to the thousands of other disabled ex-servicemen who were passing through the limb fitting centres. This might not have been a medical expertise, such as seen in creating the stump, but both of these roles were pivotal to the experience of the limbless ex-serviceman. Without all of the hard work in-between the stages of amputation and being able to, for example, run a race, none of these "miracle" stories would exist. Therefore, this thesis will highlight the importance of these initial steps and uncover the roles of the limb fitters and limb instructors.

The idea of the expert and who has authority can change depending on location – both geographically, as shown with the Scotland versus England manufacturers, as well as where this expert is based and where this knowledge is being implemented. The shift away from coming from an elite background becomes more apparent by the time we reach the First World War – something which Gooday argues was happening in the late nineteenth century, in his study of ethnicity and authority in electricity, with institutional/organisational affiliation becoming more

necessary than a higher education.[37] This idea of expertise runs through this whole thesis in many different ways, depending on who holds this knowledge and skill and who has determined that a certain figure was the 'expert' in what they are doing. Limb manufacturers had the technical skill and knowledge of the materials used in designing the limbs, but were also the authority in the best limb designs of the time. In this case, their skill essentially led them to be the experts. It was these manufacturers that the committees of the limb fitting centres and the State trusted to create the most suitable artificial limbs for the returning ex-servicemen. Technical skill was very important in the design and manufacture of these limbs, however, as Chapter Three will show, a number of these manufacturers also used embodied knowledge gained from their own need to use the same technologies that they were creating for others. The idea of the expert and who holds the knowledge is one that has changed over time and is an idea that holds an ambiguity and a diversity.[38] In the history of limbless ex-servicemen and the two world wars, this change in who could be an expert can clearly by seen, but who is given the authority and power as an expert is interesting. As the section on limb instructors, in particular, will show the State gave authority to ex-servicemen who had lost limbs to train the masses of men passing through limb fitting centres. The State vetted these men and trained them, but had to rely on the embodied knowledge of these men and their skills with using artificial limbs.

The setting up of the limb fitting centres across Britain is just one example of specialised centres being set up across the country to tackle and focus upon a specific war-related disease

---

[37] Graeme Gooday, "Ethnicity, Expertise and Authority: The Cases of Lewis Howard Latimer, William Preece and John Tyndall," Joris Vandendriessche, Evert Peeters and Kaat Wils (eds.) *Scientists' Expertise as Performance: Between State and Society, 1860-1960* (Pickering & Chatto, 2015) pp.15-30.
[38] Christelle Rabier, "Expertise in Historical Perspectives," Christelle Rabier (ed.) *Fields of Expertise: A Comparative History of Expert Procedures in Paris and London, 1600 to Present* (Cambridge Scholars Publishing, 2007) pp.1-34 (p.1).

or injury. Medical wards were created to deal with orthopaedic needs; hospitals were set up to deal with men blinded by war; centres for shellshock were created around the country; and more specialism around areas such as blood transfusion, amongst many others, all resulted from the interplay between medicine, war and the State.[39] War also allowed for these specialties to be redefined and formed within these unprecedented circumstances, as shown in Howell's work on soldier's heart and how this redefined ideas around heart disease.[40] War inevitably brings with it a shift in who has the skill and who is trusted to deal with a multitude of emergencies and scenarios when more manpower is needed. War also creates a space where tensions between so-called experts and the everyday person can arise and can be discussed, and can potentially allow for a re-definition of status and roles. Grant discusses this in their work on the American Civil War, but it is something that is also occurring in the consequent world wars.[41]

Welfare and Aid:

Provision of aid to these limbless ex-servicemen came from a variety of places, especially with regards to the limb fitting centres – where funding came from both State and charity, and naturally a variety of skilled and expert figures within these spaces. Bourke highlights the idea that these men who lost a limb as a result of serving their country in war, as opposed to congenitally or through accidents, were viewed as more deserving of help, by various groups, was prominent at the time, and was shown through the drive towards supplying them with

[39] See: Roger Cooter, *Surgery and Society;* Peter Leese, *Shell Shock: Traumatic Neurosis and the British Soldiers of the First World War* (Palgrave MacMillan, 2002); Andrew Bamji, *Faces from the Front;* Michael Robinson, *Shell-Shocked British Army Veterans in Ireland, 1918-1939* (Manchester University Press, 2020).
[40] Joel D. Howell, "Soldier's Heart: The Redefinition of Heart Disease and Speciality Formation in Twentieth-Century Great Britain," *Medical History,* supplement no.5, 1985, pp.34-52.
[41] S.-M. Grant, "'*Mortal* in this *Season*': Union Surgeons and the Narrative of Medical Modernisation in the American Civil War," *Social History of Medicine,* vol.27, no.4, pp.689-707, doi.org/10.1093/shm/hku010.

artificial limbs and the opening of new hospitals and limb-fitting centres to accommodate them.[42] The association with 'begging and penury' after these men had 'given their body to the nation' was seen as unacceptable, by the ex-servicemen themselves, but also by relevant charities and in government.[43] Cohen shows that philanthropists deemed it their patriotic duty to help these disabled ex-servicemen, hence why so many became involved with rehabilitation programmes.[44] For example, St. Dunstan's, for blinded soldiers, deified this wider idea of war blindness and sacrifice.[45] Koven also shows us that the First World War reinforced the masculine nature of 'the discursive frameworks that shaped representations and policies for disabled people' from the 1880s onwards.[46] This idea of "making men" was at the heart of the institutions and policies described by Koven, whether that be disabled boys or disabled ex-servicemen.[47] Again, the ideas of gender and masculinity are pervasive here. Giving these men new limbs was a means of re-creating their masculine role in society.

Reznick's chapter on the Shepherd's Bush Military Hospital in *Healing the Nation* highlights a mix of public and State support for the disabled ex-serviceman and argues that the multi-faceted official view of disabled ex-servicemen could be seen through how this hospital was ran, and funded – with the support base for Shepherd's Bush consisting of the War Office, British Red Cross, and the public.[48] This mixture of official support and public donations is something that can be seen in many of the institutions set up to aid limbless ex-servicemen, especially the two most famous hospitals at Erskine and Roehampton. Reznick further highlights issues between what fell under the jurisdiction of the War Office and the Ministry of Pensions, and how these uncertainties were causing problems with government officials

[42] Bourke, *Dismembering the Male,* p.55.
[43] Julie Anderson and Neil Pemberton, "Walking Alone: Aiding the War and Civilian Blind in the Inter-war Period," *European Review of History*, 14:4, pp.459-479, (p.463), doi.org/10.1080/13507480701752128.
[44] Cohen, *The War Come Home.*
[45] Anderson and Pemberton, "Walking Alone," p.460.
[46] Koven, "Remembering and Dismemberment," p.1193.
[47] Koven, "Remembering and Dismemberment".
[48] Reznick, *Healing the Nation,* p.120.

unsure of who should do what.[49] Differences between State departments with regards to support for the limbless, as well as the constant philanthropic support running alongside it, suggests the potential for a fraught atmosphere of support. Looking at how the limb fitting centres were run in both wars, and who was involved in the running and funding of them is something that is under-represented in literature so far, especially with regards to the role that the State played in these spaces – both Erskine and Roehampton were inundated with public donations throughout their infancy. However, the tensions between State support and philanthropic support changed the nature of how the limb fitting centres were run by the inter-war period. With State support, Roehampton became the centre of excellence for limb fitting by the Second World War – whereas Erskine continued as a site of charity and changed focus to the wider disabled ex-servicemen community. George Campbell Gosling's work on philanthropy and British healthcare in the period 1918-1948 and his arguments of a reformulation of philanthropic ideas alongside changing dynamics in relation to the local and national State has provided a useful framework for investigating these different limb fitting spaces.[50] This creation of a new space, where relationships between surgeon, limb-maker and disabled ex-serviceman were more closely intertwined, allows this thesis to more comprehensively delve into the work undertaken there and the care supplied to these men.[51] Many of these histories of care provision typically focus on one particular hospital or one distinct geographic area. By focusing on mainland Britain, this thesis moves away from these singular points of care and creates a bigger picture of post-war care for disabled ex-servicemen. This allows for tensions between the different countries to be explored, but also allows for an exploration of this larger network of care in the two world wars. Scotland and Wales are

[49] Reznick, *Healing the Nation,* p.121.
[50] Gosling, *Payment and Philanthropy.* See also Cooter *Surgery and Society* for considerations of social, economic, and political contexts for hospitals and treatments.
[51] On changing hospital care, also see: Philip Shaw, Holly Furneaux and Joanna Wilson-Scott, "War, Wounding and Intimacies," *Critical Military Studies,* 6:2 (2020) pp.115-117, doi.org/10.1080/23337486.2020.1759315; and Grant "The Kindness of Strangers".

typically missing from many 'British' studies, so this thesis brings them back into these histories of care provision.[52]

Material Culture and Voices from Below:

In terms of limb manufacturing in itself, Gordon Phillips' *Best Foot Forward* admits in the introduction to being one of the few to open the public gaze to the inner workings of a private company working in the artificial limb sector, in the 1990s.[53] Blatchford were a big name in the limb manufacturing industry, and worked closely with the limb fitting centres. Having a comprehensive insight into one manufacturer highlights why it is important to explore the businesses themselves and see who was running them, in order to understand their motivations for producing artificial limbs, and for using certain materials. Chapter Two of this thesis explores more of the manufacturers working in the limb fitting centres and the ethos behind them. Guyatt gives a little insight into Desoutter, and why they produced the limbs they did, in her work, but there are many other names associated with limb-manufacturing in this period that need delving into, as well as why they were chosen by the Ministry of Pensions as firms suitable to supply limb-fitting centres.[54] This thesis uncovers those manufacturers who were associated with the limb fitting centres, and delves into two firms in particular in more detail, providing more insight into firms being started by disabled men. Men themselves were also trained up to help with the production of artificial limbs. "Prosthesis user-inventors" are also pivotal to the work of Daen and Lieffers on the nineteenth century, opening up a new

[52] This thesis adds to wider work in the field of military welfare history (as examined by Paul Huddie and Amy Carney). See: Paul Huddie and Amy Carney, "Military Welfare History: What is it and why should it be considered?" *War and Society,* vol 42 (4) 2023, pp.305-316, doi.org/10.1080/07292473.2023.2245252.
[53] Gordon Phillips, *Best Foot Forward: Chas A. Blatchford and Sons Ltd. (Artificial Limb Specialists) 1890-1990* (Granta Editions, 1990) p.xii.
[54] Guyatt, "Better Legs," p.314.

character in the economic landscape of disability.[55] With little known about many of the firms manufacturing artificial limbs, but with archival documents focussing more on engineers and doctors, it would be easy to assume that artificial limbs were being created in a very clinical sense. However, this thesis builds on this work into "prosthesis user-inventors" by showing that firms eventually brought on board by the Ministry of Pensions were created by disabled men who needed artificial limbs themselves. This embodied knowledge brings a whole new aspect to the agency of limbless ex-servicemen. Patents, designs and advertising are under-utilised in histories of artificial limbs in these conflicts, but sources such as medical trade catalogues, Jones argues, highlight the importance of 'demand-led innovation' and how more work needs to be undertaken into the importance of print to medical culture.[56] For the nineteenth century, again, Sweet highlights the advertising differences between prostheses for men and those for women.[57] Those for men were shown in full-force, undertaking labour, whereas the female prosthesis was hidden. This links to what Bourke argues about the more functional artificial limbs being the main choice for the Ministry of Pensions during the First World War, as well as what Perry shows was happening in Germany.[58] The limbs that were given for free to ex-servicemen in the limb fitting centres were focused on these more functional aspects – i.e. making sure that a man could walk effectively again, and that he would be able to undertake some form of employment again. That is not to say that more aesthetic, and less functional

[55] Laurel Daen, "'A Hand for the One-handed': Prosthesis User-Inventors and the Market for Assistive Technologies in Early Nineteenth-Century Britain" (pp.93-113) and Caroline Lieffers, "Itinerant Manipulators and Public Health Benefactors: Artificial Limb Patents, Medical Professionalism and the Moral Economy in Antebellum America," (pp.137-157) Claire L. Jones (ed.) *Rethinking Modern Prostheses in Anglo-American Commodity Cultures, 1820-1939* (Manchester University Press, 2017).
[56] Claire L. Jones, *The Medical Trade Catalogue in Britain, 1870-1914* (Pickering & Chatto Limited, 2013) p.9.
[57] Ryan Sweet, "'Get the Best Article in the Market': Prostheses for Women in Nineteenth-Century Literature and Commerce," Claire L. Jones (ed.) *Rethinking Modern Prostheses in Anglo-American Commodity Cultures, 1820-1939* (Manchester University Press, 2017) pp.114-136.
[58] Bourke, *Dismembering the Male* and Perry, *Recycling the Disabled.*

limbs, could not be obtained – Officers, in particular, could afford other limbs if they could pay for them.

Continuing with the economics of limb provision is the idea of standardisation of artificial limb parts, which brought with it images of mass production and of everything being the same, and perhaps not being of the greatest quality, which Guyatt shows that ex-servicemen were concerned about.[59] The suggestion of standardisation of artificial limbs began to be discussed at a time when newer materials (such as light metals) were coming into use in limb manufacturing, and a change in design was happening in general. Standardisation was more associated with the speeding up of production of weapons and vehicles, which brought with it a conveyor-belt/factory visual, and some men voiced their opinions on this with relation to artificial limbs. Men were worried that they would no longer be afforded the proper fitting of a limb and that brought with it fears of not being able to effectively use their limbs. Bartlett mentions the factory-like production system the limbless ex-servicemen themselves became part of in the Poppy Factory, and how their artificial limbs embodied this idea.[60] The strong links to economic provision and limbs can also be seen in Perry's work on Germany, and how artificial limbs there were more functional than aesthetic.[61] In her work on deafness and telephone use, McGuire highlights further tensions between individual user needs and the desire for standardisation that came from the Post Office being a government department.[62] Standardisation seems to be a double-edged sword, when it comes to medical technologies. In their exploration of Dr. Phyllis M. Tookey Kerridge, Virdi and McGuire show beliefs that medical technology should become more standardized to assure quality across the board, and remove

[59] Guyatt, "Better Legs," p.314.
[60] Bartlett, "Reassembling Disabled Identities," p.15.
[61] Perry, *Recycling the Disabled.*
[62] Coreen McGuire, "The Categorisation of Hearing Loss Through Telephony in Inter-war Britain," *History and Technology,* 35:2, 2019, pp.138-155 (p.147), doi.org/10.1080/07341512.2019.1652435.

the inconsistencies resulting from various commercial and advertising firms.[63] However, we also see a need for the user to be part of the negotiation of this process – i.e., adapting the hearing aid to the lifestyle of the user.[64]

Examining the objects themselves allows for the agency of these men to be examined in a different way from how historians of war have typically done so up until this point, such as Gagen's use of solely textual sources.[65] An area of increasing importance to historians, and one which Gagen's work highlights perfectly, is how paramount and rewarding placing the voice of the disabled ex-serviceman into this work can be.[66] Gagen's article focuses on one man and his experience of losing an arm in the First World War, which, as Gagen herself argues, 'enables the comprehensive examination of lived gendered experience, which is often difficult for historians of disability to accomplish.'[67] Having such an extensive archive for one man is a very important, and unique, find for historians wishing to focus on the experience and life-cycle of a disabled ex-serviceman. There has been a move in histories of war and disability to utilising personal correspondence, as well as official correspondence, to highlight the personal voice and the agency these men were trying to assert, as well as giving insight into the lifecycles of these men and the care provided, or not, throughout their lives with these disabilities. Eilis Boyle's recent PhD thesis shows how these records can be used alongside other personal testimonies to centre the voice of the veteran, especially where those voices are marginalized, and shows how disabled veterans were active participants in the construction of meanings

[63] Jaipreet Virdi and Coreen McGuire, "Phyllis M. Tookey Kerridge and the Science of Audiometric Standardization in Britain," in British Journal for the History of Science, 51(1) (March 2018) pp.123-146, (p.139), doi:10.1017/S0007087417000929.
[64] Virdi and McGuire, "Phyllis M. Tookey Kerridge," p.140.
[65] Wendy Gagen "Remastering the Body, Renegotiating Gender: Physical Disability and Masculinity during the First World War, the Case of J.B. Middlebrook," *European Review of History*, volume 14, issue 4 (2007) pp.525-541, doi.org/10.1080/13507480701752169.
[66] Gagen "Remastering the Body, Renegotiating Gender," pp.525-541.
[67] Gagen, "Remastering the Body, Renegotiating Gender," p.526.

around disabilities.[68] Through three case studies, Meyer has also shown the impact that using the pension files in PIN 26 can have on showing the place of these disabled ex-servicemen within their families, local communities and society, as well as their relationship with the State and the Ministry of Pensions.[69] This thesis builds on these works by exploring oral history testimonies of men to truly bring their voices to this history, and uses this alongside object histories to highlight a different means of gaining insight into the lived experience of these ex-servicemen. Again, this thesis goes beyond just the use of textual sources and is original in bringing the oral and material into post-war care.

Anderson further argues for the importance of including the 'nuance of experience' of these men themselves, in order for new perspectives in this field to appear.[70] These problems with medical histories primarily focusing on institutions and doctors and medical practitioners was criticised by Roy Porter in 1985, when he highlighted that it 'takes two to make a medical encounter' and that medical history should, at the very least, be about these two-way encounters between these groups.[71] Porter also shows the place of families and communities in these encounters, linking to the recent work of Boyle and Meyer discussed above.[72] Essentially, Porter wants researchers to stop 'seeing the doctor as the agent of primary care,' and remember that this form of care only occurs once someone has entered the medical arena and become a patient.[73] In this thesis, the term "ex-serviceman" is used throughout as this is

---

[68] Boyle, *Do You Not Think I'm Entitled?* p.28.
[69] Jessica Meyer, "Wounded in a Mentionable Place: The (In)Visibility of the Disabled Ex-Serviceman in Interwar Britain," David Swift and Oliver Wilkinson (eds.) *Veterans of the First World War: Ex-Servicemen and Ex-Servicewomen in Post-war Britain and Ireland* (Routledge, 2019) pp.158-171.
[70] Julie Anderson, "Separating the Surgical and Commercial: Space, Prosthetics and the First World War," Claire L. Jones (ed.) *Rethinking Modern Prostheses in Anglo-American Commodity Cultures, 1820-1939* (Manchester University Press, 2017) pp.158-178, (p.174).
[71] Roy Porter, "The Patient's View: Doing Medical History from Below," *Theory and Society,* 14 (March 1985) pp.175-198, doi.org/10.1007/BF00157532. Michael Worboys also discusses this idea in: Michael Worboys, "The Non-Patient's View," Anne Hanley and Jessica Meyer (eds.) *Patient Voices in Britain, 1840-1948* (Manchester University Press, 2021) pp.33-60.
[72] Porter, "The Patient's View".
[73] Porter, "The Patient's View," p.194.

how the men themselves typically referred to themselves. They did not see themselves as patients in the typical sense, and therefore this thesis conveys this sense of being that these men had. This thesis goes beyond the idea of doctor as primary care by examining all of the different major actors that worked in the limb fitting centres and provided care for the ex-servicemen who passed through their doors.

Methodology:

This thesis brings together a number of approaches including disability history, welfare history, medical history, the history of expertise, material culture, and histories from below. Using these approaches allows this thesis to fully explore artificial limb provision in the time period of the two world wars, through the close reading of textual sources, oral histories, and material histories. Each chapter of this thesis uses a different selection of sources in order to explore the different sections of these histories, which will be explained more in the chapter outline of this introduction. However, the use of different sources results in different methodologies being used throughout this thesis. Much of the research is rooted in official documents held at archives such as The National Archives (TNA), Glasgow University Archives (UGC) and The London Archives, formerly London Metropolitan Archives, (TLA). Through these sources, it has been possible to compare and contrast what was happening in terms of care at an institutional level during both world wars, and in the inter-war period – from the State, to rich philanthropists, medical experts, limb makers, limb fitters, limb instructors, and the disabled ex-servicemen themselves. These official sources and reports allow this thesis to investigate tensions in the running of and purpose of these limb fitting centres, initially set up during the First World War – especially regarding State intervention into these initially philanthropic undertakings. The Committee Minutes from the limb fitting centres at Erskine, Cardiff and Roehampton have been used alongside further State-related documents from TNA, in

particular PIN 15 and PIN 38. PIN 38 contains files for the Disablement Services Branch of the Ministry of Pensions and its successors and focuses on provision of aids and appliances for the disabled. Information relates to supply and repair of artificial limbs, provision of instructors for training ex-servicemen to use their new limbs, correspondence relating to limb fitting centres, and experimentation with different materials. These records are pivotal in expanding knowledge relating to the State's provision for these disabled ex-servicemen. PIN 15 offers important insight into the working of the Ministry of Pensions, in both world wars, and contains information relating to the administrative, and policy making, side of the Ministry.

As important as these traditional official sources are to the thesis, the use of material culture methodologies and oral histories alongside these brings a different, more human, insight into these histories. As Roper has shown in his recent books exploring descendants' histories, objects, ephemera, and oral histories can help reconstruct the lived experiences of those who actually underwent the care lauded by these institutions, in the tradition of histories from below.[74] In his research, Roper was able to interview numerous descendants of those who had experienced the First World War and use this to explore the lived experience of home and family. His direct personal experience of the interviews adds a perspective that many, such as myself, unfortunately do not get to experience. For this thesis, the use of oral history interviews held at the Imperial War Museum (IWM) falls into the 'secondary use' category that Roper warns results in a reliance on the text.[75] Roper advocates for being able to take your time and really listen to the recordings, if one was not able to undertake the oral histories personally.[76] This thesis relies very much on this 'secondary use' of oral histories, understandably given the time period it focuses on. The reliance on transcripts was very

[74] Michael Roper, *Afterlives of War: A Descendants' History* (Manchester University Press, 2023).
[75] Roper, *Afterlives of War,* p.55.
[76] *Ibid.* p.54.

apparent when exploring the Liddle collection of oral histories and infuriatingly most men only briefly mention that they lost a limb. The sound archive of IWM holds a lot more riches and searching for stories of men who lost limbs in this collection has brought to life the realities of this for a small number of men. In order to find these men in the archives, using the online catalogue, I searched for terms such as "amputee" and "artificial limb" but I also did broader searches around words such as "arm" and "leg" to make sure that I captured as many of these testimonies as I could. I also checked at what point in time the interviewee discussed losing a limb, and what country they were from, as there were a few who had lost limbs well after the war due to other complications, or were talking about other countries – both of which are outside the remit of this thesis. Naturally, these broader searches took a little longer as "arms" is a very common word in military parlance. These oral histories have been particularly useful with regards to the Second World War, where there are less sources in archives relating to this conflict, and a dearth of personal testimony in particular.[77] This thesis uses these oral histories alongside the official narratives to create a more well-rounded picture of what was happening in these two conflicts. The personal testimony works alongside the official story to allow this thesis to bring in the voices of those men who were receiving artificial limbs and allows this thesis to explore the agency and the experiences of these disabled men. Many of these men speak from the initial point of amputation, and offer insights into life and treatment in the limb fitting centres, which is something that textual archival sources tend not to reveal or focus upon. Using these men's voices furthers our understanding of how useful and complete the care offered to these ex-servicemen in the aftermath of war actually was.[78]

---

[77] Historians of the Second World War, such as Frances Houghton, have shown how powerful memoirs can be, but these typically focus on experiences of battle. See: Frances Houghton, *The Veterans' Tale: British Military Memoirs of the Second World War* (Manchester University Press, 2019).

[78] I also investigated the oral history collection held within the Liddle collection at Special Collections in the University of Leeds. I read through many transcripts of men who had undergone amputation as a result of their war service, however these interviews typically stopped at the point of amputation or moved on to discuss something else. These interviews were always much more focused on the military aspect of being in the war, and I wish I could have been there to steer the conversation more towards

Historians of disability and technology are beginning to make more visible the 'discrepancies between the designed ideal user and the disabled user in real life,' through exploring user experiences of technology.[79] In particular, examining how users of this technology utilised their own skills and adapted technologies to their own needs and requirements. Jaipreet Virdi has been undertaking research into how deaf people have engineered and modified their own hearing aids in order to troubleshoot technological failures or improve performance and how this sphere of tinkering benefitted many users of this technology.[80] The use of material culture in this thesis has also allowed for exploration, in the final chapter, of how some ex-servicemen used their own skills and knowledge to undertake their own repairs on their artificial limbs. This embodied knowledge also shows itself in men tinkering with their limbs in order to make them fit better and work better for them in their everyday lives. Therefore, these ideas of user experiences of technology bring to the fore an under-explored area of the lives of these disabled ex-servicemen in their post-war lives. It allows us to explore the idea of the ex-servicemen themselves being experts in their own care.

In a recent article, McGuire argues that engaging with textual documents can be 'immensely valuable' to the writing of disability history, but that it can also work to 'de-emphasise the

---

the aftermath of war and what post-war life was like having lost a limb. This is one of the issues with using oral histories that other people have undertaken (although I am grateful they exist).

[79] Coreen McGuire, *Measuring Difference, Numbering Normal: Setting the Standards for Disability in the Interwar Period* (Manchester University Press, 2020).
See also: Bess Williamson and Elizabeth Guffey (eds.) *Making Disability Modern: Design Histories* (Bloomsbury Visual Arts, 2020) for a wide range of chapters on material and design histories in objects from different periods. The introduction poses the idea of a design model of disability and how this has shaped the meanings of disability in the modern world.

[80] Disability Visibility Project, "Q&A with Jaipreet Virdi," <https://disabilityvisibilityproject.com/2020/08/10/qa-with-jaipreet-virdi/> (accessed 06/02/2024).

agency and creativity of disabled people.'[81] Channeling this idea, this thesis uses oral histories and material culture to explore the lived and embodied experiences of the ex-servicemen it explores. Disability historians have been exploring objects and design more frequently in the past two decades and using this to show a 'tactile, sensory dimension of the past.'[82] Ott has been at the forefront of this, but increasingly more historians have been engaging with material culture and objects to examine the realities of technologies given to disabled people.[83] By doing so, disability histories are starting to focus more on use and adaptation of aids. This thesis takes up this mantle by exploring the artificial limbs themselves and examining the materials and designs used in the construction of these, and also the relationship between the user and the limb. In histories of disability and the two world wars, material culture is something that should be utilised more frequently and a reliance on solely textual documents does not have to be the reality, as this thesis shows.

Examining and exploring the artificial limbs themselves is something which the thesis does in two of its chapters in particular – Chapter Two and Chapter Four. Borrowing from material culture studies it uses these objects as sources, whether that be through actually touching limbs held in museum collections or using high resolution images that have been uploaded to museum catalogues in order to explore the design and materials used in the construction of these artificial limbs.[84] Being able to get up close with, and actually handle, some of the

---

[81] Coreen Anne McGuire, "What is Disability History the History of?" *History Compass,* vol.22 issue 6, 2024, doi.org/10.1111/hic3.12813.

[82] Katherine Ott, David Serlin (eds.) *Artificial Parts, Practical Lives: Modern Histories of Prosthetics* (New York University Press, 2002) and Katherine Ott, "Disability Things: Material Culture and American Disability History, 1700-2010" Susan Burch and Michael Rembis (eds.) *Disability Histories* (University of Illinois Press, 2014) pp.118-135 (p.120).

[83] See: Bess Williamson and Elizabeth Guffey (eds.) *Making Disability Modern: Design Histories* (Bloomsbury Visual Arts, 2020); McGuire, *Measuring Difference, Numbering Normal;* Gemma Almond-Brown, *Spectacles and the Victorians: Measuring, Defining and Shaping Visual Capacity* (Manchester University Press, 2023).

[84] Here I am talking about Thackray Museum of Medicine and the Science Museum respectively. I have also looked at artificial limbs on display in other museums such as Imperial War Museum, Wellcome Collection, Surgeons Hall Museum and National Museum of Wales. However, Thackray and the Science Museum are the ones represented most in the thesis.

relevant artificial limbs from the Thackray Museum of Medicine has really given me a different perspective on all of my research. Engaging with the objects themselves gives a greater perspective on what these ex-servicemen were being provided by the State, and is something that textual documents cannot indicate in the same way. A great deal of my time has been spent reading through paper documents, and looking at blueprints and designs of artificial limbs, and whilst these are an important part of the source material for this thesis, it is only possible to gain a richer understanding of the limbs when one is able to see them and interact with the objects themselves. Being able to engage with my research on this much more tangible level has also allowed me to consider, to a much larger extent, what it must have been like to have to use an artificial limb and to have it attached to the body. Reading about the materials and how they were manufactured is illuminating, but nothing can prepare someone for actually getting to feel the weight of one of these limbs, or actually seeing the straps that attached it to the body, or being able to actually examine where the joints were and how they moved, for example.

Feo argues that histories of medicine and the body should naturally supplement work undertaken in the histories of design and technology.[85] Both the designers and the users are important parts of this history, but both are often overlooked in the history of disability and conflict. In the First World War, many of the men who received new limbs were then trained up to help manufacture artificial limbs, and different cities used different local tradesmen to help (e.g., Erskine worked closely with local shipbuilders in the making of artificial limbs). Working with museum collections also raises questions around what has been collected and why. The

[85] Katherine Feo, "Invisibility: Memory, Masks and Masculinities in the Great War," *Journal of Design History,* volume 20, issue 1 (Spring 2007) pp.17-27, doi.org/10.1093/jdh/epl039. Typically, histories exploring the prostheses themselves and war appear in collections dedicated to design or technology. See also: Mary Guyatt, "Better Legs".

Science Museum does have a few artificial limbs that have clearly been worn for prolonged periods of time, and repairs and adaptations can be seen. However, the majority appear to show no obvious signs of wear. Being able to see and touch some of the artificial limbs in collections has been useful to be able to explore the object itself and get a sense of factors that would have been important to the wearer: movability, weight, material, for example. This thesis builds on work such as Feo's and Guyatt's, and works within current discourses around disability history and objects, to show that the materiality of the artificial limbs themselves played a pivotal role in the post-war lives of these men. Comfort and wearability were important factors, as an unsuitable limb could create a myriad of problems for the stump of the ex-serviceman. Therefore, by exploring the design of these artificial limbs, this thesis adds to work on the body and design, and borrows from these fields in order to do so.

Different manufacturers are also highlighted in the course of this research, widening the history of medical technologies. Supplementing these physical artificial limbs are the medical trade catalogues (which Thackray holds a substantial collection of), to give a rounder picture of what artificial limbs were available and from where.[86] Exploring these catalogues allows this thesis to examine who the manufacturers themselves were and uncovers the backgrounds of these men. Many of the companies that manufactured artificial limbs in the two world wars were originally founded by men who themselves needed the use of artificial limbs. As a result of this research, it has been possible to show that lived experience also played a pivotal role in

[86] Claire Jones' work focuses on British medical trade catalogues up until 1914, see: Claire L. Jones, *The Medical Trade Catalogue in Britain, 1870-1914* (Pickering and Chatto, 2013).

the manufacturing of the limbs that were made for these ex-servicemen, even if the ex-servicemen themselves did not often have a say in the design themselves.[87]

One archival source base that this thesis has not been able to utilise to any great extent is the Pensions Award Files at The National Archives (PIN 26) which houses a 2% sample of the First World War pension awards files - this comprises of 22,829 files, all of which are open to the public. PIN 26 contains a representative selection of case files of the Ministry of Pensions and successors concerning war disability pension awards and covers all types of pensions, including those for serving men and officers, army, navy, air force, widows and dependents, and nurses. Projects have been undertaken in recent years to make access to these files easier, and the types of information and stories included brought to a wider audience – through a Friends of The National Archives supported catalogue entry enhancement project, and the *Men, Women and Care* project at the University of Leeds. Searching PIN 26 on Discovery (TNA's online catalogue) for amputees brings up 181 results. 138 of these are for pensioners who are missing arms or legs, and therefore would have been perfect for this study; the remaining 43 are missing fingers and toes and are not as relevant to this thesis. In terms of the content of the files, it is irregular and files can range from just a couple of pages to large files. Inside can be found information relating to pension claims ranging from awards and appeals, to medical board reports and letters from veterans, their family members and others who were involved in the assessments for pensions. Disabled ex-servicemen were frequently reassessed in order to determine the extent of injuries and the amount of pension due, which results in many files giving extended insight into the lives of these men. Naturally, we get just a glimpse into the lives of these veterans through these files, rather than a comprehensive account. Researchers also have to bear in mind that these men were writing to achieve an end-goal (receiving the

[87] Gagen highlights the importance of light metal limbs and the work undertaken by Desoutter in her article "Better Legs." Desoutter were founded by a man who created his own light metal leg because he did not find those on offer at the time satisfactory.

highest pension possible) and were therefore framing themselves in this bureaucratic light, with information being highlighted, or omitted, to reach this conclusion. These are State designed processes for managing a large number of pensioners, all of whom had differing experiences of disability. Therefore, we have to remember that these records have been created in this way, and this will bias the information contained within. However, despite this bureaucratic bias, Bettinson argues that this can be somewhat mediated by the fact that the veterans' testimonies are also contained.[88]

Originally, it was planned to examine these files in order to try and create a picture of what life was like for those ex-servicemen who had lost arms and legs in the First World War. The goal here was not to evaluate the pension that they were given but to assess their overall lives, as far as the documents allow – some files are weighty and contain decades of information and others contain a few pages, in comparison. The pension files allow us to see men complaining about the amount of time that provision of limbs and rehabilitation took, but they also literally allow us to see the periods of time that men spent in hospitals and limb fitting centres, and how much of their lives were spent dealing with the State. These files typically deal with pensions and monetary aspects of care post-conflict. However, historians such as Meyer and Moncrieff have utilised these files in order to explore the wider context of disability and the First World War.[89]

The above section focuses heavily on the First World War, primarily because an extensive collection of records such as these do not appear to exist for the Second World War. Selected Second World War pension awards files can be found in PIN 80 at TNA, again comprising only a

---

[88] Helen Bettinson, *'Lost Souls in the House of Restoration?': British Ex-Servicemen and War Disability Pensions, 1914-1930* (unpublished PhD thesis, University of East Anglia, 2002) pp.8-9.
[89] Jessica Meyer and Alexia Moncrieff, "Family Not to be Informed? The Ethical Use of Historical Medical Documentation," in Anne Hanley and Jessica Meyer (ed.) *Patient Voices in Britain, 1840-1948* (Manchester University Press, 2021) pp.61-90.

2% sample. These files contain information for the same range of people in PIN 26, with the addition of those serving in the Home Guard, as well as those who were prisoners of war in the Far East. Unlike PIN 26, however, there are only 71 open files in this series – none of which, upon browsing and searching the online catalogue, appear to pertain to amputees. This is why this thesis has not used these extensive First World War files, as it would have caused an imbalance in the discussions around care and provision of aid in this thesis. I believe that having such a cohort of limbless ex-servicemen for one conflict offers the potential for exploration of this wider care, in a similar means to what this thesis undertakes. However, there would be more focus on the economical aspects of providing care. I think there is scope for more insightful work to be undertaken with these pension files and future research could explore this different aspect of State provision of care after the First World War. It is however a shame that nothing of this extent currently exists for the Second World War.

This thesis had set out originally to use the pension files as a pivotal source for the work undertaken, but as explained above, the imbalance of files available resulted in a change of source material. However, from the outset, thoughts of the ethics of using such sources and considerations around anonymisation of the men who the files related to have been important to the work undertaken. Despite these files not being utilised to the extent expected, this thesis does rely on other sources of personal testimony and personal information in order to bring the lived experiences of these ex-servicemen into the histories discussed. Much thought has been given to the current debates in the histories of medicine and histories of disability relating to the anonymisation (or otherwise) of "patients."[90] If extensive use of the pension files had occurred, the university ethics system would have insisted on anonymisation of the ex-servicemen in a similar sense to what occurred with the *Men, Women and Care* project that

[90] Jennifer Wallis, in particular, discusses this in relation to her work on the Victorian asylum. See: Jennifer Wallis, *Investigating the Body in the Victorian Asylum: Doctors, Patients, and Practices* (Palgrave, 2017) p.34.

was undertaken during the centenary.[91] However, not using these files has resulted in this thesis not having to stick to quite such rigid anonymisation rules. Instead, this thesis uses the rank of the ex-serviceman and the first initial of his surname to identify him – for example, Private C. Wallis raises the importance of trying to give biographical information of the patient before they entered the asylum, and this thesis continues this idea by giving the reader a small biography of each person mentioned, in order to give that context to their lives.[92] These can be found in the appendices at the end of the thesis. The ex-servicemen themselves are pivotal to this history and their voices must be heard in amongst what could have become a very institutionally-focussed thesis. However, not giving their full names in the thesis links to the wider ethical issues of using personal data and sources for historical research. This is about mitigating risk, but risk is not something that can be fully eliminated. As a result of referencing requirements in history, and the catalogue descriptions and references for these sources, it is very easy for people to discover who these men really were and to uncover more information about them. As Meyer and Moncrieff have pointed out, there are a number of tensions that exist in accessing and using sources of patient voice, and this thesis tries to strike a balance between ethics guidelines and letting these men "tell" their stories.[93]

Collaborating with The National Archives on this project means that much of the source base for this thesis comes from official, government sources. These sources have also been used alongside more local committee meeting minutes held in archives such as The London Archives and Glamorgan Archives. Whilst these log books and files have offered a vital insight into the work undertaken at the limb fitting centres, this thesis is very aware that these offer a much more institutional insight into this work. Therefore, the insights of those who received help

[91] Here men were assigned an anonymisation code, consisting of their first and last initials, as well as a randomly generated number.
[92] Wallis, *Investigating the Body in the Victorian Asylum,* p.34.
[93] Meyer and Moncrieff, "Family Not to be Informed?" p.80.

from these institutions had to be sought elsewhere – primarily through material culture and oral histories. Looking at the artificial limbs held in museum collections counteracts the advertising and positivity shown in catalogues. However, questions are also raised around why certain artificial limbs have ended up in museum collections and just how much of reality they actually capture. Again, an imbalance in source material is uncovered when exploring this material culture aspect, with more limbs being available from the First World War and the inter-war period than are available for the Second World War. This could be as a result of cataloguing procedures and issues around staffing, or the providence of these limbs might just not be available. There is also a potential of limbs from the latter period of this thesis having been amalgamated into new procedures once the National Health Service was founded. However, those limbs that are available have been significant in the shaping of this thesis and in balancing out the official documentation that underpins this work. As mentioned above, the lack of pension files for the Second World War resulted in a re-shaping of how the lived experience aspect of this thesis was researched. The oral histories from IWM have proven most insightful. However, as with all oral histories, challenges lie in answers being led by the questions asked by the interviewer, and the interests of the interviewer. Often, these histories are more concerned with the battles fought and the front lines, with information about injury and amputation coming much later in the testimony and not always in as much detail as the former. Bringing together the official sources, objects, and oral histories, however, allows this thesis to explore a much wider remit and allows for the creation of a more well-rounded history of limb loss and artificial limb production in these two conflicts.

Chapters:

This thesis is comprised of four chapters, each focussing on one of the major steps in the journey from amputation to life after being fitted with an artificial limb: limb fitting centres,

manufacturing and designing artificial limbs, learning to use an artificial limb, and the lived experience of these disabled ex-servicemen. In this sense it takes this journey and explores it in a chronology. However, each chapter is distinct in how it explores these histories and the methodologies and sources used.

Chapter One focuses on the limb fitting centres and how they were founded, organised and funded. These limb fitting centres were to be a space where most of the components in the journey from amputation to being able to effectively use an artificial limb were to all take place. Usually housed in stately homes, which were taken over for the duration of the war, ex-servicemen were sent to these centres once the stump was sufficiently healed and was suitable for an artificial limb to be attached to it. Typically founded through philanthropic channels, State intervention came later in the conflict in most cases. Anderson's ideas of how these limb fitting centres changed the definition of medical care are central to this chapter.[94] A change that was not just seen in the buildings and stately homes that were taken over to care for and rehabilitate disabled ex-servicemen, the First World War also changed the relationship between the surgeon and the limb maker – with them both now working within the same domain – the limb fitting centre. This creation of a new space, where relationships between surgeon, limb-maker and disabled ex-serviceman were more closely intertwined, allows the overall thesis to explore in more detail the work undertaken there and the care supplied to these men. How everything being on one site - from potential re-amputation, to limb fitting, and limb use and rehabilitation - and having a dedicated site for all these steps to happen - is something that this chapter begins to set the scene for and explains why these centres were so important in allowing spaces for this to happen. This chapter is important in setting up the parameters in which the further care and aid for these ex-servicemen was controlled, funded,

[94] Julie Anderson, "Separating the Surgical and Commercial: Space, Prosthetics and the First World War," Claire L. Jones (ed.) *Rethinking Modern Prostheses in Anglo-American Commodity Cultures, 1820-1939* (Manchester University Press, 2017) pp.158-178.

and housed. Linked to this idea of space is also the physical, geographical space of the different centres and how that impacted how they were run, and their futures. Roehampton remained the leading limb fitting centre throughout both wars and worked closely with the State, whereas Erskine remained firm in its stance to be publicly and charitably funded and to solely care for disabled ex-servicemen. The fact that this chapter takes a 'four nations' approach to the subject allows for these tensions to be explored in more detail. Previous work, such as Reznick's, tends to focus on one nation or one hospital, but this chapter explores how these centres were developing in Scotland, England, and Wales.[95] Focussing on mainland Britain shows how each nation differed in their priorities with regards to the care of these limbless ex-servicemen, while also providing a more in-depth analysis of post-war care in Britain as a whole. Ireland itself is missing from the chapter as it had a very different relationship with the State and would warrant a whole thesis to explore these ideas.[96] As a result, this chapter is organised chronologically but also geographically within this. The main source base for this chapter is predominantly official sources relating to the committees that set up and ran these limb fitting centres, giving a very institutional focus on these limb fitting centres.

Chapter Two explores the manufacturing of artificial limbs but also the limbs themselves and the materials used in the making of them. Taking information from the Committee Minutes explored in the previous chapter, this chapter uses these names of manufacturers based at the limb fitting centres to explore just who was creating the artificial limbs given to ex-servicemen in both world wars. The chapter is separated into the manufacturers and the artificial limbs

[95] Jeffrey S. Reznick, *Healing the Nation.*

[96] Work on limbless ex-servicemen in Northern Ireland and Ireland would make for a fruitful future project. Work such as that of Michael Robinson, Brian Hughes, and Paul Huddie show these different relationships with the State and explore the impact this had on the care and representations of ex-servicemen in Ireland. See: Robinson, *Shell-Shocked British Army Veterans in Ireland;* Paul Huddie, "Legacies of a Broken United Kingdom: British Military Charities, the State and the Courts in Ireland, 1923–29*," Irish Economic and Social History,* 45(1), 2018, pp.3-22, doi.org/10.1177/0332489318791867.

themselves to allow for both sides of this history to be told and to allow for a much wider picture to be created of where these limbs actually came from and why certain materials were used. The manufacturers section explores how each nation had a slightly different approach to who was creating the limbs for their centres and how this resulted in there being, at some points, a large number of manufacturers essentially doing the same job. The need for artificial limbs on a large scale was obvious, but a large number of manufacturers also created problems when it came to repairing and replacing limbs in the future. An exploration of these manufacturers also allows us to see that many of these firms were initially created by men who needed the use of an artificial limb themselves and begins the conversation of lived experience and embodied knowledge that occurs in the final chapter. Exploring the artificial limbs themselves allows for another chronology of sorts to be created through an insight into the changes in materials used to create these limbs. From initial wooden peg legs to more advanced wooden legs and then light metals, great changes were made in the period from the First World War into the inter-war period. Examining the limbs held in museum collections allows this thesis to explore these changes but also allows an insight into when advances stopped being made at such a rapid level – for the Second World War, the majority of materials being used were those that were at the forefront in the 1920s and 30s. Moving away from more official records, this chapter utilises trade catalogues created by the different manufacturers to examine why these companies were the ones to be making the limbs. Alongside this, artificial limbs held in museum collections bring material culture methodologies to this history to explore the objects themselves.

Chapter Three moves on to exploring the idea of expertise within the limb fitting centres, with a focus on the skills of the limb fitters and the limb instructors. A lot of work has been undertaken on rehabilitation and disabled ex-servicemen but it tends to focus on men

returning to society and undertaking work.[97] The body and rehabilitation of the body damaged by war is often the lens that historians look at disabled ex-servicemen through, and while it is important, there are other facets of rehabilitation that need to be looked into further. For example, what of rehabilitation in the sense of learning to use their new artificial limbs? – not necessarily with a focus on vocation, but on how to walk and live with this artificial limb. As a result, this chapter focuses on three aspects of the first steps in the overall rehabilitation journey and the steps taken to be able to get an ex-serviceman to the point where he might be able to undertake employment. It begins with amputation and the stump, exploring how medical expertise played an important role here in terms of getting the actual body ready for an artificial limb to be supplied. Once the doctors had created a suitable stump, the ex-serviceman could then be sent to a limb fitting centre where a limb fitter would take control of measuring for and fitting the appropriate artificial limb. The final step was the role of the limb instructor in showing these men how to effectively and efficiently use their new limbs. In this sense, this chapter explores the different expertise that was involved in the whole process. It also further highlights the importance of many of these encounters taking place under the roof of the limb fitting centre. Again, this chapter uses official sources, predominantly held at TNA. Through these, this chapter explores where the State saw expertise as lying and who they trusted as the experts in the limb fitting centres. Limb fitters and limb instructors were pivotal members of the centres, yet the State appears to have taken them and their expertise for granted, as this chapter will show.

---

[97] For example: Emily Bartlett, "Reassembling Disabled Identities"; Meaghan Kowalsky, "'This Honourable Obligation': The King's National Roll Scheme for Disabled Ex-Servicemen 1915-1944," *European Review of History,* volume 14, issue 4 (2007) pp.567-584, doi.org/10.1080/13507480701752201; Joseph McBrinn, "The Work of Masculine Fingers: The Disabled Soldiers' Embroidery Industry, 1918-1955," *Journal of Design History,* volume 31, issue 1 (February 2018) pp.1-23, doi.org/10.1093/jdh/epw043; Julie Anderson, *War, Disability and Rehabilitation in Britain*; Julie M. Powell, *Bodies of Work: The First World War and the Transnational Making of Rehabilitation* (Cambridge University Press, 2022).

Finally, Chapter Four explores the lived experience of the disabled ex-servicemen and allows some of their insights to be brought into this overall history. It does this by exploring themes that link to the previous three chapters. It begins with exploring the idea of time and how much time was spent in the overall process of waiting for the stump to heal, being given a new limb, learning to use it, having to return for repairs, or needing a new limb fitted. It may be something simple, but this idea of time is something that crops up in many accounts from the ex-servicemen themselves and allows for a more human insight into the whole process. The chapter then moves on to exploring ideas of rehabilitation through the vocational side of this. In particular, this section focuses around the letter of one man who spent years trying to find work that suited him and that he could happily undertake. His struggles offer a different narrative to that of the 'successful' ex-serviceman being happily re-integrated back into society and enjoying everything the State offered him. Finally, this chapter returns to the artificial limbs themselves and explores this idea of embodied knowledge and men using their own skills to fix and repair their artificial limbs. The limbs made for these men were supposed to be made to measure and fit properly, and these men could return to limb fitting centres to have them repaired or replaced if damaged. This section subverts these ideas and shows disabled ex-servicemen using their own skills and knowledge – whether through necessity or stubbornness – to repair their own limbs or make them more comfortable. Some of these ex-servicemen did not want to have to travel back to one of the centres, or send their limb away in the post. Again, this was a lengthy procedure, tying together all the ideas of this chapter. This chapter uses oral histories, and letters, in particular, to explore these lived experiences and delve further into what life was like for some ex-servicemen in the aftermath of the two world wars. Alongside this, material culture is used to further show concrete examples of these narratives.

## Chapter One: Limb Fitting Centres and the Two World Wars

### Introduction:

The First World War might have commenced months earlier, but it was when Mrs. Mary Eleanor Gwynne Holford, one of the founders of the Queen Mary Convalescent Auxiliary Hospital (Roehampton), visited the wards at the Millbank Military Hospital, in January 1915, that the true human sacrifice of the war became apparent to her. It was here that the inspiration to open a limb fitting centre, such as Roehampton, was born. Gwynne Holford described spotting a man who was sitting at a table 'with a look of utter sadness and hopelessness on his face, a man who had lost both arms.'[98] On the table in front of him rested the two leather sockets with hooks attached, which the government had supplied as a substitute for what he had lost. Conversing with him, his response to her questioning about what had happened to him was: 'Is this all my country can do for me?'[99] These words lit this spark of determination within Gwynne Holford and she vowed that she would 'work for one object and that was to start a hospital whereby all those who had the misfortune to lose a limb in this terrible war, could be fitted with those most perfect artificial limbs human science could devise.'[100] This was the goal behind opening the major limb fitting centres in the four nations.

This chapter explores the history of these main national limb fitting centres from their beginnings in the First World War, through to what happened once this war was over, and then how prepared, or not, they were for caring for a new generation of limbless ex-servicemen from the Second World War. Split into the time periods of First World War, inter-

[98] Helen Alper, *A History of Queen Mary's University Hospital Roehampton* (Richmond Twickenham and Roehampton Healthcare NHS Trust, 1996) p.7.
[99] Alper, *A History of Queen Mary's University Hospital Roehampton,* p.7.
[100] *Ibid.*

war and the Second World War, the chapter uses Committee Minutes, in particular, to explore this more institutional history of these centres and allows this thesis to explore what was going on 'behind the scenes' in the decisions being made in the running of these spaces. Within these chronological sections the chapter is further split into each limb fitting centre, allowing an exploration of the nuances in each nation, and allowing the thesis to track what happened to each of the centres after the First World War ended.

Around 41,000 men returned from the battlefields to Britain in the First World War missing at least one limb – something which both the British government and health professions would have to deal with. Hospitals were set up to try and aid with this increasing number of limbless men who were being sent back to Britain. Numerous convalescent homes were also set up for those who were awaiting the fitting of artificial limbs – men were not immediately sent to limb fitting centres after amputation; the stump had to have healed sufficiently to allow the attachment of an artificial limb to it. These centres were mainly set up within various stately homes and country mansions, which were taken over for the duration of the conflict.[101] Yet it was the opening of hospitals specifically to aid and care for those who needed new limbs, and needed help with rehabilitation and the use of such limbs, that were of the greatest importance.

Various hospitals, such as the Edinburgh War Hospital (in Bangour) and Shepherd's Bush Military Hospital (in London), had wards dedicated to such undertakings. As the war continued, Britain began to see more specialist centres in military hospitals for limbless ex-servicemen

[101] W.F. Hendrie and D.A.D. Macleod, *The Bangour Story: A History of Bangour Village and General Hospitals* (Aberdeen University Press, 1991) p.32.

opening in cities such as Leeds, Liverpool, and Manchester. Yet it was the establishment of larger, centralised limb fitting centres in each nation - The Princess Louise Scottish Hospital For Limbless Sailors and Soldiers at Erskine House (Scotland); the Queen Mary Convalescent Auxiliary Hospital at Roehampton (England); the Prince of Wales Hospital for Limbless Sailors and Soldiers (Wales); and the Ulster Volunteer Force Limbless Hospital, at Belfast, and the Duke of Connaught's Auxiliary Hospital, at Bray (Northern Ireland) - which had some of the greatest impacts, and became the focus of the aid for these limbless ex-servicemen. The centre at Roehampton was the catalyst for these other centres to open and one can see similar values running through them all, based on Gwynne Holford's ideals behind opening such centres.

These limb fitting centres were to be a space where most of the components in the journey from amputation to being able to effectively use an artificial limb were to all take place. Usually housed in stately homes, which were taken over for the duration of the war, ex-servicemen were sent to these centres once the stump was sufficiently healed and was suitable for an artificial limb to be attached to it. Typically founded through philanthropic channels, State intervention came later in the conflict in most cases – something which this chapter will explore. Anderson's ideas of how these limb fitting centres changed the definition of medical care are central to this chapter (and to the thesis overall).[102] A change that was not just seen in the buildings and stately homes that were taken over to care for and rehabilitate disabled ex-servicemen, the First World War also changed the relationship between the surgeon and the limb maker – with them both now working within the same domain – the limb fitting centre. This creation of a new space, where relationships between surgeon, limb-maker

[102] Anderson, "Separating the Surgical and Commercial" pp.158-178.

and disabled ex-serviceman were more closely intertwined, opens up more questions about the work undertaken there and the care supplied to these men.[103] How everything being on one site - from potential re-amputation, to limb fitting, and training in limb use - and having a dedicated site for all these steps to happen - is something that this chapter begins to set the scene for and explains why these centres were so important in allowing spaces for this to happen. This chapter is important in setting up the parameters in which the further care and aid for these ex-servicemen was controlled and funded and housed.

Speaking at a public meeting in March 1916, Sir William Macewen, the eminent Scottish surgeon, vowed that he believed that the object and purposes of the hospital at Erskine would be to 'receive and treat men who have lost their limbs, or who have faulty use of their injured limbs, after their discharge from the general Hospitals, and to fit the limbless with artificial limbs and teach them how to use them.'[104] That he mentioned teaching these ex-servicemen how to use their new limbs was of great importance as rehabilitation was an area in which these limb fitting centres were intended to excel. Spaces for this rehabilitative work to take place were set up in the grounds of these centres, with much of the work being focussed on vocational and "useful" pursuits. However, as will be explored later, there were also those spaces for the initial adapting to using an artificial limb and learning how to use it with some skill. It was having all of these steps in the process from losing a limb to being given an artificial limb under the one roof which made these centres an innovative space. These ex-servicemen no longer had to travel to different institutions for these different parts of the process and were meant to benefit from all the necessary care being in the same space. Each nation having

[103] On changing hospital care, also see: Shaw, Furneaux and Wilson-Scott, "War, Wounding and Intimacies," and Grant "The Kindness of Strangers".
[104] John Reid, *The Princess Louise Scottish Hospital for Limbless Sailors, and Soldiers at Erskine House* (printed for Private Circulation, James Maclehose and Sons, Publishers to The University, 1917) p.23.

a major limb fitting centre also meant that men potentially would not have to travel too far to get properly fitted with their artificial limbs. Naturally, unless a man lived close to the centre in question, some amount of travelling would still occur, but it was hoped that, for example, a Scottish man not having to travel to London for treatment would ease a little of the burden. Geographically, however, even within the nations, these limb fitting centres were not set up in major city centres. Each of them was housed close to a major city but some travelling outside of the city would have to occur to be able to get treatment at the centre.

In all aspects, these stately homes underwent a change – particularly in the sense of use and in the adaptation of the space itself. As Davies argues in his thesis, 'unless the wounded had worked in domestic service before the war, the setting was unfamiliar and alienating.'[105] For some, it was likely a space that they had set foot in previously, but for many 'instead of being unwelcome trespassers, they became honoured guests.'[106] Even if the ex-servicemen had set foot in a stately home previously, the interiors would have likely been changed and adapted to suffice for their new purpose during the war; much the same as these men had been changed by their war experiences. All the same, even within these newly formulated spaces, an understood class dynamic was still at play. Often Officers and other ranks would be kept separate, if space allowed, ensuring that some of "normal" life and military discipline was still adhered to. Massey's work argues against the idea of space being 'static' in the same way that social relations are 'inherently dynamic.'[107] The architectural and geographical spaces of these limb fitting centres were pivotal to the care provided there, and to the experiences that the ex-servicemen had there. These grand homes were uprooted and changed, but equally the men mirrored this. These spaces brought together various actors that would not normally come

[105] Jack Davies, *'A Very Haven of Peace': The Role of the Stately Home Hospital in First World War Britain* (unpublished doctoral thesis, University of Kent, 2017) p.19.
[106] Davies, *'A Very Haven of Peace'* p.19.
[107] Doreen Massey, *Space, Place and Gender* (Polity Press, 2013) p.3.

together under the same roof: from doctors to limb makers to limb fitters and ex-servicemen. Massey's focus on the differences in national, regional and local constructions of gender links to the focus here on these differences in the care provided across mainland Britain, and is highlighted in the differences shown in this chapter with regards to the setting up of the limb fitting centres and the ideals behind them in each area.[108]

Coming just two decades after the last great global conflict, the Second World War brought with it a new generation injured and disabled by war, at a time when many of those from the First World War were still undergoing treatment and still required care from the institutions that had been set up in the wake of that conflict. In terms of the numbers who lost limbs in the Second World War, it was a significantly lower number than had been seen in the First World War: 12,000.[109] However, the Second World War brought with it significant and varying changes from the first, especially with bombing and air raids affecting both the work being undertaken in Britain and bringing with it a new set of casualties. No longer were the injuries of war just contained to the myriad front lines, but now too civilians in Britain who also sustained injury through war-related means with air raids striking various points of the country.

In both wars, similar themes run through the histories of these limb fitting centres. Reznick's work on the Shepherd's Bush Military Hospital in the First World War highlights a mix of public and State support for the disabled ex-serviceman and argues that the multi-faceted official view of disabled ex-servicemen could be seen through how this hospital was ran, and funded –

[108] Massey, *Space, Place and Gender,* p.178.
[109] BLESMA, The Limbless Veterans Charity, "Our History" <https://blesma.org/about-us/our-history/> (accessed 23/05/2022).

with the support base for Shepherd's Bush consisting of the War Office, British Red Cross, and the public.[110] This chapter will build on this work and highlight how philanthropy and the State were sometimes at odds and sometimes worked in harmony, depending on the location of the centre. Funding was a constant struggle, as was space. As these histories run through the decades, the need for both is apparent. Linked to this idea of space is also the physical, geographical space of the different centres and how that impacts how they were run and their futures. Roehampton remained the leading limb fitting centre throughout and worked closely with the State, whereas Erskine remained firm in its stance to be publicly and charitably funded and to solely care for disabled ex-servicemen. These intertwining ideas will be explored in more detail in this chapter. The fact that this chapter takes a 'four nations' approach to the subject allows for these tensions to be explored in more detail. Previous work, such as Reznick's, tends to focus on one nation or one hospital, but this chapter explores how these centres were developing in Scotland, England, and Wales.

[110] Reznick, *Healing the Nation,* p.120.

Foundations of the Limb Fitting Centres – 1915-1919:

Roehampton:

The creation and maintenance of Roehampton as a limb fitting centre was due to 'the public spirit and foresight of its Founders' Gwynne Holford, Lady Falmouth, and Charles Kenderdine, as well as due to the 'generosity of the public as a whole.'[111] Appeals were made to the public in order to drum up support and funds for the opening and maintenance of the hospital. In order to gain this support, stories of loss and the detrimental effect limb loss was having on the lives of those who had already been sent back from the Front were printed in newspapers, along with sentences such as 'the saddest results of this saddest of wars that there will be so many maimed men on our streets' and evoking descriptions of 'the poor village dame and her crippled boy.'[112] The idea that the existing hospitals in Britain were inadequate for the task at hand was also a common theme, especially, and unsurprisingly, within the letters that the founders themselves wrote to various newspapers and journals. These men, who had fought so bravely for their country, deserved to have the best treatment provided for them. This tactic of playing on the pities of the public and betting on this philanthropic nature evidently worked as, by June 1915, donations totalling £19,715 had been subscribed to the hospital fund.[113] £10,000 of this had been donated by the National Relief Fund, with a further £1000 coming from the British Red Cross Society and Order of St. John of Jerusalem.[114] By this stage, there had also been five donations of £150 and over; ten donations of £100; and 45 donations of £50 towards the supply and maintenance of beds - which were to be named after the donors.[115] Naming beds after those who donated was another tool used in order to gain

[111] IWM, Queen Mary's (Roehampton) Hospital, Roehampton House, S.W.15. For Sailors, Soldiers and Airmen Who Have Lost Their Limbs in The War, Artificial Limbs Work at Roehampton 1915-1930, K.4394.
[112] TLA, News Cuttings No.1., *Christian Globe*, May 1915, H02/QM/Y/01/001.
[113] TLA, Queen Mary's Convalescent Auxiliary Hospitals General Committee Minutes I, H02/QM/A/1/1.
[114] *Ibid.*
[115] *Ibid.*

support for the hospital. Who could resist having their name attached to such a cause, if they could afford to give enough money? The War Office further agreed to pay 3 shillings per day for each of the beds which were occupied.[116] The owner of Roehampton House, Mr Kenneth E. Wilson, agreed to lend the house to the committee rent free, as well as 30 acres of land surrounding the house. For the most part, the money that funded the initial stages of Roehampton came from charitable causes. The influential founders could use their status and their connections in order to gain the necessary monetary support, whilst also reaping the rewards of having their names attached to such a pursuit. At this early stage, there was little State intervention to be seen, except with the War Office offering the extra money for beds that were actually filled by men under their service. In 1915, the limb fitting centre at Roehampton was almost primarily a site of philanthropic care. As Davies argues in his thesis, the war 'afforded the elite the opportunity to donate their homes and to care for the wounded, but perhaps most importantly, it allowed them to do it publicly, which helped to maintain their positions as leaders of society.'[117] As this chapter will highlight throughout, the donation of money was only one aspect of this perceived philanthropy. The donation of items for these limb fitting centres, as well as the donation of the stately homes themselves, were all part of this charitable drive and this show of the wealthy doing some good for the war effort.

The house itself was a 'stately mansion' which was 'almost hidden amidst the luxuriant foliage that flanks that pleasant highway' as one newspaper described it.[118] This again links to the idea that these centres were not based in easy, city-centre locations. Before the house was requisitioned, in order to open the hospital, the building had served as a billet for soldiers - soldiers who were soon up-rooted and moved overseas, to make way for these limbless ex-

[116] Alper, *A History of Queen Mary's University Hospital,* p.9.
[117] Davies, *'A Very Haven of Peace,'* p.90.
[118] TLA, News Cuttings No.1. *Daily Telegraph*, July 1915, H02/QM/Y/01/001.

servicemen. The grounds and settings of the house would play a more important role in regards to the rehabilitation of these men - allowing space for recreational pursuits and for vocational workshops to be set up. It would also allow for expansion, once space became a premium and more and more men returned from the front lines needing the help that these centres provided. The domestic, and often rural, surroundings of the stately home were believed to be beneficial for the physical, and mental, health of those being provided care there. This was not an idea that was new to the opening of these limb fitting centres and is something that can be seen in the histories of institutions such as sanatoria, where the health benefits of open air cures and appropriate environments were at the forefront of the care provided there.[119] Hickman persuasively argues for the importance of the hospital garden in her work.[120] Whilst focussed more on the design of institutions and their gardens than perhaps was at the front of the minds of those creating the limb fitting centres, these arguments for the importance of institutional spaces and the locations of spaces of care are important to this chapter and to the layouts of the limb fitting centres.

A Matron, Miss Munn, was appointed, with a further appointment of an assistant Matron and six Sisters, whom Miss Munn was allowed to choose for herself. Initially, no resident Medical Officer was engaged to aid the limb fitting centre, due to the fact that the goal was to rehabilitate the limbless ex-servicemen rather than treat sick patients. Despite this, it soon became apparent that such a post would need to be occupied, after a wave of illness swept over those residing within the house, on more than one occasion.[121] It was also necessary to

[119] See: Clare Hickman, "The Importance of "Open Air" for Health: Environmental and Medical Intersections," in Tatiana Konrad, Chantelle Mitchell and Savannah Schaufler (eds.) *Imagining Air: Cultural Axiology and the Politics of Invisibility* (University of Exeter Press, 2023) pp.180-199; Clare Hickman, *Therapeutic Landscapes: A History of English Hospital Gardens Since 1800* (Manchester University Press, 2013)*;* Jennifer Wallis, *Investigating the Body in the Victorian Asylum*.
[120] Hickman, *Therapeutic Landscapes.*
[121] TLA, Queen Mary's Convalescent Auxiliary Hospitals Executive Committee Minutes, H02/QM/A/2/1.

have medical staff on site who would be able to deal with the complications that could arise from infections in the amputation stumps and to help aid with further complications in the more medical side of this whole process. The stump could take a long time to heal and to contract to the shape that would be suitable for attaching an artificial limb. Even once the process of limb fitting had occurred, an ill-fitting limb could cause even more complications and medical staff needed to be on site to be able to deal with these scenarios when they arose. Once again, having all of the necessary staff under roof was one of the reasons why these limb fitting centres were lauded as such innovative spaces.

At a meeting in June 1915, the General Committee minutes indicated that the work of cleaning and decorating Roehampton House was proceeding satisfactorily, and that they hoped to be able to start receiving men by the 24th of June.[122] The initial number of beds made available was 200, but by the beginning of July there were already discussions amongst the Committee members regarding the expansion of this. It was unanimously decided by the General Committee that a further 75 beds would need to be acquired immediately, to deal with the huge number of cases, and that the necessary buildings required to house such beds should be discussed with the Admiralty, in order to see if they would desire to fund such a project.[123] The wartime account of a soldier who spent some time at Roehampton, after losing a leg, talks of the accommodation situation when he arrived there in March 1918. In his account he talked of: 'All double amputees were housed in Roehampton House and that was full' so he was placed in one of the 'scores of huts all lined with asbestos or uralite' with the other young limbless ex-servicemen, who had only lost one arm or leg.[124] These spaces were also separated depending on the class and rank of the ex-servicemen. Officers were given their

[122] TLA, General Committee Minutes, H02/QM/A/01/001.
[123] *Ibid.*
[124] IWM, Private Papers of JF Bunn, JFB09/27/1, p.62.

own space within the House itself, but were also privileged with a cottage a little away from the main site. However, the need for space became a constant problem as the First World War continued to rage on. Once the stately homes that made up these limb fitting centres were full, huts began to be erected on the grounds that surrounded them. Here, again, we see a further benefit to Roehampton being given 30 acres of land alongside the mansion.

In her history of the hospital at Roehampton, Alper argues that without the amalgamation of different interests, from the armed services to orthopaedic surgeons and representatives from relevant government departments, to the major charities that donated money to the opening and maintenance of the hospital, the centre would never have been able to make the transition from being a mere auxiliary hospital to a national institution.[125] The grants and donations offered by these various groups, as well as the support for obtaining the house, and the staff and equipment and furniture for within, were fundamental to the success of Roehampton. Queen Mary expressing the desire to become patron of the hospital was another boost for the institution. Once the house was finally equipped and staffed, ready to open its doors to the men who needed their aid, the next step was to notify any prospective patients that it was open for duty. The procedure of actually notifying these men was a long, and somewhat complicated one. This was primarily due to the fact that the existing arrangements already in place for providing new limbs for limbless ex-servicemen, under the Royal Hospital at Chelsea, had practically collapsed under the number of men who required such attention. The system that was in place at the Chelsea Hospital was nothing compared to what Roehampton hoped to undertake. At Chelsea, the men were measured for a limb, which was then sent to their house as soon as it had been manufactured - without any aid in the use of it, or having the chance to have it properly fitted and adjusted by an orthopaedic surgeon. The

[125] Alper, *A History of Queen Mary's University Hospital Roehampton,* p.10.

minutes from the Executive Committee at Roehampton, from July 1915, showed that a list of 672 men who had lost limbs and had been discharged from the army had been provided.[126] Upon further investigation of this list, only a few had been supplied with artificial limbs, and the majority had not even been measured for them yet.[127] A register of cases was started using any information that could be obtained from the Red Cross and from the military hospitals. Still, each man's case had to be investigated, to decide if he was fit enough to be admitted to the hospital for the fitting of a new limb. Men were not sent to the limb fitting centres until their stump was deemed to be in a sufficient enough state, by medical staff, to be able to undertake the fitting of an artificial limb. The amount of paperwork involved in these procedures was enormous. It was at this early stage that the Executive Committee themselves realised that the situation regarding limbless men was 'far more serious than was at first anticipated.'[128]

At the first General Committee meeting, on 11th May 1915, it had initially been proposed that the hospital could offer help to cases other than those who had just lost limbs, but this idea was discouraged from the outset. By the fourth meeting in July, the causes of amputations were being discussed. The main discussion amongst Committee members was as to whether soldiers who had had their limbs amputated owing to accidents were eligible for admission to the centre at Roehampton. Sir Francis Lloyd argued that all soldiers – whether they had gone to the Front or not – were considered to be on Active Service, and, therefore, it was unanimously decided that soldiers who had had their limbs amputated owing to accident (even if not serving abroad) were eligible for admission to Roehampton House.[129] A second

[126] TLA, Executive Committee Minutes, H02/QM/A/02/001.
[127] TLA, Executive Committee Minutes, H02/QM/A/02/001.
[128] *Ibid.*
[129] *Ibid.*

meeting in July also brought discussion round to at what point in their treatment men should be allowed to come to Roehampton. The number of beds and amount of space available was a huge factor in the decisions being made with regards to this too. Mr. Kenderdine drew the Committee's attention to a memorandum which had been prepared by Sir Charles Crutchley with regards to the class of 'patient' who should be admitted at Roehampton, and upon which had been obtained the opinion of Sir Alfred Keogh and General Russell.[130] They were both of the opinion that no man ought to be admitted to Roehampton until his wounds were sufficiently healed to permit of his being fitted with an artificial limb at an early date, and that no man whose wounds were not completely healed should be eligible for admission.[131] Kenderdine asked the Committee to consider what effect this decision might have with regard to ex-servicemen who were at that time awaiting admission and had just been discharged from Naval and Military Hospitals. In such cases two months or more would potentially go by before an artificial limb could be fitted. Essentially, this need to wait for the stump to be sufficiently healed meant that a great number of cases had to be 'ruled out for the time being.'[132] Great discussion was had around this, particularly the worry that they were going against the founding principles of the hospital, but as cases were 'far in excess of anything that had been anticipated' they had to draw the line at men whose stumps were already deemed perfectly healed.[133] In this same meeting, the question was also raised as to whether civilians who had lost limbs as a result of bombing would be eligible for admission to Roehampton. The answer to this also ended up being no. Discussions around who could, and would, be admitted to the hospital would crop up again as the 1920s got underway, and these institutions had to find

[130] *Ibid.*
[131] *Ibid.*
[132] *Ibid.*
[133] *Ibid.*

more sources of revenue. However, in the first years of operation, Roehampton was solely for limbless ex-servicemen.

Erskine:

There was one main issue with the founding of the hospital at Roehampton and that was raised by those in Scotland. Although praising the advantages of limbless ex-servicemen now being able to have their artificial limbs properly fitted and adjusted, as well as being taught how to use them, a letter written in *The Scotsman* on the 8th July 1915 raised the point that such care was not as easily accessible to those men living in Scotland, if the only place they could be treated was at Roehampton.[134] The suggestion was raised that the scheme already in place down in London should be extended to Scotland, and that a committee should be set up in order to undertake such a challenge. The scale of casualties made it obvious that a large hospital was needed in Scotland to deal with such injuries. There was already the hospital at Edenhall, but it was known that they would not be able to cope with the requirements needed to deal with the large numbers of limbless ex-servicemen. With the evidence of the struggle for space already at Roehampton, it was understood that somewhere larger than Edenhall would be needed for Scotland.

An account of the founding of the hospital at Erskine furthers the idea of influential figures being perceived as the best minds behind these limb fitting centres in that 'it was suggested that Sir William Macewen, the eminent surgeon, with his great influence could render more

[134] TLA, News Cuttings No.1. *The Scotsman*, 8th July 1915, H02/QM/Y/01/001.

effective help than anyone else.'[135] Initial, informal meetings were held regarding the topic, but with the strong-willed Macewen at the fore, those talks soon resulted in action. It was the surgeons of Glasgow who, having gained support from prominent figures within the city, made the first official move to get the starting of this limb fitting centre underway. Macewen's son described his father's great foresight which 'well-appreciated the needs of war, and amply catered for them' - understanding that the priority was the supply of artificial limbs.[136] A provisional committee was formed, but it was soon broadened to allow some not within the medical profession to become involved - including the Marchioness of Bute, the Marquis and Marchioness of Ailsa, and Mr. H.E. Yarrow. All of these names would become major players in the foundation of Scotland's limb fitting centre. The project gained even more headway after Her Royal Highness Princess Louise agreed to become patroness of the hospital, and added prestige with her name being borne by the institution. Once again, the power of having richer, influential names behind the institution is apparent.

One of the main ideas behind the foundation of the hospital was to allow for the services of Scottish limb makers to be utilised more proficiently.[137] Princess Louise herself thought that it was a 'first-rate idea to start making artificial limbs in Scotland' and believed it would be 'splendid' if this could become an industry, as the market for limbs was a considerable one.[138] There was one fear that the Princess had concerning the hospital, and that was that it would cause some rivalry with that at Roehampton. She wrote, in 1916, that the King had been approached and 'the hope expressed that a separate Scottish Hospital would not be started'

[135] Reid, *The Princess Louise Scottish Hospital,* p.16.
[136] Hugh Allan Macewen, M.D., *The Man in The White Coat – An Account of The Forebears and Early Life of Sir William Macewen, Surgeon, to which is added Personal Reminiscences Concerning Sir William's Career* (John Smith & Son (Glasgow) Ltd., 1974) p.52.
[137] Reid, *The Princess Louise Scottish Hospital,* p.18.
[138] Macewen, *The Man in The White Coat,* p.52.

resulting in him being reluctant, also, for anything that might cause such competition.[139] Here, the ideas of wider geographical space and nationalist space come into play. The centre at Roehampton wanted to be the major site for all limbless ex-servicemen to go to, despite them being low on space themselves. There is also inference that the limb manufacturers at Roehampton were perhaps the ones who did not want this competition from a rival nation. Still, a hospital in Scotland was necessary and with the patronage of Princess Louise secured, the only thing required was approval from the Admiralty and the War Office. Instant approval was given by Sir Arthur William May, Director-General, Medical Service of the Admiralty, and Sir Alfred Keogh, Director-General, Medical Service of the War Office, once they were approached.[140]

Similar to what happened with the house at Roehampton, the owner of the Mansion House at Erskine, Mr. Thomas Aikman, offered the committee free use of the house and the surrounding gardens for the duration of the war, and for 12 years after peace was declared. The option was also given that, if it was believed desirable to make the institution a permanent one, then the house and the grounds surrounding it could be purchased for the total of the agricultural value of the land. This was immediately deemed a generous, and desirable, offer and Mr John Reid, the Vice-President of the Erskine centre, purchased the house, gardens and around 360 acres of land, and presented them to the hospital.[141] The house itself was well adapted for the conversion from stately home to hospital – something, which Ketley argues, brought the change of a space which had 'formerly been private and domesticated was now communal,

[139] University of Glasgow Archive Services (UGC), The Princess Louise Scottish Hospital Minutes 1916-1917, UGC 225/1/1/1.
[140] Harry Diamond, *Do You Sleep with That Leg On? The Story of Erskine Hospital* (Erskine Hospital, 2001) p.31.
[141] UGC, Hospital Minutes 1916-1917, UGC 225/1/1/1.

medicalised, and militarised.'[142] The room originally used as a picture gallery was turned into a recreational hall for the ex-servicemen; the drawing room and library were swiftly changed to dormitories, as were many of the rooms of the first floor. Accommodation for the Matron, housekeepers and doctors was also provided for. The main staircase of the house had to be altered, in order to allow access to the uppers floors for the men that would be housed within the building. A large passenger lift had to be erected within the stairwell, consisting of a cage measuring 6 feet by 8 feet.[143] For the first time here, some insight is given into how these spaces had to be made more accessible for the men who were going to utilise them. A grand house with a beautiful staircase might be aesthetically pleasing, but it had to become a practical and functional space. A great advantage of the house was that there was an existing subway connection between the avenue that the house was situated on and the Erskine Ferry, meaning that men could be conveyed with ease to the house.[144] However, this once again suggests that the centre itself was not in the most easily accessible location and the suggestion of a ferry further highlights how outside of either of the major central Scotland cities it was.

The announcement of the plans for the hospital were met by an eager response from the public, much like what had been seen at Roehampton. Within a few weeks of the announcement, the Scottish public had donated £100,000 towards the hospital.[145] By Whitsun 1916, this figure had nearly doubled.[146] The generosity of the public did not stop there.[147] Hundreds of gifts flooded in to the hospital ranging from pianos, to a billiard table, to

---

[142] Paul Ketley, *Homes of Healing: The Medical Utilisation of British Country Houses in the Second World War. A Spatial History of Alternative Spaces* (unpublished doctoral thesis, University of Kent, 2019) p.9.
[143] UGC, Hospital Minutes 1916-1917, UGC 225/1/1/1.
[144] *Ibid.*
[145] *Ibid.*
[146] John Calder, *The Vanishing Willows: The Story of Erskine Hospital* (The Princess Louise Scottish Hospital (Erskine Hospital) 1982) p.10.
[147] Ketley argues that the converted house became a focal point for the local community (at all class levels) to donate to the war effort, and became a space for the promotion of national unity (which feels particularly important in the Scottish case) in Ketley, *Homes of Healing,* p.11.

typewriters, as well as numerous articles of furniture.[148] The conversion of the house in to this new hospital, as well as sorting through the gifts, and acquiring the necessary beds, took longer than expected. War time shortages in labour and materials had an impact on the speed of which the conversion could take place. But, on the 10th October 1916, Erskine Hospital opened its doors to the limbless ex-servicemen of Scotland. Even with the intention for this hospital to aid with the increasing numbers of men returning from the front lines having lost limbs, by November 1917, it was realised that this house, too, would not be big enough to accommodate all those who required aid.[149] Just as had occurred at Roehampton, huts were erected on the grounds, in order to allow for more beds to be made accessible to those in need. Once more, the horror, and importance, of the situation was being driven home.

Cardiff:

The Prince of Wales Hospital in Cardiff opened the latest in the war (May 1917), but its origins started much earlier than this. In August 1914, the Lady Chairmen of the Glamorgan Branch of the British Red Cross Society were invited to form Red Cross Auxiliary Hospitals – one of which ended up being in the Old Mansion House, which was lent to them by the owners, the James Howell family.[150] It was used as a Red Cross Hospital until January 1917, when it was realised that Wales would need, after the war, 'a hospital for the care of the limbless sailors and soldiers, into which they should have the right of entry to have their stumps attended to, and where the repairs, renewals and adjustments of artificial limbs could be carried out under suitable conditions.'[151] These words came from J. Lynn Thomas, who had been on the honorary staff at Roehampton, as well as having worked as a consulting surgeon in France during the

[148] UGC, Hospital Minutes 1916-1917, UGC 225/1/1/1.
[149] Calder, *The Vanishing Willows* p.15.
[150] Glamorgan Archives, Minute Book, February 1917 – August 1939, DHPW/8.
[151] *Ibid.*

Battle of the Somme. It is notable that in this statement their thoughts lay with after the war and not with what was happening in the middle of the conflict - especially with what can be seen above with the need for Erskine and Roehampton and how limited on space they were. However, only a few lines later into his account, Thomas explained that on his return from the Somme, conversations happening at Roehampton pointed out the 'urgent need to have the suggested hospital in Wales for the limbless, started before, and not after, the end of the war.'[152] This, alongside the news that the Old Mansion House was going to be sold, created an urgency around setting up a limb fitting centre in Wales. The Lord Mayor of Cardiff was immediately very supportive of such a scheme and it was suggested that 'Cardiff Citizens should present the old Mansion House to the Welsh Nation as a hospital for limbless sailors and soldiers domiciled in Wales and Monmouthshire, or belonging to Welsh Regiments.'[153] With this ideal in mind, the intention was to raise the money from the public in order to be able to afford to buy the premises in question and, significantly, not to immediately ask the State for help with funding this venture. Subsequently, enough money was given by anonymous donors for the hospital to be bought, with a further £10,000 given to carry out the necessary alterations needed in order to turn the building into one suitable for the limbless ex-servicemen who would be using it. From this point in time, the relationship between the centre at Roehampton and the one in Wales is much more clear to see, as an architect was sent to Roehampton to gain information about what alterations would be necessary to turn this house into something suitable for the task (as well as how much it might cost). Gwynne Holford herself visited the Cardiff centre to inspect the Old Mansion House and believed that they would need at least £20,000 to carry out the necessary work.[154] This is the first time that real collaboration between limb fitting centres is apparent in the archives. In Scotland there

[152] *Ibid.*
[153] *Ibid.*
[154] *Ibid.*

appeared to be a reluctance from England for them to have their own limb fitting centre. However, the Committee in England can be seen offering help to Wales in numerous areas relating to the formation of the centre there. Not long after the discussion of money with Gwynne Holford, the leasehold of some cottages, stables and the lane adjoining the Mansion House were offered up to the scheme, immediately giving them more space for the number of men that would likely require their services. Linking back to Roehampton once more, the Matron of the Prince of Wales Hospital was a Miss Clara Deacon, who had previously been Assistant Matron at Roehampton House. She was also made Commandant of the Welsh hospital. In order to free up more space in the Old Mansion House to those men who needed it, one of the nearby cottages, at 3 Richmond Crescent, was used as housing for staff. The other cottage, at 1 Richmond Crescent, was given over solely to the housing of Officers who were being treated at the hospital. The first eight ex-servicemen were received on the 7th of May 1917, with another three on the following day.[155] October 1917 ended with the news that H.R.H. the Prince of Wales would be glad to give his name to the hospital, as well as becoming patron of it, adding that extra prestige akin to what was seen at Erskine and Roehampton.

As with the other limb fitting centres, gifts from wealthier members of the public came in for maintenance of beds, and plaques were made to show who had donated the money to keep a bed. The first to take maintenance of a bed was Lady Aberdare, and she and Lord Aberdare promised to permanently endow a bed. Similarly to what had happened at the other centres, gifts poured in with everything from a billiard table to a gramophone and records and card tables being offered. The centre was in receipt of a Capitation Grant from the War Office of 3/- per occupied bed per day, similar to what was occurring at Roehampton, but the Committee

[155] *Ibid.*

did not believe this was enough and argued that actual expenditure was more likely double that.[156] From the Committee Minutes it seems that many conversations were had with the War Office about this, but the War Office would not (or could not) budge on the amount being given. These arguments were still happening in 1919, when the Chairman of the Committee pointed out that the Capitation Grants only covered around two-thirds of maintenance costs and that the remaining third had to be raised from other sources.[157] This need to generate more income, especially when State money was not always readily available, became especially necessary during the 1920s.

Interwar – 1919-1939:

Roehampton:

By January 1919, the centrel at Roehampton had dealt with 16,438 cases of men who had lost a limb during the war.[158] Even at this stage, 593 new cases were admitted within the month of January, resulting in the total number of limbs being supplied to ex-servicemen being 628, in that month alone.[159] This month saw more cases dealt with than any singular month in 1918, highlighting just how necessary the continuation of the work of the limb fitting centres was. The scale of the work being undertaken at Roehampton was further highlighted by the increased number of repairs being dealt with through the post. Once a man had been properly fitted with an artificial limb and had gone back to wherever he lived, returning to the limb fitting centre was not always the easiest undertaking – it was also an extra expense. Therefore,

[156] *Ibid.*
[157] *Ibid.*
[158] TLA, Queen Mary's Convalescent Auxiliary Hospitals General Committee Minute Book II, H02/QM/A1/2.
[159] *Ibid.*

limbs which required repairing could be sent via the post so that they could be fixed by the firm who had originally produced it. In February 1919, the number of repairs being dealt with through the post was higher than those who were being treated at the centre itself.[160] Repairs and renewals began to make up a lot of the work being undertaken at the limb fitting centres as the 1920s continued, but there were plenty of ex-servicemen who still required a space at Roehampton in order to be fitted with their first artificial limbs. A report from January 1920 stated that:

'The work done at the Hospital is steadily increasing. In January more was done than in any month since the opening of the Hospital, just short of 1700 cases having been dealt with. This represents an increase of 2/3 on the work done in February last year. It is only with great difficulty that the present staff can overtake it and it has been necessary to do a considerable amount of over-time at night.'[161]

The 1920s is when Roehampton began to see a lot more collaboration with, and involvement of, the State in the work being undertaken there. This became a very good decision financially, in particular, although the centre did still see money and donations coming in from elsewhere. In particular, money was coming in through legacy funding. However, people were still donating items more beneficial to the recreational side of being in hospital, which in itself was a continuing legacy of when work first began there in 1915. However, this was not perceived as wholly beneficial to the problems of the amount of manufacturing and rehabilitative work that still needed to be undertaken at the centre.

[160] TLA, Queen Mary's Convalescent Auxiliary Hospitals General Committee Minute Book I, H02/QM/A1/1.
[161] TLA, Executive Committee Minute Book, H02/QM/A2/02/001.

Discussions relating to the transfer of Roehampton to the Ministry of Pensions began to appear in Committee meeting minutes in earnest in 1919 and by December of that year, terms had been agreed between the Ministry and the Committee of the Hospital. The intention was that the Ministry would have the hospital for 'so long as the Minister shall require the same for limb fitting purposes' but that the Committee would remain in place as administrators of the hospital under the direction of the Ministry of Pensions.[162] The Ministry would pay a capitation rate to cover all of the services of the hospital and especially of the manufacturing of artificial limbs. The Minister of Pensions would have control over staff appointed, in particular, and would appoint and pay the Commandant and surgeons who would be based at Roehampton. He would also be able to decree the number of surgeons necessary on site, as well as appointing the Medical Board. The Minister would also have full control over hospital policies and decreed that the out-patients services would be expanded and if needed would be open daily (including Saturdays).[163] Linked to all of this, and the main work undertaken at Roehampton, was the fact that the limb makers and their premises would also fall under the remit of the Ministry of Pensions. Limb manufacturing will be focussed on in a later chapter, but it seemed prudent to mention this at this point in the thesis. It is interesting to see this journey from Roehampton being a 'purely voluntary scheme' in 1915, where no responsibility was assumed by the State, to an institution that was now 'conducted in partnership with the State'.[164] Roehampton went from being a centre that was controlled and run by a Committee who were essentially philanthropists and had complete say in how things were done, to almost all control being given over to the Minister for Pensions.

---

[162] *Ibid.*
[163] *Ibid.*
[164] TLA, Welfare Committee Minute Book, H02/QM/A/06/001.

As a result of State involvement in the running of Roehampton, changes started to be made in terms of the provisions on offer. In particular, the rehabilitative training that had been a core function of Roehampton ceased to exist in the capacity that it had. At the beginning of 1920, discussions were being had around whose remit training fell under. If a man was at Roehampton for treatment, then he was allowed to also undertake training there. However, if it was just training that was required, then that technically fell under the remit of the Ministry of Labour and access to this training on site at Roehampton was not as easily accessible to them. A further blow came at the end of August 1920, when the employment bureau, that Roehampton had been prized for, and the workshops, were closed.[165] It was around this time that the provision for instruction in using an artificial limb was also depleted. Giving the centre over to State control significantly reduced some of the services that had been widely offered in the immediate war years.

In October 1922, conversations amongst those running Roehampton returned to an idea expressed during the war – that of extending their remit to also helping civilians, as well as ex-servicemen. Only a very small class of civilians were being considered at this point - those who worked for railway companies and had been disabled through their work there. These discussions were, on the whole, amenable to this idea as long as 'it was understood that the present endowments will continue to be regarded as held primarily upon trust for Sailors and Soldiers who lost their limbs in the recent war.'[166] At this stage, these limbless ex-servicemen were still the main priority for Roehampton, and those charged with running the hospital were committed to this being the case for as long as the Ministry of Pensions ran Roehampton. Initially, the centre was given over to the Ministry of Pensions for 21 years (from May 1924).[167]

[165] TLA, Executive Committee Minute Book, H02/QM/A2/02/001.
[166] TLA, Finance Committee Minute Book Number 3, H02/QM/A/03/003.
[167] TLA, Executive Committee Minute Book, H02/QM/A2/02/001.

However, opening up services to a small number of civilian cases meant being able to charge fees for this care and was therefore another source of money for the institution as a whole.

Another area of discussion in the early 1920s was what to do with men from the armed forces who lost limbs as a result of wounds or injuries received after the official termination of the war. At that point in time, these cases came under the jurisdiction of those three services themselves (Army, Navy, Air Force) and not the work of the Ministry of Pensions. From what I can glean, it does not appear that these cases were being received at Roehampton as in-patients in the 1920s and instead were being sent directly to the limb makers.[168] Here it is clear that Roehampton was still being run as predominantly a space for limbless ex-servicemen of the First World War, as this was who it had been set up to care for. However, with the involvement of the Ministry of Pensions, and their wider remit, these ex-servicemen who lost limbs after the official termination of the war were admitted fully for treatment at the centre, alongside their fellow ex-servicemen who had been disabled in the war itself. Again, here, we see a further expansion of services under the Ministry of Pensions and are shown some insight into what State involvement meant for a space that had had a very clear (possibly narrow) remit during the war.

These new uses for Roehampton really came into fruition in the 1930s. The focus was still the care of men who had lost limbs in the First World War. However, more surgical cases were based there, at the requirements of the Ministry of Pensions – with huts that had originally housed workshops being turned into space for these men. Those in charge began to worry that, as a result of the declining number of ex-servicemen needing immediate help, the centre would become too expensive to run and could become obsolete. Ex-servicemen were also

[168] TLA, Finance Committee Minute Book, H02/QM/A/03/001.

transferred to Roehampton after other war hospitals were shut down – for example, after the Princess Alice Home in Slough closed in 1938, a number of men were transferred over. At this stage, also, the arrangement with railway companies for the treatment of those employees who required amputations after accidents occurred, and the provision, repair, and renewal of artificial limbs, was in full force. The treatment of a limited number of private cases had also been approved, but came with the caveat that any expenses for their artificial limbs and the maintenance of these patients whilst in hospital, were paid for separately and did not interfere with the focus on ex-servicemen and the money available for their needs. Some insight into wider public perception of these limb fitting centres so long after the war can be gleaned from an article printed in *The Times* on 28th July 1936 which praises Roehampton for being willing to open its doors and expertise to yet a further class of civilians in need of artificial limbs.[169] Railway companies and London County Council already benefitted from this but, from October 1936, civilians in general, and those based outside of London, were also given this privilege. This expertise honed through dealing with the large number of ex-servicemen who returned from the First World War missing limbs was being utilised for a wider good as the 1930s came closer to an end. Committee meeting minutes from the beginning of 1939 started to show more discussions beginning around the future of the hospital and the work undertaken there. At this time, there was an uncertainty about how much longer Roehampton could be maintained as a space for limbless ex-servicemen and how much more of that space was going to be given over to 'civilians.' It is interesting that this predicament came at the dawn of what would be the Second World War, which ultimately resulted in Roehampton being given the chance to return to a focus on ex-servicemen once more.

[169] TLA, Welfare Committee Minute Book, H02/QM/A/06/001.

Erskine:

At the end of the first month of 1919, there were 385 ex-servicemen in the centre at Erskine.[170] Notably, at this point, around half of those situated there were being sent from the northern counties of England. This was not just a hospital now for Scottish ex-servicemen who had lost limbs. Geographically, it is understandable that men were coming from the north of England, with Glasgow being an easier commute than having to travel all the way down to Roehampton. However, by the end of 1919, it was decreed that men from the north of England should be treated in accommodation provided for them in hospitals in their own part of the country. This caused a considerable falling off in the numbers of ex-servicemen being treated at Erskine, but this was soon balanced out by the number of ex-servicemen returning to have their artificial limbs re-fitted. 1919 also brought with it an increase in the work of the limb manufacturers who were based on site at Erskine, as a number of the external firms who had previously aided with this work had to prioritise other work. Perhaps surprisingly, many of the shipbuilders were still on board with helping with the manufacturing of artificial limbs for the large numbers of men who were still passing through the doors of Erskine - the demand for the Erskine peg leg was still great.

Another notable occasion, in 1919, was the laying of the Memorial Stone for the Morton Recreational Hall. This hall was erected and furnished by a Mr. and Mrs. George Morton who had lost their son in the war and wanted to create something worthwhile as a memorial to him. The purpose of this hall was to provide a much-needed space for recreation and amusement, particularly for those men who were returning to have their limbs repaired. Consisting primarily of a large recreation and lecture room and a billiard room, it was also

[170] UGC, The Princess Louise Scottish Hospital Minutes 1919, 225/1/1/3.

intended as a space for the men who were returning for some form of training to relax after a day in the workshops. Here, the evidence starts to unfold for where the focus of the centre at Erskine would be by the outbreak of the Second World War. This focus on comfort is something that is really highlighted in the history of Erskine, especially for those who were having to make a potentially lengthy journey to have a limb repaired or have a limb re-fitted. Many ex-servicemen complained of the time out of their lives this could take, so having somewhere to relax would have been at least a small comfort. This idea of time will be returned to in the final chapter of the thesis, which focuses on this lived experience of some ex-servicemen. This idea of comfort and homeliness is also central to the work of Bates and the *Sensing Spaces of Healthcare* project.[171] Bates talks of the "humanising" effects of spaces such as gardens and places for relaxation and recreation, also linking into Hickman's work on gardens and institutional environments.[172] 'The most dominant or commonly cited features of humanistic design bridged the non-institutional, the non-technological and the non-biomedical. Homeliness, nature and the arts were repeated themes,' argues Bates, and here there is a link between these and the spaces created within Erskine (and the other limb fitting centres) for recreation and respite from the wards created within the stately homes.[173] This new recreation hall was separate from the grand building of Erskine House and was a space where the outside world could mingle with the life of the limb fitting centre. Not just a space for ex-servicemen being treated in the centre itself, it was also a space where "out-patients" could pass the time, and family members who had come with these men could also find a

[171] Sensing Spaces of Healthcare, "Improving Sensory Environments: A Practical Guide to Person-Centred Healthcare Settings" <https://hospitalsenses.co.uk/2024/09/02/improving-sensory-environments-a-practical-guide-to-person-centred-healthcare-settings/> (accessed: 25/03/2025).
[172] Victoria Bates, "'Humanizing' Healthcare Environments: Architecture, Art and Design in Modern Hospitals," *Design for Health,* 2:1, 2018, pp.5-19, (pp.13-15), doi: 10.1080/24735132.2018.1436304.
[173] Bates, "'Humanizing' Healthcare Environments," p.16; Marie Allitt, Agnes Arnold-Forster, Harriet Barratt, Victoria Bates, Rebecka Fleetwood-Smith and Clare Hickman, "Senses and Spaces of Modern Health/care: Special Issue Editorial," *The Senses and Society,* vol.19, no.3, 2024 pp. 275-284 (pp.280-281), doi.org/10.1080/17458927.2024.2404720.

space to wait outwith the institution of the limb fitting centre. Recreational time and spaces were something that was of great importance to the ex-servicemen, as they allowed a reprieve from their rehabilitation.

The workshops themselves underwent a transformation of purpose during 1919. From early in the year, plans were announced for the continuation of vocational training begun at Erskine to be continued there after the ex-serviceman had been discharged. The Hospital Committee deemed it desirable to offer complete vocational training and, as a result, more huts had to be erected on the grounds to accommodate this. As was seen in the initial founding of Erskine, training was something that remained just as important in the years succeeding the war as it had during the war itself. However, as the numbers of "in-patient" ex-servicemen began to fall, so too did attendance at the training workshops. That was not to say that the training on offer had decreased in quality, it was just a result of fewer men being in the centre for lengthy periods of time. However, to counterbalance this, more "out-patient" ex-servicemen were making a return to Erskine for training, and financial aid for this was supplied in the form of maintenance allowances, via arrangements with Local Committees and the Ministry of Labour.[174] By October 1919, the training at Erskine was being fully recognised by the Ministry of Labour and, as a result, dependents' allowances were also being granted, as well as the forementioned maintenance allowances.[175] These grants from the Ministry of Labour meant that more and more men were afforded the opportunity to train at Erskine. Government grants also aided with the maintenance of pensions, limb manufacturing and the workshops. Funds were also expanded by selling the goods that these men were manufacturing in the

[174] UGC, The Princess Louise Scottish Hospital Minutes 1919, 225/1/1/3.
[175] UGC, The Princess Louise Scottish Hospital Minutes 1919, 225/1/1/3.

workshops. Shop space was available in Glasgow city centre, as well as pop up stands at various exhibitions, and a good amount of money was raised from these.[176]

One of the biggest questions raised in the immediate aftermath of the war was whether or not Erskine would supply their artificial limbs to those who were not ex-servicemen and eventually the agreement was reached that 'each case should be considered on its merits.'[177] Not long after this decision was reached, a patient at the Royal Infirmary in Glasgow was supplied with a limb manufactured at Erskine.[178] Discussions regarding the merits of various requests for artificial limbs manufactured at Erskine appear in the minutes of almost every Committee meeting. Some, like a boy aged 15 ½, were approved, whereas many were rejected.[179] The rejection of many of these cases clearly links to the ability of said person to pay for the artificial limb in question. The centre was willing to share its expertise with a wider population, but the wider population had to be able to pay. However, despite that, some of the decisions made by the Committee appear to take into account matters such as the level of the quality of life it would result in for the person who needed the artificial limb – such as with the teenage boy. In 1924, this economic side of things became even clearer when the Committee agreed that they were happy to provide limbs for men who were prepared to, and had the means to, pay for themselves.[180] The main focus in these years after the war was still the limbless ex-serviceman. With increasing numbers of repairs and replacements needed the further from the conclusion of the war they got, it is perhaps unsurprising that Erskine were unwilling to give over too

[176] George Gosling has been doing some interesting work on charity shops and ex-servicemen.
[177] UGC, The Princess Louise Scottish Hospital Minutes 1920, 225/1/1/4.
[178] *Ibid.*
[179] UGC, The Princess Louise Scottish Hospital Minutes 1928-1929, 225/1/1/11.
[180] UGC, The Princess Louise Scottish Hospital Minutes 1925, 225/1/1/9.

much of their time to the civilian population. This is a far cry from what we see happening at Roehampton in the same time period.

However, an even greater change was to happen on the 7th December 1928 – the limb department at Erskine was closed down.[181] It was entirely understood that artificial limbs needed repaired and replaced, but the Ministry of Pensions held the responsibility for that, therefore 'Erskine is no longer required as a surgery, a limb factory, or a training school in the use of artificial limbs.'[182] The centre began to see themselves as a place now dedicated to the aftercare of the disabled ex-serviceman in general, not solely just those who had lost limbs in the First World War. However, these limbless ex-servicemen would still make up a proportion of the disabled ex-servicemen cared for by Erskine.

One of the main changes linked to this was a move to allowing men to apply for permanent residence at the hospital. The idea of permanent residence was one of the common questions that those in charge of Erskine were being asked from 1919 onwards (at which point the answer was no). In 1923, the first batch of applications were approved for permanent residence for disabled ex-servicemen. These started to increase in the following year and in 1925 it was unanimously agreed that the hospital would be 'utilised as a permanent home for disabled sailors and soldiers.'[183] Many of the men who applied for permanent residence at Erskine had been formerly supplied with an artificial limb there or had undertaken training there. Not all of the applications came from men who were amputees, but these men meant a good percentage of them were. The other men were typically in receipt of a 60% to 100%

[181] UGC, The Princess Louise Scottish Hospital Minutes 1928-1929, 225/1/1/11.
[182] *Ibid.*
[183] UGC, The Princess Louise Scottish Hospital Minutes 1925, 225/1/1/9.

disability pension.[184] With the number of permanent residents increasing, new rules came into place in 1927 whereby these men would initially be admitted on 3 months' probation with the hope that in that time it would be possible to get them to undertake some form of vocational work in the training workshops. Some of the men were more than capable of undertaking work in the various departments of the workshops. However, there was soon some outcry about how practical and fair it was to presume that all of these men would be able to work a defined number of hours per week. Some could only work for a few hours per day, with many being fit only for work at irregular hours.[185] Many had to also attend appointments with medical officers, owing to their disabilities, and these hours not in work were initially deducted from their hours of attendance at the workshops. Changes had to be made to accommodate the needs of the men and allow them to work at a capacity which best suited their needs.[186]

Linked to this move away from housing only ex-servicemen who had lost limbs was a proposal from the Ministry of Pensions in 1924, where they proposed taking over the running of the hospital in order to house more of their patients there - or at the very least have the position of jointly running Erskine with the Committee already established there. In October 1924, the Committee informed the Ministry of Pensions that they were more than happy to offer the opportunity for the Ministry to make full use of the hospital and would take in as many patients as they could and arrange for their treatment.[187] However, the Committee required that they themselves would retain full control of the hospital. A further, lengthier letter was

[184] UGC, The Princess Louise Scottish Hospital Minutes 1926-1927, 225/1/1/10.
[185] *Ibid.*
[186] This, again, links to Massey's ideas on spaces not being static and the changing purposes of places over time.
[187] UGC, The Princess Louise Scottish Hospital Minutes 1925, 225/1/1/9.

sent explaining this position further.[188] The letter highlighted that the Scottish public themselves were likely to not be happy with the State taking over the centre:

'My Committee would like to take the opportunity of reminding you that this hospital was founded by the generosity of the public in Scotland, and in view of the splendid record of work done at the hospital during the whole eight years of its existence the Committee would not feel that they were doing their duty to the subscribers if they allowed the control of the hospital to go out of their hands.'[189]

Not just a crucial discourse relating to the public, and perhaps nationalist, pride of the Scottish people, through this more insight is gained into how the hospital at Erskine had continued to be funded and how it was still very much holding on to the philanthropical ideals that founded it in the first place. Annual subscribers, donations from various groups, and legacies left in wills were still huge sources of revenue for the hospital. The Ministry of Pensions desired to use Erskine as the primary hospital for the West of Scotland, but with Erskine refusing this idea of dual control, the Ministry decided that the hospital at Bellahouston would serve their purposes better and turned their attentions to there. It is notable that Erskine were very willing to help the Ministry of Pensions, but refused to give up on the ideals of charity that had permeated the hospital since its foundation. There also seems a desire here to save the jobs of the staff that they had already employed, and to not allow the Ministry to take over with their own medical staff. Eventually the hospital at Bellahouston would close in 1931, and Erskine opened its doors to a number of patients from there.[190] Further patients would come from the closure of the hospital at Ralston in 1936.[191] This, alongside ever-increasing applications for permanent residence, meant that alterations to the current wards had to be made and a new building

[188] *Ibid.*
[189] *Ibid.*
[190] UGC, The Princess Louise Scottish Hospital Minutes 1929-1930, 225/1/1/12.
[191] UGC, The Princess Louise Scottish Hospital Minutes 1936-1937, 225/1/1/16.

needed to be constructed, harking back to the main days of the war, when space was at a premium. This is how Erskine was running in the years leading up to the Second World War. No longer primarily a hospital for limbless ex-servicemen, they had truly begun the move to the institution that still exists at present: one which cares for disabled ex-servicemen for their whole lives, if necessary. More interestingly, is that Erskine were still running as a charitable organisation and turned down the help from the State that Roehampton had accepted.

The comparisons between Erskine and Roehampton are significant to look at. Roehampton remained an institution focussed upon artificial limbs, but one that was happy to partner with the Ministry of Pensions and to extend their expertise to the civilian public. On the other hand, Erskine remained absolute to the philanthropic and public funding that had always supported it. Erskine did still benefit from some State money, but there was no real partnering with the State at any point in this journey. The focus also remained almost solely on disabled ex-servicemen, with only those members of the public who had money to pay for care being afforded so.

Cardiff:

In the spring of 1919, the centre at Cardiff was finding it difficult to keep beds occupied. This was due to auxiliary hospitals in the area being closed down, now that there was not an immediate need for them. This impacted the Prince of Wales hospital as these patients were now taking up the beds in other hospitals, such as Whitchurch, which the Prince of Wales worked in partnership with. These beds at Whitchurch had originally been allocated to men who were receiving preparatory treatment before they would be sent to the limb fitting centre

to receive their new artificial limbs – i.e. waiting for their stumps to heal sufficiently enough to be able to go through the limb fitting process. In June 1919 the hospital committee reported that they had 12 Officers and 44 men being cared for in the centre.[192]

As occurred in the other two limb fitting centres, much of the conversation in 1919 focussed around the future of the Prince of Wales Hospital. The immediate aftermath of the war was not bringing as many disabled ex-servicemen to Cardiff as it had to Roehampton and Erskine. In order to allow themselves to be of more use, and to take advantage of the space they had on offer, it was agreed by the Committee in October 1919 that they would be willing to open their doors to receiving pensioners as in-patients, too, not just those who had lost limbs.[193] It was also at this stage that discussions begin to arise which paved the way for the future of the Prince of Wales and the change of purpose it began to see itself as undergoing. Suggestions to have it become a "Hospital for Limbless and Crippled" began to take serious form at this point, especially as a hospital of its size would be of great use to the public of Cardiff and the rest of Wales.[194] The idea was that it would still serve as a hospital for limbless ex-servicemen and civilians, with beds being earmarked for such cases, but also that it would become a site where all operations relating to amputation stumps and orthopaedic work would be undertaken. It would still remain as the main centre for artificial limb production in Wales, but they were beginning to focus on a future that was different from the focus of both Roehampton and Erskine. Despite wanting to become the main site of limb production, however, in December 1919, the Prince of Wales centre maintained that it could not supply artificial limbs to civilians at that time, and that their focus was still predominantly on ex-servicemen.[195]

---

[192] Glamorgan Archives, Minute Book, DHPW/8.
[193] *Ibid.*
[194] *Ibid.*
[195] *Ibid.*

The centre at Cardiff was notable in the First World War due to its obvious co-operation with the limb fitting centre at Roehampton. In the aftermath of the First World War that collaboration was still happening, but not to the same extent. The matron suggested in March 1919 that it would be very beneficial to double arm amputees in the Cardiff area to see a demonstration from an ex-serviceman who was at Roehampton at that time.[196] The two limb fitting centres worked together and shared their resources, and the men from Wales were able to interact with a fellow ex-serviceman who had lost both of his arms, too.[197] This shared knowledge between ex-servicemen was important and is something that will be focused on in Chapter Three of this thesis, which explores the idea of expertise and who held the expertise in this journey.

The push for the remit of the hospital to become something wider in the aftermath of the First World War continued into the early 1920s. At this time, there was a growing emphasis on the need for increased facilities for looking after disabled children in the district. In February 1921 the hospital received a letter from the Army Council stating that they would like to take the opportunity of:

'expressing their appreciation of the splendid work in the treatment of members of His Majesty's Forces which the Hospital carried out during the period 1914-1920, and would be glad if this expression of their thanks, rendered on behalf of the nation, could be conveyed to the staff of the hospital for the excellent services which they so ungrudgingly rendered to their country in a time of stress and trial.'[198]

[196] *Ibid.*
[197] *Ibid.*
[198] *Ibid.*

This appeared to signal an end to the use of the hospital by limbless ex-servicemen from the First World War. However, ex-servicemen were still being treated at the Princes of Wales at this time, especially in an out-patient capacity. In March 1921, the Ministry of Pensions were willing to give capitation grants to the hospital for this purpose of 2/6d per attendance for Officers and 1/6d for other ranks.[199] The limb making company Blatchford still had a tenancy agreement on site and were still undertaking work in manufacturing artificial limbs as well as undertaking the work for any necessary repairs. Yet, in March 1924, a letter arrived from the Ministry of Pensions regarding terminating the existing arrangements for pensioners being treated there and on the 7th May 1924 the arrangement with them ceased and the hospital moved to a focus which was more on civilians (children in particular) and more orthopaedic operations being undertaken. This last date of ex-servicemen being treated at the Prince of Wales was particularly auspicious as it marked the seven year anniversary of the first man being received there. In June 1924, all records relating to pensioners and ex-servicemen were handed over to the Ministry of Pensions. The final sign that this was no longer the war hospital it had been came when Blatchford announced that they wished to give up their tenancy a month later. By the middle of the 1920s, the limb fitting centre at Cardiff ceased to function as such and suddenly underwent a dramatic change in focus. Unlike the centres at Roehampton and Erskine, Cardiff began to focus solely on civilians and did not retain any sort of provision for the ex-servicemen that it had been set up to care for. It had achieved its war-time purpose, and the expertise of those working there was harnessed to focus on the wider population.

Second World War – 1939-1948:

[199] *Ibid.*

'It is significant and regrettable that at the time of presenting this Report of an Institution still caring for the Welfare of those who became casualties in the Great War of 1914-18 the Nation is again engaged in conflict with Dictator Countries.'[200]

As the Annual Report for the 1939-1940 year at Roehampton quoted above shows, this major limb fitting centre was still providing treatment and care for men who had lost limbs in the First World War, and the further away from that conflict the nation got, the more work was focused on repairs and renewals of limbs. Not necessarily meaning a large number of men based in the hospital itself, it did however mean a lot of work for the limb manufacturers working at Roehampton. When decisions regarding these limb fitting centres were being made in the 1920s and 1930s, none of those involved were expecting to have to deal with casualties from yet another world war. As a result of the Prince of Wales hospital in Cardiff moving its focus to civilians and orthopaedic cases, and the hospital at Erskine working as a residential home for disabled ex-servicemen, this section will predominantly focus on the work being undertaken at Roehampton during the Second World War.

Erskine was willing to use its expertise to help during this new conflict. However, a letter requesting admission for treatment of civilians disabled by enemy action from November 1941 was knocked back as they could not make the necessary arrangements, or provide the necessary accommodation, for women and children.[201] Even in 1940, Erskine were still receiving numerous applications from those wishing to undertake permanent residence there.[202] They were still renowned for their rehabilitative and vocational workshops and plenty still wished to undertake training there – one of the few positive outcomes of this new war for

[200] TLA, Welfare Committee Minute Book, H02/QM/A/06/001.
[201] UGC, The Princess Louise Scottish Hospital Minutes 1940-1941, 225/1/1/18.
[202] *Ibid.*

Erskine was that sales from their basketry workshops nearly trebled in the first year of the conflict due to firms needing message baskets, which they could no longer get from foreign countries.[203] If Erskine and Cardiff were no longer in the picture to the same extent, how was Roehampton to cope with this new wave of work that was to fall under their jurisdiction and how would they cope with a manpower deficit and the new threat of enemy bombing raids?

In the 1938-1939 period, the attendance of ex-servicemen for the provision of artificial limbs and for repairs at Roehampton was 10,978.[204] Alongside this, 8211 cases relating to limbs had been dealt with through the post.[205] Roehampton had also began offering its expertise and help to civilians in the inter-war period, so alongside the figures for ex-servicemen, they were also dealing with 285 civilian cases.[206] These figures highlight just how busy Roehampton still was in the lead up to the Second World War.

The numbers being treated in the period from the outbreak of the Second World War to the end of March 1940 were slightly less (8174 ex-servicemen on site and 6170 by post) but on the outbreak of hostilities arrangements were made to admit those serving in the current war, as well as those undertaking National Defence and other civilian casualties that arose due to the bombing raids.[207] Up until the end of March 1940, the following numbers from each of these new categories were: 145 Officers, 284 other ranks, and 3 National Defence and civilians.[208] There had also been 8 Officers and 58 other ranks transferred to Roehampton from the Queen

[203] *Ibid.*
[204] TLA, Welfare Committee Minute Book, H02/QM/A/06/001.
[205] *Ibid.*
[206] *Ibid.*
[207] *Ibid.*
[208] *Ibid.*

Alexandra Hospital at Millbank for treatment, since the war had begun.[209] With these increasing numbers, especially Officers, it was once again necessary to expand the accommodation available on site at Roehampton. The new Artificial Limb Factory also added to the production of artificial limbs on site. The purpose of Roehampton remained as it always had - to provide care for those who needed artificial limbs and to supply and fit those limbs. This was still their purpose when the Second World War broke out.

In a Committee meeting in 1941, it was worried that as a result of the present war 'there had arisen a feeling of insufficiency in the Institution's resources' and that they were once again having to think about the future.[210] At this stage, an extension to the hospital had nearly been completed, which was being set aside particularly for work undertaken by the Ministry of Pensions, who Roehampton had partnered with in 1924. The Governors of Roehampton also managed to renew an agreement with the Ministry to ensure that the institution would be able to provide this work of national importance for a further 40-50 years, which would allow them to care for those who lost limbs in this new and current conflict.[211] Significantly, this new agreement also allowed for a further expansion of the divisions of ex-servicemen who could be admitted to Roehampton. Not just men from the Army, Navy and Air Force, their remit also now covered members of the Mercantile Marines, Civil Defence workers, nurses, and civilians, who had all had to undergo an amputation as a result of injury by enemy action.[212] The State were now taking responsibility for any casualty resulting from the war, and not just those who were serving on the front lines themselves. The Committee were all very pleased with, and very supportive of, this new agreement, with Lady Falmouth believing that it was an

[209] *Ibid.*
[210] *Ibid.*
[211] *Ibid.*
[212] *Ibid.*

'enormous advantage' for people who lost limbs in bombing raids to be able to go to Roehampton and 'have fitted, under the advice of experienced limb-fitting surgeons, these wonderful artificial limbs manufactured there which made such a difference to the outlook of amputees.'[213] It was unfortunate that they would have to suffer through a war in order to gain this treatment, however. To facilitate all of this, new wards had to be built, as well as a new kitchen and dining hall. In essence, a whole new hospital building was built alongside that which already existed to create space for all of these new potential 'in-patients.' As a result, by March 1942, there was a total accommodation of approximately 900 beds.[214] The Artificial Limb Factory on site was so heavily engaged with the manufacturing of artificial limbs needed that the premises for their work also had to be expanded. An entirely new factory was erected and other storage facilities were adapted to give these men more room to undertake their work. As was seen in the First World War, constant expansion was key in making sure the best treatment could be made available for those who needed it. One report announced that: 'Roehampton may be said to have taken another new lease of life and to have entered upon a new sphere of usefulness in the service of mankind.'[215] 14,622 cases were dealt with on site in that year of 1941-1942, further highlighting that great need for expansion.[216]

The year leading up to March 1945 was described as one of 'steady and continued progress rather than of a spectacular nature,' which after years involving huge expansion and damage as a result of air raids must have been a relief.[217] Some damage was sustained to a few of the buildings in these raids, and the centre partially closed during the 'flying bomb period.'[218] All

[213] *Ibid.*
[214] *Ibid.*
[215] *Ibid.*
[216] *Ibid.*
[217] *Ibid.*
[218] *Ibid.*

the same, attendance at the centre totalled 21,769 during this time.[219] This year also saw an extension to the arm training school at Roehampton, further highlighting the ethos of showing people how to use their new artificial limbs, as well as fitting them – something which will also be discussed in more detail in Chapter Three. An extension was also made to the main artificial arm section of the factory resulting in almost double the space for the manufacturing of this type of limb. There was also an extra floor added to a section of the artificial leg factory, with the purpose of allowing more space for fitting, and also more privacy in the fitting process – it was no longer just men who were being fitted with limbs on site. The fact that more privacy was intended for women to be fitted on site is significant because it is one of the only concrete mentions of women and artificial limbs that appears in official sources. It is obvious that women were there, but there are never any discussions about them being fitted for their artificial limbs or if there was any training offered to them. The Second World War brought with it a different range of patients disabled by the war – in particular, women. In all of the discussions surrounding artificial limbs and the fitting of and training in the use of them, women are very much left out of the conversation. In one instance, in March 1944, Hugh Steeper (limb maker) wrote to the Committee at Roehampton to query as to whether the Ministry of Pensions had at all considered 'the question of "Female Patients" and their instructions for household duties.'[220] Steeper believed that it would be worth bearing in mind, as more civilian casualties were coming through the limb fitting centres and would be fitted with artificial limbs. However, this appears to be the last time thought is even remotely seriously given to women and what their needs might be. The focus in documentation is very much on the training of limbless ex-servicemen and their eventual return to being able to undertake some economically viable trade. As Anderson has shown in her article on *British Women, Disability and the Second World War,* there were 'obvious differences between the lot

[219] *Ibid.*
[220] *Ibid.*

of disabled women and men.'[221] Much of the rehabilitation relating to sport and exercise was not as successful for women, with more success coming as a result of training relating to work. With regards to artificial limbs, Anderson shows that more of an aesthetic value was placed on limbs for women than the more functional aspects of limbs for ex-servicemen, as this thesis will show in various chapters.[222] The focus for the rehabilitation (in all aspects) for women was more a focus on returning to the home and their more "feminine" pursuits, meaning that many preferred a wooden limb over the newer, lighter metal limbs – which is in complete contrast to what was seen amongst disabled ex-servicemen.[223]

The latter half of the Second World War also saw Roehampton extend the scope of its activities beyond the normal routine of just dealing with those who needed limbs fitted. Increasingly, interest was shown by members of the medical profession, and the general public, regarding everything to do with artificial limbs. As a result, a scheme was started where the specialised knowledge of Roehampton was made available to their Allies in this war.[224]

---

[221] Julie Anderson, "British Women, Disability and the Second World War," *Contemporary British History,* 20:1, pp.37-53, (p.50), doi.org/10.1080/13619460500444957.
[222] Anderson, "British Women, Disability and the Second World War," p.44.
[223] Anderson, "British Women, Disability and the Second World War," p.45.
[224] Roehampton already had precedence for collaborating with their Allies in the First World War. Linker's *War's Waste* contains research into the supply of artificial limbs to disabled ex-servicemen in America in the First World War, and viewing this within the context of negative associations linked to limbless men and prostheses left over from the American Civil War. As Linker argues, America had a reputation of being one of the largest manufacturers of artificial limbs worldwide, with Britain inviting some of the biggest companies to set up production sites at Roehampton during the First World War. The Limb Lab, in the USA, aimed to provide every amputee with an artificial limb which would help them 'pass for normal' and help them re-integrate into civilian life. Nair, in her work on disabled sepoys in the First World War, also highlights technological exchange, as well as the economics of artificial limb provision. Initially, these disabled sepoys were provided with new limbs at the Kitchener's Indian Hospital in Brighton or at Roehampton, and some were shipped over to India – although this proved expensive to do, and adjustments were necessary for the different climate in India, as well as repairs as a result. This opens up a whole new question surrounding materials utilised in the production of artificial limbs in this period. In 1916, an institution for the indigenous production of artificial limbs was set up with a focus on providing limbs suitable for use in India, but many of the men still preferred those made in England and appeared distrustful of those made in their home country. See: Beth Linker, *War's Waste: Rehabilitation*

Medical Officers from almost all Allied nations had attended lectures by 1944, and Polish Medical Officers had also undertaken courses in limb fitting. By 1945, even more advances had been made with this scheme. Trainees from East Africa, West Africa, Australia, New Zealand, Canada, India, Malta, Holland, Norway, Poland, Russia, and Yugoslavia had been allowed to work side by side with the manufacturers in the limb making factories at Roehampton. This interest in the work there continued after the end of the war, resulting in a number of men from overseas opting to come to Roehampton to be fitted with their new artificial limbs. In the First World War, Roehampton ran competitions to see where the best artificial limbs were being manufactured and employed French and American limb makers alongside British makers. Therefore, it is even more insightful to see this spirit of collaboration continuing on in a much larger scale in the Second World War.

The years after the end of the Second World War saw an increase in the number of beds occupied. This was predominantly a result of the return of a large number of people who had been evacuated during the 'flying bomb period' as well as those who were returning from overseas service in need of admission to the hospital. Since the outbreak of the war, 6647 military cases had passed through Roehampton, with 363 of those being double amputees.[225] A breakdown from the annual report from 1946 suggests that, in terms of the different categories of cases, these numbers were: 419 from the Royal Navy, 4317 from the Army, 417 from the Royal Air Force, 36 from Mercantile Marines, 16 from the Women's Services, 831 civilian Blitz cases, 43 Civil Defence workers, and 234 from Allied Forces.[226] The year 1946-1947 saw another increase in the number of occupied beds, with even more service personnel

*in World War I America*; Aparna Nair, "These Curly-Bearded, Olive-Skinned Warriors: Medicine, Prosthetics, Rehabilitation and the Disabled Sepoy in the First World War, 1914-1920," *Social History of Medicine*, volume 33, issue 13 (August 2020) pp.798-818, doi.org/10.1093/shm/hkz002.

[225] TLA, Welfare Committee Minute Book, H02/QM/A/06/001.

[226] *Ibid.*

returning from service overseas.[227] War-related cases were beginning to lower in number in terms of overall figures for those attending to have limbs fitted, but repairs were very much still in demand and a necessity. A report from March 1948 talked about the desire of the Committee to improve and expand upon, once again, the limb fitting centre itself, as well as the limb making factory. One of the constant themes in this story of Roehampton is the constant drive to improve upon the care and aid that they could provide, and this was still obvious into the post-war era. Linked to this was the constant need for improvement and expansion to the physical site, in order to be able to provide the best care.

Towards the end of 1947, the Ministry of Pensions notified the Committee of Roehampton that the supply of artificial limbs to civilians, which had been in place for many years at this point, would cease from the 1st February 1948.[228] In the 1949 Annual Report, it was stated that owing to the introduction of the National Health Service, the work in providing and repairing artificial limbs for civilians had fallen to very small proportions.[229] Cases from the two world wars, however, were still being treated at Roehampton. In a Committee meeting at the end of 1949, the Chairman highlighted that 'in the treatment and the supply of artificial limbs Roehampton is more than a household word – it has an international meaning and reputation' – which this chapter has displayed.[230] At this stage, the remit of the hospital was expanded to include disabled ex-servicemen and women from any war. The need for this provision of care for those who lost limbs was unequivocally understood by those running and working at Roehampton. It was further highlighted by the number of ex-servicemen from the First World War who were still requiring treatment alongside those from the Second World War.

---

[227] *Ibid.*
[228] TLA, Governors' Reports, Statements of Accounts and Lists of Donations, H02/QM/A/10/001.
[229] *Ibid.*
[230] *Ibid.*

Conclusion:

This chapter has explored the setting up of these new spaces that were the limb fitting centres. These centres were a space where everything that the limbless ex-servicemen should need in his journey from losing a limb to being given an artificial limb was under the one roof. The whole process from being fitted for a limb, learning to use it, and undertaking some form of rehabilitation could be catered for in the grounds of these stately homes. The rest of the thesis will explore these individual aspects - limb manufacturing, being fitted with an artificial limb, learning to use a new limb, as well as life after the limb fitting centre – but it is important to understand the context and the spaces within which this care was being provided.

The idea of space, in many senses, comes into play in this chapter. There is the actual physical space of the stately homes that had to be transformed into accessible spaces for these limbless ex-servicemen to be treated in, but also the constant need for space and the constant need for adaptation within these institutions. It is interesting that each nation had its own major limb fitting centre and that each one was run differently from another. England and Wales collaborated a lot in the work being undertaken at those sites, but Scotland typically stood on its own a lot of the time. Ideas of nationalism slowly creep into these histories as a result. This chapter has provided insight into how these spaces of care were run, but it has done so through the lens of a 'four nation' approach, allowing a broader understanding of care in mainland Britain during the two world wars. Many histories typically focus on one institution, allowing for only a narrow insight into care.

From the above we can see that charity and the public played an intrinsic role in the setting up and funding of these limb fitting centres during the First World War. The impetus to start these

hospitals came from well-off members of society, but permission had to be given from the War Office for them to officially be recognised as legitimate sites for these limbless ex-servicemen to be treated at. The Committee Minutes from all three continuously mention applying to the State for more money, alongside attempts to drum up more funds from the public. In the beginning, especially, there was an obvious, steady stream of gifts and money for beds from the public, as well as money for the general running of the centres themselves. The Committee minutes from the Cardiff centre, in particular, talk regularly about how the money proffered by the State was not enough to run the centre properly, and the pages of their Minutes are full of suggestions for potential places for where to apply to for more funds and aid. This mixture of official support and public donations is something that can be seen in many of the institutions set up to aid limbless ex-servicemen. Reznick further highlights issues between what fell under the jurisdiction of the War Office and the Ministry of Pensions, and how these uncertainties were causing problems with government officials unsure of who should do what.[231] Differences between State departments with regards to support for the limbless, as well as the constant philanthropic support running alongside it, suggests the potential for a fraught atmosphere of support. This concept of State support versus philanthropic support runs throughout this chapter. Once State control was suggested to the different centres, bigger changes tended to happen. Over the course of the three decades that this thesis explores, Roehampton became the overall, major limb fitting centre, Erskine changed priorities, and Cardiff ceased to exist. The legacies of Roehampton and Erskine can still be seen today – with Erskine still remaining as a charity for ex-servicemen.

[231] Reznick, *Healing the Nation.*

This chapter has shown that these limb fitting centres were pivotal spaces for the care of limbless ex-servicemen. Having ex-servicemen, limb fitters, limb instructors, limb manufacturers and medical staff under the one roof changed the nature of care that was provided for these men upon their return to Britain. The nature and number of cases returning also shows the importance of having centralised spaces for this care and for bringing “experts” from different points of care together. This idea of the expert and the centralised space of care is pivotal to the rest of the thesis.

## Chapter Two: Manufacturing Artificial Limbs for the Ex-servicemen of Two World Wars

### Introduction:

The First World War brought with it a larger concentration of men, in a relatively short period of time, who returned to Britain requiring the aid of the artificial limb industry. As discussed in Chapter One, with 41,000 men returning from the First World War, and 12,000 from the Second World War, missing one or more limbs the work being undertaken at the limb fitting centres was of great importance. As well as having the ex-servicemen, medical staff, and limb fitters on site, one of the innovative aspects of these centres was that artificial limb manufacturers were also housed on site. This allowed for all of the main stages in the overall process of rehabilitating these disabled ex-servicemen to be focussed in the one place, instead of in various offices and institutions as would have been the case previously.

The First World War and the period immediately following resulted in a great deal of experimentation, adaptation, and new designs for artificial limbs. From initially being made solely from wood, manufacturers began to utilise lighter and different materials in the manufacturing process, and more artificial limbs began to be made from materials such as light metals. The rise in lighter, metal limbs came primarily from Desoutter and the work they had undertaken with duralumin (which was a strong, lightweight alloy of aluminium). Guyatt argues that Desoutter were keen to promote the idea that duralumin was a 'thoroughly modern material' and therefore '*the* material for modern artificial limbs.'[232] Once ex-servicemen began to see others using these more modern limbs, they were eager to be given one themselves. Guyatt argues that the First World War shifted the limb making industry away from being a

[232] Guyatt, "Better Legs," p.318.

private industry for private clients, to what was essentially a 'public utility' controlled by the Ministry of Pensions.[233] Bourke discusses the control that the Ministry of Pensions had over the types of artificial limbs offered to these limbless ex-servicemen – especially when it came to the more expensive Desoutter legs.[234] Financial negotiations played an important part in the discussion around artificial limbs, but so too did aesthetics and functionality. The Ministry of Pensions tended to differentiate between the two, and preferred giving out limbs that would help men in their work, particularly with artificial arms. When it came to legs, aesthetic tended to dominate, which is why by the 1920s more than three-fifths of artificial limbs provided by the State were made of light metal, as they were 'as nearly as possible to the natural one.'[235] However, the men themselves did tend to prefer artificial limbs that they deemed to be most comfortable and most effective at helping them in their everyday lives. Meyer argues that, for limbless men, the desire to 'pass' came mostly from hiding the impairment through "socially appropriate" activities such as earning a wage.[236] The tensions between State-sanctioned artificial limbs and what the men themselves required can be used to show ways in which these disabled ex-servicemen enacted agency over their lives. This also ties in with the work of McGuire and Virdi on tinkering and adapting technology to better suit the lifestyles of those using them.[237]

This first section of this chapter follows artificial limb design over the time period of this thesis, and utilises artificial limbs held in museum collections to do so. Borrowing from material culture studies, it looks at the materials used and the changes in how the artificial limbs looked. Through exploring the materials and the designs, this chapter also builds on Perry's

[233] *Ibid.*
[234] Bourke, *Dismembering the Male.*
[235] Guyatt, "Better Legs," p.319.
[236] Meyer, "Wounded in a Mentionable Place".
[237] Virdi and McGuire, "Phyllis M. Tookey Kerridge".

work looking at the expected uses for these artificial limbs.[238] Attachments supplied with artificial arms were primarily those of a vocational persuasion, with only a few being more domestic in nature. The changes in materials and designs also reflect a sense of the expected durability of these limbs and how often they would need to be repaired or replaced. It does not, however, focus extensively on the ex-servicemen themselves. Some ex-servicemen tinkered with or altered the artificial limbs that they were given, but this is something that will be explored in much more detail in the chapter focussing on lived experience. This chapter begins with the artificial limbs themselves and explores these material changes, before exploring the makers who actually manufactured these limbs in the time period 1914-1948.

Once again, we see variations in how each nation went about the manufacturing of artificial limbs. For example, Roehampton organised an exhibition on site in order to attract the best manufacturers, including some from America (who were greatly skilled in the aftermath of the American Civil War), whereas Erskine relied on the skills of local shipbuilders. Manufacturers had contracts with the centres at Roehampton and Cardiff and as more State control began to creep in the names appearing on these contracts changed. However, some manufacturers remained a constant throughout. As the limb fitting centres began to downsize in the interwar period and then essentially rely on Roehampton in the Second World War, the number of manufacturers lessened. The latter section of the chapter explores the actual process of making artificial limbs and who some of these makers were. Exploring these histories of the makers themselves highlights the levels of experience that some of these manufacturers had in the limb fitting industry, but also allows us to see that a number of these firms were founded by men who had lost limbs themselves. The sources do not give much suggestion as to

[238] Perry, *Recycling the Disabled.*

whether or not the disabled ex-servicemen themselves had much say in the changes and adaptations that the manufacturers were making to artificial limbs or that they were being consulted at any stage. However, having firms that had disabled men themselves at the helm offers a vital insight into artificial limb design and the benefits of having this lived experience in the design and manufacturing. Two of these firms are explored in more detail in this chapter.

Overall, this chapter explores both the manufacturers and the manufacturing of artificial limbs. Both aspects are important to the history of artificial limbs and the two world wars and are naturally intertwined, as one would not exist without the other. Exploring both sides of the process allows for a much wider and complete history of what was actually being given to these limbless ex-servicemen in these conflicts. Taking this wider approach to the business side helps uncover aspects of the limb manufacturing process that would not have been obvious through only exploring the material culture of the limbs – such as some manufacturers using artificial limbs themselves. It also further allows us to see how these firms were advertising themselves and how they utilised their relationships with the limb fitting centres to their own advantages in this respect.

First World War:

At the beginning of the First World War, there were two main standard patterns for artificial limbs in Britain. These were the Anglesea limb and the Clapper limb.[239] Both of these had been in production since previous wars – the Anglesea from the Peninsular War and the Clapper from the Crimean War. When Roehampton was opened in 1915, only one or two contractors were producing artificial limbs there, and it was as a result of this that an exhibition of

[239] TNA, Supply of artificial limbs and appliances: appointment of Guedalla Committee, PIN 15/64.

manufacturers was held on the grounds there. Manufacturers from all countries were invited to exhibit their artificial limbs at this exhibition and awards were given to the limbs deemed best by the judging committee. The two main awards were given to the American companies of Rowley and Hanger. America was further ahead with the design and production of artificial limbs, especially as a result of the American Civil War, so it was natural that Britain would desire to learn from their expertise.[240] Those in charge of the limb fitting centre at Roehampton had been struggling to find suitable British limb manufacturers to take on the great task of producing artificial limbs for the limbless ex-servicemen returning from the front lines, so they invited the two American firms (Hanger and Rowley) to come over to England and produce limbs at the centre. This offer was accepted and these two firms became practically synonymous with the artificial limbs supplied to these men in the aftermath of war. A report praised them as showing 'so much more adaptability' when it came to producing artificial limbs compared to that of their British counterparts.[241] That is not to say that Roehampton immediately gave up on British limb makers in this foundational period. Numerous makers were trialled for use at the hospital, but none of them, except Ernst, could keep up with the demand or produce the quality of limbs necessary for these returning ex-servicemen.

Essentially, every maker had their own style of limb that they preferred to make. When the other limb fitting centres opened up around the country, they too had variations in the limbs being produced there. Each centre, upon formation, decided that they were going to make their own legs – with the Erskine Provisional Limb being one of the most well-known of these at the time. There, at Erskine, they created their own pattern for this leg and stuck to it in the period which they were supplying limbs. At the limb fitting centre in Cardiff, they adopted one

[240] See the work of historians such as: Sarah Handley-Cousins, *Bodies in Blue: Disability in the Civil War North* (University of Georgia Press, 2019).
[241] TNA, Supply of artificial limbs and appliances: appointment of Guedalla Committee, PIN 15/64.

of the American-style legs. As has been explored in the limb fitting centres chapter, Cardiff and Roehampton worked closely together when the Welsh centre was being planned, so this is perhaps unsurprising that they too would utilise an American pattern. However, they did make one slight alteration to the pattern, in order to modify the leg for more durable use on the much hillier terrain that can be found in Wales. At one of the smaller centres in Edinburgh, they initially had their limbs made by a manufacturer based in Glasgow who was producing legs to the Anglesea pattern, but with a leather bucket instead of a wooden bucket. However, this limb was not as successful as hoped and eventually it was decided that Rowley should take over the production and manufacturing of limbs in Edinburgh, and with this they moved to an American style of leg instead.[242] This highlights that the British limbs makers would alter their patterns and adapt to producing newer and different styles of limbs. A further example of this is the British limb maker Ernst, who was based at Roehampton. For years, he continued with his own (English) style of artificial limb and that was deemed acceptable for the years that it was in production.[243] However, Ernst had to undertake some investigating and modifying of the artificial legs that he was producing after two different men, in the space of the same day, returned with legs which had broken in exactly the same way.[244] Some mechanical fault had caused the men to stumble with their knees fully bent and resulted in them needing their limbs repaired. Ernst could not argue the fact that it was just a coincidence that this had happened in two of his legs, that they knew of, so he agreed to get to work and redesign the artificial leg that he was producing – for fear of future, similar accidents occurring. Essentially, this led to him adopting a much more American style of limb, which he put his own stamp on. This experimenting and adapting was something that the State were keen to see continue as the war progressed and more men returned from the front lines missing limbs. As the 1920s

[242] *Ibid.*
[243] *Ibid.*
[244] *Ibid.*

progressed, experimentation with different materials, in particular light metals, began to reach its peak. This adapting and experimenting is something that the rest of this chapter will explore.

When the First World War broke out, artificial limbs were primarily made from wood. This was a traditional material that those involved in the manufacturing of limbs were experienced and comfortable in working with. Willow was found to be the most suitable wood for making limbs – something which the American firms also agreed with, with many of their catalogues praising English willow wood for use in construction. The limbs being made at Roehampton, which were not constructed from willow, were being discovered to be too heavy. As a result, the countryside was scoured for willows and any found were usually taken without any thought to what the owner desired to happen with them.[245] A well-known story regards that of Macewen and five willow trees that were growing in the grounds of the University of Glasgow. Macewen asked the Principal of the University if it would be acceptable to use the willows - to which the latter responded that he could not see why there would be any problem with it. 'If you are sure of this,' came Macewen's response, 'then I will ask afterwards.'[246] By the same afternoon, the willows had disappeared from the grounds of the University. Macewen was described as being very stubborn and determined and this anecdote certainly highlights that attitude. Eventually, Macewen devised a full set of limbs that would meet practically every perceivable need. Macewen was not a great believer in amputation, and did everything he could to avoid having to perform such an operation. However, if it was necessary, then he believed it to be of great importance that the artificial limb provided was not merely for aesthetic purposes.[247] Macewen

[245] Hugh Allan Macewen, M.D., *The Man in The White Coat,* p.53.
[246] *Ibid.*
[247] Calder, *The Vanishing Willows,* p.17.

himself designed the Erskine Provisional Limbs, which were described as ‘masterpieces of lightness and simplicity’ at the time.[248]

**Figure 1.1 Wooden right below knee leg made for Erskine House. Made during the First World War.**

Figure 1.1 shows a right, below knee leg made at Erskine during the First World War.[249] Both the socket and the thigh corset were made from 3-ply wood, which was chosen because of its thin and adjustable nature, making it easier to fit to various diameters of stumps, by means of

[248] *Ibid.*
[249] Science Museum Group. Artificial right leg, Scotland, 1914-1918. 1999-421 Science Museum Group Collection Online, <https://collection.sciencemuseumgroup.org.uk/objects/co476367/artificial-right-leg-scotland-1914-1918-artificial-leg> (accessed July 21, 2021).

straps and buckles, as shown in the image. A very simple knee joint is also obvious on this leg. Those which contained a knee joint and a foot at the end were deemed the more elaborate of the legs. Those which were considered to be less so just consisted of a 'stout broomstick' which was 'fixed by means of a screw to the disc of wood, and this had a rubber tip, such as is used in crutches, at the lower end.'[250] In essence, this simpler limb was something akin to a peg leg. The artificial leg shown in Figure 1.1 contains a 'clapper' style foot and ankle. This was named as such due to the noise that accompanied the wearer when he wore such a limb. This noise must have been of some annoyance to the wearer, but the limb appears to have been manufactured to give as normal an appearance to walking as possible, with springs evident at the heel and ankle. That the bucket (the section which attached to the remaining stump) of these limbs was adjustable was of great importance. It was particularly useful whilst the stump was still forming, as it meant that this one limb could be adjusted to fit the needs of the ex-serviceman, as his stump healed and changed over time. Amputation stumps could cause future problems and it was therefore useful to have some space for manoeuvrability in the limb fitting process. Returning to the peg leg, it would appear that many men preferred this leg to the more advanced one, as the latter was deemed to be heavier and more of a burden.[251] One veteran described the peg leg as 'light, airy, and comfortable' and there is record of one man who apparently managed to walk for 14 miles on one of these legs, without feeling 'unduly tired'.[252] Peg legs were the training leg of choice for men during this conflict. It was the one that they were initially taught to weight bear and walk with, before the potential of being given something more akin to the leg in the image above. With this in mind, it is not hugely surprising that many men preferred the peg leg, if that was what they had initially been given

[250] Calder, *The Vanishing Willows,* p.17.
[251] Calder, *The Vanishing Willows,* p.20.
[252] Calder, *The Vanishing Willows,* p.21.

and what they had become comfortable with. Figure 1.2 shows an example of a peg leg.[253] Again, it is obvious that the leg is made from wood, but that there is also a strap to make wearing the limb easier. This strap would go over the opposite shoulder from the leg that the artificial leg was attached to and kept the limb in place. Staff at the limb fitting centres tried to dissuade men from continuing to use these peg legs, however, as they created a more unnatural and stilted looking walk and could also apply far too much pressure to the stump, causing more issues further down the line.

**Figure 1.2 Wooden peg leg from the First World War.**

[253] Thackray Museum of Medicine, Leeds, PEG LEG for AMPUTATION above the KNEE, FITTED with WAIST BAND AND SHOULDER STRAPS, WOODEN, 866.003.

Inter-war (1919-1939):

Experiments with materials such as certalmid (a mixture of glue, muslin, and celluloid) and light metals were starting to be undertaken as the war came to a close. Yet, these mostly had to wait until the 1920s, to be experimented with fully. Correspondence exists from 1920 which indicates that, in the December, plans were underway regarding the building of new sheds, on site at Roehampton, for the production of certalmid sockets for limbs.[254] Yet, much of this was more concerned with the costs of preparing these sheds, than with the actual production of the sockets. In June 1918, the *Evening News* reported on a new artificial arm, created by A.C. Adams, which was made of aluminium and steel, and weighed only 2lb. 3oz.[255] Despite its lightness, the arm was still strong enough for men to undertake any number of tasks. A description of it also highlighted that: 'The arm is so jointed that when the man walks it swings naturally and is scarcely distinguishable from a sound limb.'[256] Not that aesthetics were necessarily the main priority when having a new limb fitted, but the more life-like quality that this limb possessed would surely have made it a popular one. The use of a light metal limb versus that of a wooden limb was something that great consideration was given to, and debate was had over, amongst those who were producing the limbs. A light metal limb was believed to require fewer repairs than those constructed from wood, which was something that would have been deemed very desirable, considering the amount of time that repairs could take – both for the makers and for the ex-servicemen. There was also the positive that a metal limb tended to weigh less than a wooden one. Mr. Corner, a well-known London surgeon, and former consulting surgeon to the hospital at Roehampton, stated that over 90% of men who had suffered from above-knee amputations had greatly benefitted from the use of a light metal

[254] TLA, Correspondence About Use of "Certalmid" at Roehampton House (1920-1921) H02/QM/A/17/010.
[255] TLA, News Cuttings No.2, *Evening News*, June 1918, H02/QM/Y/01/002.
[256] *Ibid.*

limb.[257] He believed that the metal limbs were easier to learn to use, and that those who did use them were found to be more physically fit than those who used wooden legs.[258] Still, even then, there were still men to be found who preferred the wooden leg over the newer metal ones. Again, much of the conversation surrounding these artificial limbs was being had at a top level, amongst medical staff and manufacturers, and not necessarily with the ex-servicemen who would be using these limbs.

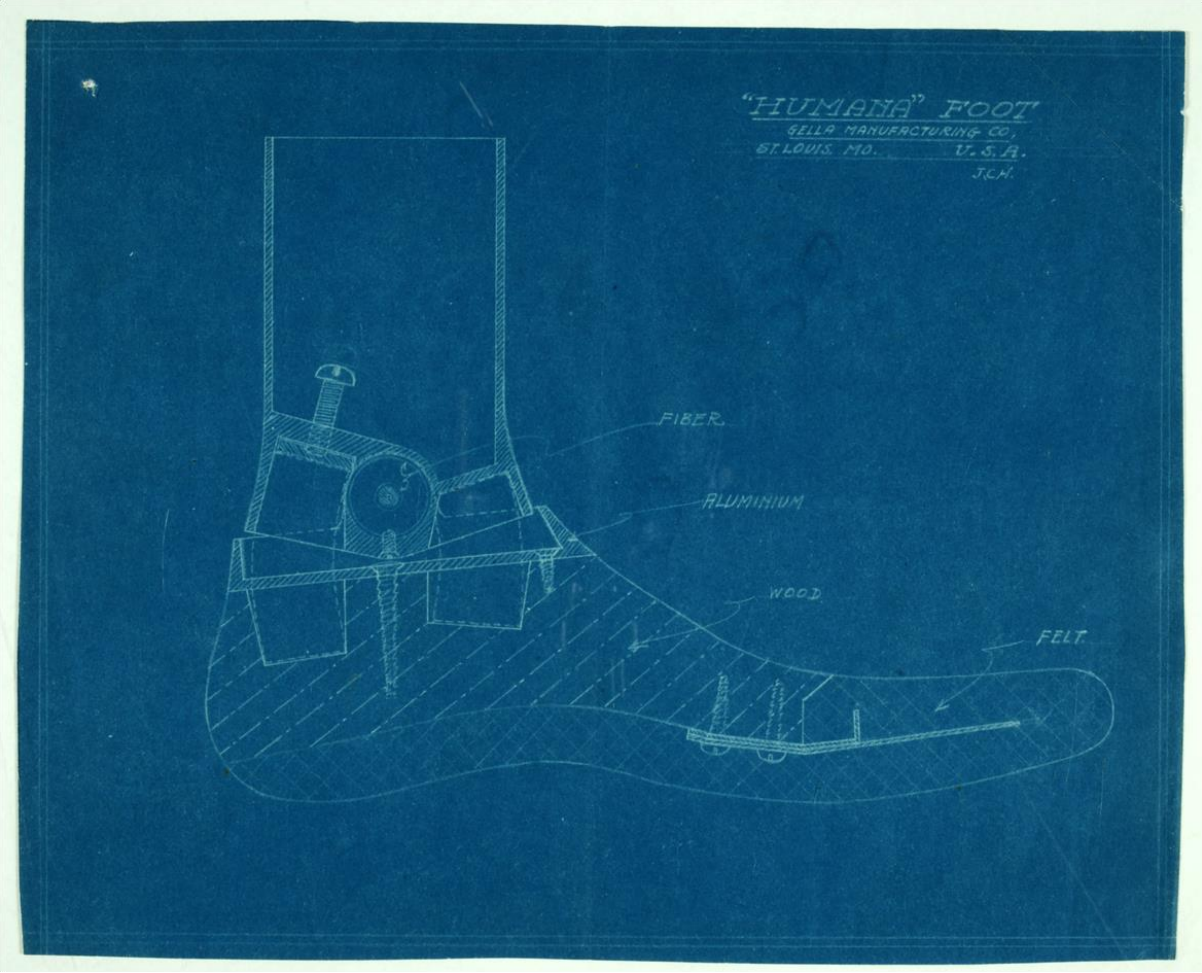


**Figure 1.3 Blueprint for Humana foot**

[257] TLA, News Cuttings No.2, *Daily Mail*, February 1921, H02/QM/Y/01/002.
[258] *Ibid.*

However, it was not just metals and certalmid that were being experimented with. Other materials were also being explored to see how they would work in the construction of artificial limbs, and smaller components of these limbs, too. The above blueprint shows a design created by the Humana company, who were designing artificial legs which had a foot made from fibres, aluminium, wood and felt. The company themselves argued that they had developed this new type of foot as 'extreme lightness' was the main objective.[259] The issue with using blueprints is that the foot in question might not have been made, or have even been used by ex-servicemen. It does however give an insight into the forms of experimentation that were occurring within the artificial limb industry at this time. The materials suggested here are all also fairly common materials, instead of the more experimental materials such as duralumin or certalmid.

As mentioned previously, Desoutter came onto the manufacturing scene in Britain in 1914 with their light metal legs. They were the only commercial makers of a metal leg of this type that made it to the market in the war period, but their legs were overall too expensive for the average person to be able to afford.[260] It was not until 1921 that the Ministry of Pensions offered them a contract, meaning that the light metal limb could be given to a larger portion of the population than had been previously. Guyatt argues that this happened as a result of disabled ex-servicemen who had bought Desoutter limbs themselves, were thoroughly impressed with them, and therefore demanded that these legs be supplied to all ex-servicemen, irrespective of the cost.[261] In 1921, Desoutter were given a government contract to manufacture limbs for supply via the limb fitting centres. This brought with it a huge change in the manufacturing of artificial limbs. A lot of time and energy had been spent on creating the

[259] TNA, Artificial limbs, by E.A. Parish, MUN 7/285.
[260] Guyatt, "Better Legs," p.315.
[261] Guyatt, "Better Legs," p.316.

perfect wooden limbs during the First World War, but now there was a move to a demand for light metal limbs. The manufacturers who had been expert at working with wood were initially against this change, unsurprisingly, but by the mid-1920s, more and more metal limbs were being provided by the Ministry of Pensions. Here, this traditional expertise was cast to one side by the State, in order to be able to produce much more modern, and much sturdier, artificial limbs. It made way for a modern expertise, situated in these newer materials and designs. Many of these makers, such as Desoutter, also brought with them a lived experience to their artificial limb designs – something which will be discussed later in this chapter.

**Figure 1.4 Ministry of Pensions light-weight "Bird Cage" prosthesis for right above knee amputee. Made c.1920.**

Figure 1.4 shows a light-weight metal limb that was constructed for the Ministry of Pensions, dating from around the beginning of the interwar period.[262] It is likely to be one of the artificial legs described above that was produced based on the design of the Desoutter legs. The socket was made from certalmid, which the government had spent a lot of time and money experimenting with. It is obvious in the image where the change in design from a wooden bucket to this certalmid bucket has occurred, when you compare it with Figure 1.1 and the wholly wooden leg. Certalmid was both a lighter material and a more comfortable material for the healed stump. The detail in this newer metal limb is incredible, especially when compared to that of the wooden limbs that were being supplied at the beginning of the war. Even from examining a small area such as the knee joint, one can see the skill that went in to manufacturing this. The shape and design of the leg was much more life-like than anything that was produced in wood. From an image such as this, one can understand why men might prefer the light metal limb over their previous options. It also highlights the advances and improvements that were being made in the design of artificial limbs. Once these limbs were made available to a much wider audience, the move from wooden limbs to metal limbs came swiftly.

The examples shown so far have been very lower limb focussed, but a lot of work was also being undertaken with regards to artificial arms. Arms were adapted in different ways from legs, especially as an arm, in particular, was used more when undertaking work and employment. More training was given to those who had lost arms, as these were a more complex prosthesis than a leg. When it came to artificial legs, ex-servicemen mostly had to be

[262] Science Museum Group. Artificial 'Bird Cage' right leg, Europe, 1913-1923. 1999-472 Science Museum Group Collection Online, <https://collection.sciencemuseumgroup.org.uk/objects/co476554/artificial-bird-cage-right-leg-europe-1913-1923-artificial-leg> (accessed 21 July 2021).

able to weight bear and walk on it to some degree of sufficiency, in order to be released from a limb fitting centre. With an arm, an ex-serviceman needed to be able to efficiently undertake certain tasks – whether those were vocational or domestic. This was why training centres were set up within the limb fitting centres. These ex-servicemen needed to be able to effectively utilise their new arms. A great deal of work was undertaken by designers and manufacturers to try and understand how able-bodied men used their arms – especially with regards to the working environment. In 1918, the Science Museum in London undertook some observations regarding how the body was utilised when using certain tools – tools that would be commonplace in a lot of trades that these ex-servicemen might have previously worked in or would be returning to.[263] Photographs were taken of an able-bodied man as he used these tools, which included everything from saws to lathes. These photographs were then examined in order to understand the different angles and movements that the body made when working with these tools. This allowed a greater understanding of certain pressure points and movability of joints when working.[264] In turn, this was used to inform the adaptation of tools and attachments for artificial arms. In her work on Germany and the First World, Perry highlights how there was a shift away from trying to hide the disability and more of an emphasis on how an artificial limb could help with productivity.[265] 'Function began to dictate form' in artificial limb design in Germany, which was something Britain saw to some extent, also.[266]

[263] TNA, Investigations by Artificial Limbs Section, M.I.D., into arms and hands movements while using hand-tools, MUN 7/331.
[264] *Ibid.*
[265] Perry, *Recycling the Disabled,* p.56.
[266] *Ibid.*

Attachments for artificial arms would be given to an ex-serviceman depending on the trade that he was going to, or hoping to, undertake.[267] Initially, the rules surrounding this had been more relaxed, but once it was realised that men were struggling to use their new arms, or were just not using them at all, the economic wastage of giving these extra parts soon became apparent to the government.[268] Therefore, by the 1920s, the only appliances being given with an artificial arm were a hook, a knife, and a nailbrush. Hooks were the most common attachment for an artificial arm to end in, and these can be seen from the initial arms provided to ex-servicemen. A knife was a useful tool in many aspects of life. A nailbrush allowed for cleanliness – something that was both important in the domestic setting as well as in the armed forces. If any other appliances were needed by an ex-serviceman, he had to prove his need for it, as well as being properly trained in how to use it. This would all be signed off by limb instructors at the limb fitting centres.

[267] TNA, Appointment of Instructors, PIN 38/471.
[268] *Ibid.*

**Figure 1.5 Artificial arm, made by McKay Artificial Limb Co., 1926**

Figure 1.5 shows an artificial arm for a right, above elbow amputation.[269] The arm was held in place by the strap that can just be seen underneath the limb in the box. This would go around the ex-serviceman's back and over the opposite shoulder to secure the arm in place. The strap itself also had leather on it to make this as comfortable as possible for the user, and to try and prevent any rubbing or chaffing, in particular. The holes in the metal were for ventilation. Using an artificial limb could be a strenuous undertaking, and many were very heavy, therefore having ventilation in place would have kept the man himself more comfortable, as well as making sure that the stump remained comfortable too. This idea of comfort links back to the creation of more 'out-patient' spaces for ex-servicemen returning to limb fitting centres to have

[269] Thackray Museum of Medicine, Artificial Arm Prosthesis for right above elbow amputation with detachable plain hook; McKay Artificial Limb Co., 1926, 251419.

repairs or re-fits undertaken.[270] Again, here, in the mid-1920s, it is obvious to see the varying materials that were now going into the construction of artificial limbs. This metal arm was akin to those which had previously been made out of wood. What is most insightful about this limb is how it has been adapted in order to allow for the attachment of various attachments to it. At the bottom of the arm there is an articulated section for these attachments. The description of the arm in the catalogue explains that the arm came with a detachable plain hook, which had a long stem in order for the hook to be at a comparable position to the user's remaining hand.[271] This could be an interesting aesthetic choice, but it is more likely that this was to aid in usefulness when using the artificial arm alongside the remaining arm. The more notable contents of the box are the numerous attachments that have been placed alongside it, which offer a broader insight into what ex-servicemen could be given. The hook is there, and the nailbrush, as to be expected. A smaller c hook can be found amongst these objects. This could be positioned around items such as brooms or wheelbarrows – again, very common tools in many jobs – in order to allow the ex-serviceman to use these objects with a little more ease.[272] There were also pliers, an appliance to aid with typing, and a ball pein hammer.[273] With the exception of the nailbrush, all of the attachments are very much vocational in manner. This links back to Perry's idea of artificial limbs needing to be useful and allowing ex-servicemen to contribute to society in a meaningful manner once more.[274] Interestingly, there are no mentions of attachments for being able to undertake more domestic processes such as feeding oneself or shaving in the museum collections that I have looked at. This could be due to the

[270] This also links to Bates' work on comfort in hospital spaces in: Bates, "'Humanizing' Healthcare Environments".
[271] Thackray, Artificial Arm Prosthesis for right above elbow amputation with detachable plain hook; McKay Artificial Limb Co., 1926, 251419.
[272] Thackray, C hook with articulated joint, 2007.0147.
[273] Thackray, Quick grip pliers, 321206.
Thackray, Typing (keyboard) appliance, 2007.0149.
Thackray, Ball pein hammer, 2007.0418.
[274] Perry, *Recycling the Disabled,* p.55.

presumption that the ex-servicemen using these artificial arms would still have another arm with which to undertake such duties. This could also highlight the assumption that these men would have someone to care for them at home – whether that be a mother, sister, or wife – and therefore they did not have to worry about needing attachments for such domestic tasks.[275]

The interwar period was defined by experimentation and trying out new materials and new designs. Certalmid and light metals replaced the usual wooden limbs in many cases. Although, as will be explored in Chapter Four, there were some men who were happy to continue using the wooden limbs that they had initially been given and repaired them themselves in order to keep being able to use them.

Second World War:

These 'new' materials used in the period between the two world wars appear to have continued into the production of artificial limbs in the Second World War. Similar sentiments as to what the primary function of these limbs should be continued into this conflict, too. Serlin might be talking about the American context when he argues that one of the biggest concerns was what effect disability might have on these ex-servicemen when they returned, especially in 'a competitive economy defined by able-bodied men,' but these views were still being

[275] This links to ideas explored in the *Men, Women and Care* project at the University of Leeds, suggesting that women bore a lot of the brunt of looking after disabled ex-servicemen upon their return to Britain and to their homes.

experienced in Britain, too.[276] Artificial limb designs were therefore still very much more focused on function over aesthetics.

Roehampton might not have had as many manufacturers on site during the Second World War as they did during the First World War, but the artificial limbs being manufactured were along the same lines as those that had been produced in the preceding years. Certalmid and light metals were still being used in the majority of the limbs produced, with leather making more of an appearance in the actual limb itself (and not just in the straps holding it to the body).

[276] David Serlin, "Engineering Masculinity: Veterans and Prosthetics after World War Two," Katherine Ott, David Serlin and Stephen Mihm (eds.) *Artificial Parts, Practical Lives: Modern Histories of Prosthetics* (New York University Press, 2002) pp.45-74 (p.46).

**Figure 1.6 Artificial right arm, manufactured in 1943.**

There do not appear to be as many artificial limbs from the Second World War in museum collections as there are for the First World War.[277] The right, above elbow artificial arm shown in Figure 1.6 is one of the few clearly dated from this conflict.[278] Once again it is clear to see that the main section of the arm was made from light metal – likely duralumin. The socket is made from leather, and the hand is made from certalmid. There are no obvious signs of wood being used in the construction of this limb at all. Here it is apparent to see a complete move away from the traditional materials of the First World War and instead see a complete embracing of these newer, lighter materials. According to information available on this limb, the grooved tip of the thumb, index finger and middle finger were all positioned so that a pen or a pencil could be held.[279] The hand itself was detachable to allow other attachments to be used in its place, as seen with the arm discussed previously in this chapter. It is particularly fascinating to see a hand created specifically to allow the user to use a pen or a pencil. This is certainly a move away from the usual, more industrial, tools that were often found as attachments to artificial arms. The arm itself was manufactured by Blatchford, who had been working with Roehampton, and the Ministry of Pensions, since the First World War. During the Second World War, Roehampton employed a smaller number of manufacturers. These

[277] Those that are dated from the Second World War tend to be those made in Prisoner of War camps. IWM hold some very creative examples of such limbs, forged from whatever materials were at hand. Whilst these artificial limbs (usually legs) are very interesting examples of this technology, they are not relevant to the scope of this thesis, as it examines what was happening in Britain, and not abroad. I do think there is a very interesting project to be undertaken on these limbs and the conditions under which they were created.
There are potential reasons for there not being as many obviously dated limbs for this time period, including longevity of use, different processes for disposing of medical technologies, the disappearance of limb fitting centres, and the creation of the NHS.
[278] Science Museum Group. Artificial right arm. 1999-547 Science Museum Group Collection Online, <https://collection.sciencemuseumgroup.org.uk/objects/co476701/artificial-right-arm-artificial-arm> (accessed 19/06/2023).
[279] *Ibid.*

manufacturers tended to be those with whom the centre had worked with in the preceding years.

**Figure 1.7 'Alclad' Artificial Left Leg, London**

The continuation with using light metals also occurred in artificial legs. The leg in Figure 1.7 does not have the same intricacies to it as the one created in the 1920s for the Ministry of Pensions. This perhaps suggests that the 1920s leg was made as a prototype or was produced to show off the talent and skill that limb makers possessed. In Figure 1.7 the leg is made from another light metal, Alclad. Alclad is a corrosion-resistant aluminium-based alloy, which was typically introduced as a popular material in the aircraft industry. It was strong, but less likely to tarnish as badly as other metal alloys, which made it a useful material in the construction of artificial limbs. Once again, a complete move away from wood is obvious in this artificial leg.

The materials used here are alclad, rubber and leather. The leg itself is predominantly metal, whereas the foot is made from rubber and the strapping is once again leather clad. The bucket of the limb also appears to have leather utilised in its construction. The knee, ankle, foot, and toe joints of this artificial leg all moved and were all flexible.[280] This would have allowed for a more natural appearance to walking, but would have also allowed the leg to be moved into place for any other activities, such as bike riding. The use of a strap was still necessary to comfortably hold the limb in place. There had not been much in the way of change there, probably because the amputation had taken place so far up the leg. Depending on the amputation site, it was also possible to have the artificial limb held in place by a strap around the upper leg, instead of one going across the whole body. Here, however, there is likely to have been a short stump left behind, necessitating the need for the more commonplace strap.

The biggest changes in the design and manufacturing of artificial limbs in the time period of this thesis came in the aftermath of the First World War. During this conflict, the State had to amass skilled manufacturers at a fast rate, in order to deal with the large number of men who needed limbs. In order to gather the most skilled manufacturers, they also looked to America for help and some of the most prolific makers came over from the States to aid Britain. A large number of manufacturers also meant a large number of artificial limbs being made – all in a slightly different manner. Wood was found to be the best material, particularly willow. This was a material that these makers were used to working with and knew how to mould into the required artificial limbs. However, there were some manufacturers that were beginning to experiment with different, lighter materials, as the war came to an end – like Desoutter. This is where objects as source material really come into their own and help create a stronger

[280] Science Museum Group, Artificial Left Leg, 1999-451, Science Museum Group Collection Online, <https://collection.sciencemuseumgroup.org.uk/objects/co476504/alclad-artificial-left-leg-london-england-1924-1940-artificial-leg> (accessed 10/01/2024).

understanding of these artificial limbs and what it might have been like to wear them. Wooden limbs were heavy, there is no doubt about that. Getting to hold some of the artificial limbs held in the Thackray Museum of Medicine really brought that home for me. Materials such as duralumin and certalmid were lighter, but artificial limbs were always going to have a bit of weight to them. This is something that cannot be explored through textual sources alone. Using the artificial limbs held in museums allows for a visual depiction of these changes in materials and designs over the course of the two wars. As stated above, the biggest changes appear in the period between the two wars, with many limbs created in the Second World War continuing with these materials.

The above section has mentioned a few prominent makers, such as Desoutter, yet those were not the only manufacturers working across mainland Britain to produce the large number of artificial limbs needed to provide ex-servicemen with new limbs. Who were these makers and how did their work in the limb fitting centres unfold? The rest of this chapter will explore those behind the making of limbs such as those shown above.

Makers and the Limb Fitting Centres:

The First World War made the need for a strong artificial limbs industry in Britain very apparent. That is not to say that such an industry did not already exist here – accidents and injuries, in the workplace, in particular, meant that a well-developed market for artificial limbs had already been established.[281] However, the First World War brought with it a larger concentration of men, in a relatively short period of time, who returned to Britain requiring the aid of this industry. As discussed in the chapter focussing on the limb fitting centres

[281] You can read more about this in: Claire L. Jones (ed.) *Rethinking Modern Prostheses in Anglo-American Commodity Cultures, 1820-1939* (Manchester University Press, 2017).

themselves, with 41,000 men returning from the First World War, and 12,000 in the Second World War, missing one or more limbs, the work being undertaken there was of great importance. As well as having the ex-servicemen, medical staff, and limb fitters on site, one of the innovative aspects of these centres was that limb manufacturers were also housed on site. This allowed for all of the main stages in the overall process of rehabilitating these disabled ex-servicemen to be focussed in the one place, instead of in various offices and institutions as would have been the case previously. As was seen with the expansion in the number of beds being made available for these ex-servicemen, the need for more space was a constant with regards to the limb manufacturers also. The more the demand for artificial limbs grew, the bigger the workshops needed to be for those undertaking the manufacturing. The growth in these limb manufacturing spaces was a near constant in committee meeting minutes throughout the history of these limb fitting centres. But just who was undertaking the manufacturing of these artificial limbs? This section will explore who was chosen to help provide new limbs for these disabled ex-servicemen and how their various levels of expertise were utilised by the limb fitting centres.

A Committee on Artificial Limbs, also known as the Guedalla Committee, was appointed on the 14th February 1919, with the purpose of advising the Ministry of Pensions on a host of ideas relating to the supply of artificial limbs to ex-servicemen.[282] The majority of these ideas related to the supply, fitting, repairing, and re-fitting of artificial limbs and whether or not the practices in place at the end of the First World War were sufficient for the current demand. One of the main questions related to the limb makers themselves and whether or not them being based at different sites around the country was actually a beneficial set up, and whether or not each

[282] TNA, Supply of artificial limbs and appliances: appointment of Guedalla Committee, PIN 15/63.

nation having a centre was the best way to continue.[283] One proposed option was that of State workshops (or factories) instead, in order to try to centralise limb production in a site controlled fully by the Ministry of Pensions.[284] The idea of a so-called 'National Factory' for the supply and repair of artificial limbs was ultimately vetoed in favour of continuing to use 'civil' limb makers as had been the case since the outbreak of the First World War. By 1919, many of these limb makers had been encouraged and supported to expand their businesses due to the large numbers of artificial limbs required for those returning from the war. As a result, these manufacturers were deemed suitable to continue keeping up with the demand for the supply of a second/duplicate limb to every ex-serviceman who needed one, by the Committee for Artificial Limbs.

From the outset of the First World War, it was these 'civil' limb makers that the limb fitting centres relied on to help manufacture the limbs needed to supply the ex-servicemen passing through their doors. As this section will highlight, these limb makers came from varying backgrounds, and even professions. Roehampton had a mix of both American and British limb making expertise to draw upon, whereas Erskine continued to do things somewhat differently and utilised the expertise and skills of the local shipbuilders to help with their production of artificial limbs. Here, some of the tensions and differences at play between the limb fitting centres become apparent once more. Sir William Macewen, at Erskine, argued that he was happy to ignore State suggestions or instructions if he thought they were useless and would continue to run Erskine along the philanthropic lines that it always had – including choosing their own limb makers and creating their own limb designs. In comparison, the committee running Roehampton chose numerous limb-making firms to work onsite and the Ministry of

[283] *Ibid.*
[284] *Ibid.*

Pensions eventually had more say over who was chosen here and what limbs should be provided. Even with that in mind, it was agreed that only as a last resort would the Ministry of Pensions, or any other governmental department, undertake the manufacturing of limbs and that this work should remain divided between private firms under competitive control. This use of private firms continued into the Second World War, where some familiar names, such as J.E. Hanger, were still on site at Roehampton. With Roehampton being the lead limb fitting centre in the country during this conflict, some more State control was being governed, as was seen with even more intervention from the Ministry of Pensions in the overall running of the centre.

Speaking at a public meeting, in March 1916, Sir William expressed his dissatisfaction at what he saw as an apparent dependence on foreign limb makers in Britain and stated that, even if Scotland was left without any professional limb makers, he had every confidence in the 'potentiality of Glasgow, and in the capacity, youth, and vigour of her sons' that 'we would still get, in such a case, those who would make artificial limbs sufficient for the demand.'[285] Drawing on the skills of the local shipbuilders, he believed that 'to men such as these I was sure the making of artificial limbs would prove to be a recreative diversion after days spent in the solution of recondite problems.'[286] To such skilled men, he believed that artificial limbs would seem like primitive contraptions.[287] It was upon the shipbuilders that Macewen and the staff at Erskine called, in order to help aid them with the manufacturing of artificial limbs. Not just aiding by giving 'practical and valuable advice,' these men were to help with the production of 'artificial limbs of sufficient quantity and of quality to satisfy our requirements by employing home industry alone.'[288] The hope was to continue this practice of employing native limb

[285] Reid, *The Princess Louise Scottish Hospital,* p.25.
[286] *Ibid.* p.26.
[287] Calder, *The Vanishing Willows,* p.16.
[288] Reid, *The Princess Louise Scottish Hospital,* p.26.

makers, by training some of those who received such limbs, so that they could aid in the making of limbs for those who would follow. Harold Yarrow, in particular, was of great assistance to the Erskine cause. He lent his yard's technical assistance, as well as some of his best craftsmen, to help with the manufacturing of new limbs. Later, in 1918, two more firms, the Anchor Line and Sir William Arrol & Co. joined Yarrow in the manufacturing.

Eventually, Macewen devised a full set of limbs that the limb fitting centre at Erskine deemed would meet practically every need. Macewen was not a great believer in amputation, and did everything he could to avoid having to perform such an operation. However, if it was necessary, then he believed it to be of great importance that the artificial limb provided was not merely for aesthetic purposes.[289] He wanted to provide artificial limbs that were also useful and practical. Macewen himself designed the Erskine Provisional Limbs, which were described as 'masterpieces of lightness and simplicity' at the time.[290] Those who were involved in manufacturing limbs at Erskine only manufactured the one type: the Erskine Limbs mentioned above. With Macewen and his staff being medical professionals by trade, in order to go about manufacturing and designing these limbs, according to Macewen, he asked a group of engineers and mechanics to work alongside a group of the best surgeons he knew.[291] They were tasked with designing the best artificial limbs that these two groups could come up with. The engineers were somewhat sceptical of this task initially, as many had no knowledge of artificial limbs or had even seen one in use. However, after being shown some limbs and gaining a better understanding of the mechanisms and workings of them, they set about undertaking the task with more vigour. Showing them a selection of limbs being made elsewhere allowed them to pick out the best from an engineering point of view. The surgeons

[289] Calder, *The Vanishing Willows,* p.17.
[290] *Ibid.*
[291] *Ibid.*

came into play with regards to what was the best limb for being used by these ex-servicemen and what would be the most appropriate to be attached to the remaining stumps. During the meeting where this story was being retold, in March 1919, Macewen was still very adamant that their Erskine leg was sound and that it still held up against the other, newer limbs which were being manufactured elsewhere.[292] The idea here was that Erskine had used the expertise of two major groups who would be the obvious people to turn to in the manufacturing of artificial limbs. The engineers would be able to give advice on the materials, design and what would be optimal when manufacturing a new limb. The medical staff would be able to give advice on what they understood to be the best design and fit for the healed stumps of these ex-servicemen. This appears to be the thought process behind involving these two groups in the design process. Vitally, there is no evidence that any conversations took place with the ex-servicemen themselves who had lost limbs and would need to use these artificial limbs; or with current users of artificial limbs. As with many stages in the care for limbless ex-servicemen, their own views were once again absent from the design process.

Workshops for the manufacture of every variety of artificial limb were erected on the grounds of the house at Roehampton. Roehampton too appreciated that the limb making industry in Britain was on a small scale, but they did not look to using just native limb makers. In order to keep to the promise of supplying the best limbs that could be constructed, an exhibition was held at the house from the 20th to the 23rd July 1915, to which three American firms were invited to send representatives.[293] These firms were Carne of Kansas City, J.E. Hanger from Dayton, Ohio, and J.F. Rowley of Chicago. America was very well-versed in supplying and manufacturing artificial limbs in the aftermath of war, as a result of the American Civil War. It is

[292] *Ibid.*
[293] Alper, *A History of Queen Mary's University Hospital*, p.13.

therefore understandable that Britain would wish to learn from and work alongside makers who were skilled in this arena. It was determined that it would be of best interest to establish the limb makers on the actual site of Roehampton, so as to maximise production. Some firms were initially housed in the basement of the House, although huts were soon provided due to the pressure for space. It was not just the three American companies that had workshops on site. British limb makers such as Blatchford did also have tenancy agreements for huts on the hospital grounds.[294]

With Roehampton being the largest of the limb fitting centres by the end of the First World War, it is perhaps no surprise that they had the largest range of limb manufacturers on site. From tenancy agreements, it can be seen that the following firms worked to supply artificial limbs to those needing them at Roehampton, at one point of another from the First World War and into the interwar period: Cory & Grundy, Ltd. - Artificial Limb and Orthopaedic Appliance Manufacturers; Adams' Mechanical Artificial Limb Appliances; Charles Salmon & Sons - Manufacturers and Inventors of Improved Artificial Limbs, Crutches and Sundries; Rowley; Wilson (Roehampton) Ltd.; J.E.W. Wedge – who were previously Artificial Limbs Ltd.; Carnes; Desoutter; and Horace V. Duncan.[295] Not all of these firms were manufacturing at the same time, but it does show the breadth of skill that was involved in the making of limbs, and the requirement for artificial limbs that the First World War created. In order to be able to manufacture limbs on site at Roehampton, limb makers had to enter into a tenancy agreement with the limb fitting centre and the committee in charge. Just as with every tenancy agreement, the makers had to pay rent to house themselves on site. In 1915, this amounted to two pounds per month.[296] This was payable to the committee who were running Roehampton

[294] TLA, Agreements with Limbmakers, 1915-1932, H02/QM/A/17/004.
[295] *Ibid.*
[296] *Ibid.*

at the time in question. The makers were naturally allowed to set up any equipment necessary for the manufacturing of limbs, but they also had to allow full access to the space to any members of the committee who wanted to enter, as well as their staff and workmen. Other rules that these makers had to follow included: only using the workshop for the making of artificial limbs, and only limbs for those who had lost limbs in the war.[297] The tenancy agreement scenario continued into the 1920s. Essentially it afforded both parties some power. The makers could decide that they no longer wanted to be based on the site and could give one months' notice that they were going to leave and take up shop elsewhere. However, the other side of this coin was that the committee at Roehampton could also decide that they no longer wanted certain makers to be based at the centre after a certain period of time. This somewhat flexible nature could offer up one explanation as to why there were so many different makers linked to Roehampton during this conflict. It is also significant to see the semblance of power that both actors had here. If the makers thought that they were no longer benefitting from working with the limb fitting centre then they could return to the usual set up of having their own premises elsewhere and could open up literal shops of their own. This is the stage where they were more likely to produce advertising materials, as they were no longer under the protection of Roehampton and the solid flow of work that it provided. However, the other side of this coin was that the committee at Roehampton, and later the Ministry of Pensions, could also remove makers that they no longer wanted to work with, for whatever reason. This was one reason why it was relatively easy to make the shift from wooden limbs being produced to the making of light metal limbs instead.

[297] *Ibid.*

It was not until the beginning of the 1920s that the government research laboratory finished designing what would become known as the 'Standard Wooden Leg.' The idea here was that this leg was to be manufactured by all limb makers, from a prescribed pattern.[298] The question of standardisation was something that received the close attention of experts at the Ministry of Pensions from the middle of the First World War onwards, but as 1918 was drawing to a close, there had still been no agreement on a design that would be suitable to meet the criteria of being named the 'standard limb'.[299] A committee, which had been set up by the Ministry of Pensions, did consider the standardisation of components of limbs, to aid with making repairs easier. Artificial limbs were more often than not repaired by someone other than the original maker, and such differences could affect the quality, and the length of time it took to repair a limb. It was argued by makers that there was no sense in standardising a pattern for the construction of limbs, when there were constant improvements being made in the designing of artificial limbs. An article in the *Morning Post,* dated December 1918, retorted that to delay the standardisation 'until perfection has been reached means that those of us who may have lost our limbs will be much too dead to enjoy the perfected standardised limb which some day will be produced.'[300] With so many limb makers working in Britain at this time, it would have been difficult to gain consensus as to which was the best limb to use as the so-called 'standard' type. Each maker naturally believed that his limb was the best, and that he could make the furthest advances in the designing and manufacturing of limbs. The quantity of manufacturers also meant that repairs, renewals, and adjustments, could take a great deal of time to be undertaken. These numerous makers tended to cause a fuss when being tasked with working on goods that someone else had manufactured, and argued that they were best placed to only work on artificial limbs that they had made, as that was where their expertise lay.[301] Eventually,

---

[298] Guyatt, "Better Legs," p.312.
[299] TLA, News Cuttings No.2, *The Times*, October 1918, H02/QM/Y/01/002.
[300] TLA, News Cuttings No.2*, Morning Post*, December 1918, H02/QM/Y/01/002.
[301] *Ibid.*

Macewen, with his set of artificial limbs that could apparently meet practically every need, managed to persuade the government to adopt a number of standardised designs, despite the 'opposition of the Whitehall bureaucracy.'[302]

However, once standardisation came into play, there were still causes for dismay. Standardisation brought with it images of mass production and of everything being the same, and perhaps not being of the greatest quality.[303] This went against the idea of limbs being fitted and manufactured especially for each individual ex-serviceman. Standardisation began reflecting the nineteenth century shift towards using instruments to measure accurately, and a lack of trust in the body and individual perception, which furthered to the 'emergence of a new class of biomedical research that sought to 'normalize' the disabled body for social integration.'[304] Many of these ex-servicemen believed that standardisation would result in all amputees receiving the same limb, no matter of their height, their weight, or on what section of the limb that the stump began.[305] However, this was not what was meant, at all. Parts of the limbs would be constructed to the same specifications, and using a specific range of materials and parts, but they would still be 'made to measure.'[306] No two stumps were the same; therefore, no two artificial limbs could be identical. The principles that the limb fitting centres had announced they would adhere to upon their openings, regarding the proper fitting of limbs, was something that was still very much in place. For example, in 1918, the company that made the Humana limb sent a representative to Roehampton to demonstrate their new artificial limbs, which were all made from standardised parts (this was around the time where

[302] Calder, *The Vanishing Willows,* p.16.
[303] Guyatt, "Better Legs," p.314.
[304] Virdi and McGuire, "Phyllis M. Tookey Kerridge" p.125.
[305] Guyatt, "Better Legs," p.314.
[306] Guyatt, "Better Legs," p.315.

the State were trying to determine how standardisation of parts would work best).[307] An artificial leg was fitted to a Sergeant Major at Roehampton, who had a right leg, above knee amputation, with a short stump. The limb fitter fitted the new limb in around an hour and a half, and all the components were made from standardised parts. The Sergeant Major was quoted in saying that he found the new limb 'comfortable and effective in use.'[308] It should be noted that this man was chosen because he was an instructor at Roehampton and using someone who would remain on site was useful to all involved, as it meant they could observe him more closely, and over a longer period of time, to see how this new way of fitting and constructing an artificial limb would work out in the long run. Using an instructor was also clever as he was someone that other ex-servicemen typically trusted with regards to what limbs they should choose, and would therefore likely alleviate some of the fears around standardisation.

Unlike the First World War, where limb manufacturers were spread across the main limb fitting centres, the Second World War appeared to have had a more centralised system in place – something which was discussed at the beginning of the interwar period. Limb fitting centres were still in use across Britain, but not to the same wide extent that they had been in the previous war – they tended to be in smaller hospitals now, compared to the main three that had existed in the First World War. The main limb fitting centre in use was that at Roehampton, and it was here that the new Artificial Limb Fitting Factory was based.[309] This meant a more centralised manufacturing of artificial limbs than had been seen in the First World War. At the outbreak of the Second World War, committee minutes from those running Roehampton confirmed that there were five manufacturers who held tenancy agreements to work on site

[307] TNA, Invention of, or suggestions for:- Artificial limbs, MUN 7/282.
[308] TNA, Invention of, or suggestions for:- Artificial limbs, MUN 7/282.
[309] TLA, Welfare Committee Minute Book, H02/QM/A/06/001.

there, in this new Artificial Limb Fitting Factory. J.E. Hanger & Co., Ltd. were still manufacturing limbs for Roehampton (and had been since the First World War) and were hailed as the largest manufacturers there.[310] From the 1940s, Hugh Steeper Ltd. also had a tenancy agreement for manufacturing space on site at Roehampton.[311] As was seen in the First World War, it became apparent once again that larger premises were needed for these manufacturers to be able to effectively and efficiently undertake their work and expansion was seen to the buildings housing the 'limb factory.' With this move to a more centralised space, and with less ex-servicemen requiring artificial limbs, it is notable to see that more room was needed. Some of these makers had had premises on the site since the First World War and had continued supplying artificial limbs throughout the 1920s and 1930s also. The reasons behind the need for more space were likely due to the need for repairs to limbs, as well as renewals. Despite there being less demand for artificial limbs, with Roehampton being the main limb fitting centre in this conflict, the work would have been more concentrated in that one institution.

As discussed in the chapter on these limb fitting centres, by the Second World War, Roehampton was seeing a lot more State intervention in the running of it. Therefore, the State had more say in which makers would be the manufacturers of artificial limbs for this main limb fitting centre. By the 1940s, Roehampton was well-renowned as a centre for the production and fitting of artificial limbs, something which the makers who were based there used to their advantage in marketing themselves in catalogues and other advertising means. Steeper were very proud to say in their catalogue that 'Final testimony to the merits of Steeper artificial arms is found in the fact that we are the largest suppliers to Queen Mary's (Roehampton) Hospital for the Limbless.'[312] In the foreword to their 1957 catalogue, Hanger were pleased to be able to say that:

---

[310] *Ibid.*
[311] TLA, Agreements with Limb-makers, H02/QM/A/17/004.
[312] Thackray, Hugh Steeper Ltd., *Modern Artificial Arms and Appliances,* 1935, p.5, CAT1192.

'The Hanger Company was established in 1915 and since that date has been continuously a Contractor to Her Majesty's Ministry of Pensions for the supply and repair of artificial limbs for the war disabled. Hangers now have the honour to serve the limbless ex-servicemen of the World wars 1914-18 and 1939-45. Moreover, in 1948, Hangers commenced the supply of artificial limbs for the civilian disabled under the National Health Scheme.'[313]

The popularity and skill of Hanger as makers throughout the two world wars resulted in them being the main manufacturers at Roehampton, even after the NHS came into force. This suggests that their artificial limbs were also of a standard that those using them were also happy with. Hanger was founded by a man who needed to use an artificial leg himself, so the process here benefitted from both the incentives of manufacturing expertise and lived experience of needing a functioning limb.[314] However, Hanger were not the only makers who benefitted from lived experiences of those involved with the company.

Two Amputee Limb Makers:

Many of these limb makers being limbless men who needed artificial limbs themselves was not uncommon in this history. Above, Hanger have already been mentioned, but they were not the only company whose founder was someone who had both interests from a manufacturing point of view as well as from a lived experience point of view. The old saying 'Necessity is the mother of invention' was never truer than in the case of the origin of the Desoutter artificial limb.[315] In March 1913, Desoutter lost a leg in an airplane accident, and was left with an above knee stump of around 8 inches. Naturally, Desoutter wanted to be able to use an artificial leg, but was very disappointed with what was on offer at this time. He did not wish to wear a limb

[313] Thackray, J.E. Hanger & Co. Ltd. *In Step Again,* 1957, foreword, CAT1774.
[314] Thackray, J.E. Hanger Inc., *Hanger Improved Artificial Limbs: Nature's Rivals,* 1911, CAT1828.
[315] Captain H.H.C. Baird, DSO, *An Unexpected and Far-Reaching Development in Regard to Light Metal Artificial Legs,* p.11.

made of wood and, as an aeronautical engineer, he thought that 'to make an artificial limb of wood was scientifically wrong.'[316] He thought that the wooden limbs on offer were far too heavy and set about planning to create an artificial leg that was 'in keeping with modern ideas of scientific construction.'[317] This meant making limbs from metal. Eventually he created what would become known as the Desoutter Light Metal Limb. Initially supplied to Officers who could afford it during the First World War, there soon came a cry for the limb to be given to ex-servicemen of every rank. Initially, the costs of doing so were used against Desoutter with the government reluctant to pay for this metal limb when most manufacturers were still working with wood. Opposition also came from these wood-using limb makers, as they realised the disturbance implementing metal limbs would cause to their own businesses. These makers used their influence and expertise to persuade the State that wooden limbs were still the best on offer in the First World War. The government were used to working with these original makers and also did not want to change due to the economic costs associated with new materials – although as has been discussed earlier in this chapter, light metal limbs and experimentation with other materials was very much in progress by the time this conflict came to an end. Many hospitals and the in-patients in these institutions believed information from both the State and the wooden limb makers with regards to wooden limbs being the best for these ex-servicemen, and continued to advocate for the supply of them. This highlights the relationship between the Ministry of Pensions and the limb makers and shows how they worked together, to benefit one another. However, once some ex-servicemen were given a metal limb, everyone wanted one. Speaking in an interview years later, one ex-serviceman mentioned his artificial leg and he thought that 'the best one was the Desoutter limb. It was made by a French man. He lost his own leg in an air crash. And they gave us these Desoutter limbs in 1921 and I walked from Staines Bridge to Roehampton – 15 miles – with a Desoutter

[316] *Ibid.*
[317] *Ibid.*

limb. I never had any trouble at all.'[318] This ex-serviceman appears to have been very happy with the metal leg that he was given. What is particularly significant is that he notes that it was designed by a man who had lost his own leg, showing that this was common knowledge regarding the Desoutter legs and that perhaps this was important to the user of the limb. The limb itself was created by someone with twofold expertise. Desoutter was both an engineer and an amputee. He used his knowledge and lived experience to create this light metal limb. He understood what was of most use to someone who had lost a leg – both in the scientific and the personal sense. Unlike what appears to have been happening with the designing of limbs at Erskine, here there is some of that lived experience and embodied knowledge being shown in the manufacturing process.

Another well-known maker who also created one of the most recognised limbs of this period was William T Carnes, from America. In 1902, he had to have his right arm amputated two inches above the elbow, after an accident with a milling machine. He wanted an artificial arm that would allow him to continue his trade, but was disappointed to find that most arms were designed to be more ornamental than they were functional.[319] There were also very few to choose from. He did purchase one, but after a short time using it decided to start creating one of his own. In order to do so, he studied the anatomy of the human arm and fingers and tried to recreate their natural movements in the form of metal. The telling of this story in a catalogue for their artificial limbs commends Carnes for having the 'mechanical skill, patience and perseverance' to test out each part of the arm he was making.[320] Eventually, however, he created the 'BEST SUBSTITUTE for the natural arm ever invented.'[321] The skill that was put into

[318] IWM, "Clarence Walter Harvery Jarman," reel 3, online recording, catalogue number 12925, <https://www.iwm.org.uk/collections/item/object/80012654> (accessed 07/08/2023).
[319] Thackray, *The Carnes Arm Puts You on the Payroll*, p.5, 1922, CAT2043.
[320] *Ibid.*
[321] *Ibid.*

the arm and the success of it was further praised with comparisons to how long it took to create this first arm, as he was doing so one-handed, with how much quicker he was able to make further arms now that he could use this 'wonderful success' of an invention.[322] The company itself was formed after another man, Prescott, lost an arm and a leg in an accident at work. Searching for a useful arm, he came across Carnes and, disgruntled by how long it was taking for this one man to actually manufacture arms, he decided that they should set up a company. Initially the two men were unsure whether there was any money to be made in manufacturing these artificial limbs, but they knew there was great demand for them. It was not long before the company was known around the world, and Carnes arms were being used by people in numerous countries – including Britain.[323] Again, here is another company created by men who actually had to use artificial limbs themselves. In the writing of their catalogue, they assured the reader that they 'absolutely guarantee the truth of every claim we make' because the President and Secretary were both wearing their above-elbow arms and their Treasurer wore a below-below arm.[324] They were focussing on this lived experience aspect in order to prove why their arms were so useful, and to create a sense of other men wanting to also use them. They also highlight that their arms were not just for the young man, because Prescott was 50 years old when he started using a Carnes arm. Once more, this personal experience and personal belief in their products shines through in what they are doing. Carnes also did focus on their relationship with disabled ex-servicemen from the First World War and the work being undertaken at Roehampton in their catalogue. They were invited to the exhibition of manufacturers held at Roehampton in July 1915, upon where they were awarded a gold medal and an award of merit for their arms. Upon seeing these arms in action, the committee at Roehampton wanted Carnes to be one of the suppliers of arms for their centre –

[322] *Ibid.*
[323] *Ibid.* p.7.
[324] *Ibid.* p.17.

something which Carnes were proud to tell whoever was reading this catalogue.[325] The Carnes arm was synonymous with the best during this time period and it was, again, an arm that many ex-servicemen wanted. As happened with the Desoutter leg, the Carnes arm was initially only offered to Officers – once again highlighting the differences between what was offered to an ex-serviceman depending on what rank and class he held.

Through these two companies, we see two different areas of expertise intertwining in the creation of artificial limbs. The mechanical and engineering aspect is naturally important in the manufacturing and designing of limbs and was something that could be seen in all of the companies who were producing artificial limbs for the limbless ex-servicemen in Britain. However, what is most insightful here is that a number of these companies were founded by men who had lost limbs themselves. They were able to bring their own lived experience into the running of these companies and into the designs of the limbs themselves. They understood what people missing limbs needed and wanted from their new limbs. They were not just creating something from the purely mechanical or medical side. They were also using this lived experience to try and build confidence in their product and to assure potential users that they would be able to undertake a trade again, for example, and go about their lives. This lived experience and idea of amputees creating these artificial limbs also links to the ideas of some companies wanting to train up men that they had fitted with a limb in order to be able to make the limbs themselves. It was important to continue to have this sense of embodied knowledge in the design of artificial limbs, not just in terms of the understanding that came with lived experience, but also as something to gain the trust of the limbless ex-servicemen who were still to come and who would potentially be using the product.

[325] *Ibid.* p.18.

Conclusion:

'I had a lot of men with no legs…. But they were the most cheerful lot you've ever met.'[326] Working at a British Red Cross Hospital in Weybridge, both during and after the First World War, Voluntary Aid Detachment (VAD) Nurse W saw many ex-servicemen with amputated limbs passing through her wards. In her memories, these disabled ex-servicemen were cheerful and charming. But was this really the reality? This oral history is insightful to have, as the voices of those involved with the care of limbless ex-servicemen, in particular, are also often missing from the histories of the First and Second World Wars, alongside the experiences of the disabled ex-servicemen themselves. This insight from Nurse W offers us both the negative aspects of having had a limb amputated (having to be carried around, when it was a leg that had been amputated) and also some of the lighter, more creative sides:

'They couldn't put their socks on with drawing pins into an aluminium leg [laughs] … You see they used to put the socks on and then put drawing pins all around them. But the aluminium didn't take the drawing pins.'[327]

Here we are given insight into how the different materiality of the artificial limbs could easily affect the ways in which they were utilised and adapted. Wearing socks and attaching them to the wooden artificial leg with pins might pass as a humorous anecdote, but it also highlights the creativity and adaptability of these ex-servicemen.[328] Through Nurse W's voice we are afforded insight into something that might not normally be talked about in regards to the everyday life of wearing an artificial leg. This adaptability, both in terms of something as mundane as wearing socks and in terms of actually adapting an artificial limb, is an important

[326] IWM, "Margaret Goodwin Warren (Oral history)" produced 08/11/1974, reel 5, online recording, catalogue number 512, <https://www.iwm.org.uk/collections/item/object/80000508> (accessed 07/08/2023).
[327] *Ibid.*
[328] Anderson also shows that women preferred wooden artificial limbs because they were less likely to ruin their stockings. See: Anderson, "British Women, Disability and the Second World War," p.44.

theme, which will be explored in more detail in the final chapter – allowing us to see the lived experience of losing a limb and how these ex-servicemen adapted to this and the impact that it had on their everyday lives. This chapter (and thesis), up until this point, has focused more on the institutional, economic and medical aspects of the journey from losing a limb in war to being fitted with an artificial limb. This chapter has highlighted the importance of knowledge and embodied knowledge in the limb manufacturing process, and this is an important argument throughout this thesis. The above has shown that creativity was not just in the hands of limb manufacturers though. However, this could also be an argument for this initial disgruntlement towards the move from wooden limbs to metal limbs. With the wooden legs, the men would have been much more successful in keeping their socks up, and having that little semblance of normality.

This chapter has explored both the limb manufacturers and the limbs themselves. Both are naturally intertwined and you could not tell the history of one without the other. Examining both sides of the process has allowed this chapter to examine the changes and continuities on both fronts and create this bigger picture of just what was being given to these limbless ex-servicemen over the course of two world wars. This is the first work to explore the changes in limb design and limb making over the period of the two world wars, for Britain. In doing so, it creates a timeline of design for these artificial limbs.

Through exploring the manufacturers themselves, using both official documents and their trade catalogues, this chapter has been able to build an idea of just who was manufacturing limbs for these ex-servicemen in the limb fitting centres. Typically, official documents just give a list of names who were working there, with no background as to who the firms were or who

the men actually doing the jobs were. This chapter has managed to explore the idea that a number of these companies were initially set up by men who needed artificial limbs themselves. Two of the main companies – Dessouter and Carnes – were both created from the need of men to have better artificial limbs than were on the market at the time. These men brought together both the engineering and scientific aspects of designing an artificial limb, with the embodied knowledge and lived experience of needing an artificial limb. Perhaps it is unsurprising that both the Desoutter leg and the Carnes arm were two of the most popular limbs with ex-servicemen. The Ministry of Pensions had undertaken experiments with seeing how the body moved when walking naturally, or using certain tools for work. However these were all undertaken with able-bodied men and there is nothing to explicitly say that they involved limbless men in these trials also. Here, with these limbs, it is at least clear that the disabled voice was present in the manufacturing aspects. This allowed for these limbs to be designed with these new and different movements in mind. However, they would not have suited the needs of every man, as will be explored further in Chapter Four.

What this chapter has shown is that the biggest changes in artificial limb design came in the interwar period. Here, in the aftermath of the First World War, and with materials associated with the more 'modern' economy, experimentations with light metals and composite materials began to be undertaken. The 1920s saw a dramatic shift from wooden limbs to light metal limbs. Initially the State did not want to pay the expense for light metal, but it soon became apparent that it was economically sounder to have a limb that lasted longer and required fewer repairs. This created a tension between maker, the State and the ex-serviceman. Some ex-servicemen were comfortable with their original wooden limbs and did not want to change. Some ex-servicemen wanted these newer limbs and essentially lobbied the State for access to these through the limb fitting centres (where the provision of limbs was free). Limbs created

with these newer, lighter materials continued into the Second World War, where it appears that little changed in the actual designs that had been made in the previous decade.

Ultimately, this chapter has proven how important material culture is to the history of artificial limbs in the two world wars and how the materiality and physical object can offer a multitude of insights that textual documents cannot. It has highlighted the role of disabled makers in the production of artificial limbs, as well as the tensions that having so many different makers working at one time created. Overall, it has advocated for exploring the wider history of a firm such as these – both in terms of who they were and what they were producing.

## Chapter Three: Expertise and Skill in the Limb Fitting Centres: Limb Fitters and Limb Instructors

### Introduction:

The innovative feature of the limb fitting centres was that it brought together a number of different staff under the one roof – from medical staff to those involved with the artificial limbs themselves, whether that be the limb fitters, the limb instructors, or the manufacturers. In theory, having these different roles be able to intersect and work in tandem was intended to make the process from limb loss to being given an artificial limb smoother for the disabled ex-servicemen. Essentially, these limb fitting centres brought together different areas of expertise and knowledge in order to aid these limbless ex-servicemen. Previous chapters have explored the power that rich philanthropists had in the setting up and running of these limb fitting centres, as well as the expertise of the limb manufacturers in creating the artificial limbs. At each stage of the journey, there was always another figure of authority in place to both help the ex-serviceman but also to essentially tell him what was best for him and to use their knowledge to give the ex-serviceman the perceived best means to return to productive society. This chapter will focus on two underexplored, but pivotal, actors in these limb fitting centres: that of the limb fitter and that of the limb instructor.

This idea of expertise runs through this whole thesis in many different ways, depending on who holds this knowledge and skill and who has determined that this actor is the "expert" in what they are doing. Limb manufacturers had the technical skill and knowledge of the materials used in designing the limbs, but also were the authority in the so-called best limb designs of the time. In this case, their skill essentially led them to be the experts. It was these manufacturers that the committees of the limb fitting centres and the State trusted to create the most suitable artificial limbs for the returning ex-servicemen. Technical skill was very important in the design and manufacture of these limbs, however, as the chapter focussing on this has

shown, a number of these manufacturers also used embodied knowledge gained from their own need to use the same technologies that they were creating for others. It was typically these manufacturers that ex-servicemen trusted more, as can be seen with the demand for Desoutter limbs when they were first brought onto the market for ex-servicemen – essentially resulting in the State adding them to the list of official suppliers of limbs for the war wounded. However, in Scotland, the centre at Erskine trusted the skills honed by years of craftsmanship and turned to the shipbuilders for help with manufacturing artificial limbs. The idea of the expert and who holds the knowledge is one that has changed over time and is an idea that holds an ambiguity and a diversity.[329] The idea of the expert and the authority can change depending on location – both geographically, as shown with the Scotland versus England manufacturers, as well as where this "expert" is based and where this knowledge is being implemented. The shift away from coming from an elite background becomes more apparent by the time we reach the First World War – something which Gooday argues was happening in the late nineteenth century, in his study of ethnicity and authority in electricity, with institutional/organisational affiliation becoming more necessary than a higher education.[330] In the history of limbless ex-servicemen and the two world wars, this change in who could be an expert can clearly by seen, but who is given the authority and power as an expert is notable. As the section on limb instructors, in particular, will show the State gave authority to ex-servicemen who had lost limbs to train the masses of men passing through limb fitting centres. The State vetted these men and trained them, but had to rely on the embodied knowledge of these men and their skills with using artificial limbs.

War inevitably brings with it a shift in who has the skill and who is trusted to deal with a multitude of emergencies and scenarios when more manpower is needed. War also creates a

[329] Rabier, "Expertise in Historical Perspectives," p.1.
[330] Gooday, "Ethnicity, Expertise and Authority".

space where tensions between so-called experts and the everyday person can arise and can be discussed, and can potentially allow for a re-definition of status and roles. Grant discusses this in their work on the American Civil War, but it is something that is also occurring in the consequent world wars.[331] The setting up of the limb fitting centres across Britain is just one example of specialised centres that were being set up across the country to tackle and focus upon a specific war-related disease or injury. Medical wards were created to deal with orthopaedic needs; hospitals were set up to deal with men blinded by war; centres for shellshock were created around the country; and more specialism around areas such as blood transfusion, amongst many others, all resulted from the interplay between medicine, war and the State.[332] War also allowed for these specialties to be redefined and formed within these unprecedented circumstances, as shown in Howell's work on soldier's heart and how this redefined ideas around heart disease.[333] Yet it is not only these ideas of specialism within this expected medical lens that is important. As Meyer argues, concentrating on those who held actual medical qualifications, as well as those who were receiving care, only offers a partial insight into the wider histories of medical care and war.[334] For this chapter, this is where the explorations of the roles and purposes of the limb fitters and the limb instructors become a significant source of historical insight into the work undertaken in limb fitting centres in both world wars. As far as can be ascertained from the available sources, neither of these roles resulted from medical qualifications. There is little mention of limb fitters in available sources, with their role almost being taken for granted. They must have had some skill, in order to be

---

[331] S.-M. Grant, "'*Mortal* in this *Season*': Union Surgeons and the Narrative of Medical Modernisation in the American Civil War," *Social History of Medicine,* vol.27, no.4, pp.689-707.
[332] See: Cooter, *Surgery and Society in Peace and War;* Peter Leese, *Shell Shock: Traumatic Neurosis and the British Soldiers of the First World War* (Palgrave MacMillan, 2002); Andrew Bamji, *Faces from the Front: Harold Gillies, the Queen's Hospital, Sidcup and the Origins of Modern Plastic Surgery* (Helion & Company Limited, 2017); Michael Robinson, *Shell-Shocked British Army Veterans in Ireland.*
[333] Joel D. Howell, "Soldier's Heart: The Redefinition of Heart Disease and Speciality Formation in Twentieth-Century Great Britain," *Medical History,* supplement no.5, 1985, pp.34-52.
[334] Jessica Meyer, *An Equal Burden: The Men of the Royal Army Medical Corps in the First World War* (Oxford University Press, 2019).

able to fit an artificial limb to the ex-serviceman, and to fit it properly. It appears that the limb fitters were attached to the limb manufacturers themselves and worked closely with them in order to be able to undertake their roles successfully. Yet the official sources that this chapter uses essentially expect that these men would be there, undertaking their roles successfully. Without limb fitters, ex-servicemen would struggle in that first hurdle to being able to leave the limb fitting centres. Limb fitting only appears in more detail in official sources when it has gone wrong and an ex-serviceman is complaining about his artificial limb. The limb instructors have a more defined history (if we compare it to the limb fitters). These were ex-servicemen who were recruited by the State because they were adept at using their own artificial limbs and were able to show others how to master their new limbs. This embodied knowledge was being utilised by the State, for a very specific role: to teach men the basics of using their artificial limbs, in order to allow them to leave the limb fitting centre and progress to a suitable trade.[335]

As historians such as Reznick and Bourke have shown, these ideas of usefulness and masculinity were pervasive in the care provided for these ex-servicemen.[336] Reznick further argues that 'expressions of and attempts to preserve manliness within the wartime culture of caregiving had outcomes that ranged from reinforcement to destabilization of manliness.'[337] The care provided in these centres by the limb fitters and limb instructors lands somewhere in the middle of this path from reinforcement to destabilization. These men were obviously skilled at what they were doing but, typically, the role of caregiver was a very feminine one. Historians have discussed the issues between VADs and the "skilled" nurses working in military hospitals, whereas the role of male nurses or caregivers is often underlooked. Evans argues that the history of nursing is almost 'exclusively a history of women's accomplishments' despite

[335] Reznick highlights this idea of creating useful men again in his work on the Shepherd's Bush Military Hospital, and how this productivity was one of the focal points of the care and rehabilitation provided under such schemes. See: Reznick, *Healing the Nation.*
[336] Bourke, *Dismembering the Male,* p.12.
[337] Reznick, *Healing the Nation,* p.11.

the fact that men have worked in nursing roles for centuries.[338] The 'pervasiveness of gender stereotypes' might be one reason why so little information exists with regards to the men working as limb fitters and instructors.[339] However, the space of the limb fitting centre and the changing dynamics of the role of the ex-servicemen in the care process changed gender dynamics. The intention was to return them to being the main breadwinners in the family, but in some cases that meant undertaking roles of care, such as limb instruction, in spaces that were typically perceived as "feminine."

This chapter will focus on this stage of the limb fitting process onwards. Using the roles of the limb fitter and the limb instructor, it will explore this often under-researched aspect of the work undertaken at the limb fitting centres. These roles will be explored to achieve insight into the skills and knowledge required for them, as well as explaining why they were pivotal for the experience of the ex-serviceman. The documents used in this chapter are official and government sources. There are no insights from limb fitters or limb instructors themselves, instead we see what the State thought these roles should look like and what they expected the outcomes to be. The expertise here is very different from the medical expertise that came with amputation and care of the stump. Instead, these are skilled roles in a different way, with no medical qualifications necessarily attached to them. This could be one explanation for why there is so little information about the roles of the limb fitters and who they were. There is more on the roles of limb instructors only because the State set this scheme up later in the war after realisation that it was economically unsound to allow men to leave the limb fitting centres without some form of training, especially as many were deciding to not use their limbs (in particular, artificial arms). Instructors were employed from a pool of ex-servicemen who had already passed through the limb fitting centres and could use their artificial limbs well, but they

[338] Joan Evans, "Men Nurses: A Historical and Feminist Perspective," *Journal of Advanced Nursing,* 47 (3) 2004, pp.321-328, (p.321).
[339] Evans, "Men Nurses," p.325.

were heavily vetted by the State and those in control of the centres.

Medical Expertise:

That is not to say that medical expertise did not have a role to play in this history. The initial trauma that all limbless ex-servicemen went through in some form was that of amputation. Often hurriedly undertaken near the front lines, medical staff played a huge role in dealing with these amputation sites once a man was returned home to Britain. Many of these ex-servicemen had to undergo amputations once back home due to wounds becoming infected and other complications arising from disease and injury. Even undergoing this initial amputation did not necessarily signal the end of the surgical interventions for these men. Hastily undertaken amputation at the front, in particular, usually required more medical care and surgical intervention in hospitals across Britain. Skin flaps had to be the perfect length for creating a healthy stump, and bones and nerves might also have to be further operated on. Alongside this was the constant risk of infection, which could cause more complications in itself. Re-amputation was not uncommon. All of this was in order to create the perfect stump for an artificial limb to be attached to later in the ex-serviceman's journey. Julie Anderson argues this was all necessary for these men to achieve 'the best possible outcome in their new role as amputee.'[340] Anderson's article highlights how these men could be hospitalised for lengthy periods of time, in particular due to the fact that it could take a long time for the healing of the stump to be satisfactory – both in terms of the stump that was formed but also satisfactory in terms of how the medical professionals viewed the success of the operation.[341] Complications from such operations could also arise and this would result in more time spent in hospital settings, whether that be because of infection or because another operation needed

[340] Anderson, "Jumpy Stump," p.11.
[341] *Ibid.* p.12.

to be performed. Many of these ex-servicemen would spend time in military hospitals, before being transferred to the limb fitting centres. This was a result of the lack of space in the limb fitting centres.[342] Once at the limb fitting centres, however, these ex-servicemen would, once again, spend more time on hospitals wards, depending on how long the limb fitting process took. This need for medical intervention, and re-intervention, is one of the reasons why the overall limb fitting and rehabilitation process was such a lengthy one. The disabled ex-serviceman could not simply just be given an artificial limb and be sent on his way. A major ethos of the limb fitting centres was that these ex-servicemen would also be trained in how to use their new artificial limbs. Limb instructors were employed for this very reason and will be discussed later in this chapter.

Anderson talks more about changes in relationships, both medically and corporeally, in her article *Jumpy Stump,* as well as elaborating further on the important work of amputation, and healing, that had to take place in hospitals.[343] This article argues against the separating of physical injury and mental trauma, something which historians of this conflict tend to treat as separate entities. Anderson argues that amputation and disability is a traumatic and emotional experience, and something which orthopaedic surgeons at the time understood and recognised. It is the 'stump as a site of anxiety' that is explored throughout the paper, and this gives an important insight into the stages before the fitting and wearing of an artificial limb.[344] Amputations often occurred in a hurry by surgeons near the Front, and often had to be re-operated on once in England, to make sure that the site would later be suitable for use with a prosthesis. The period after amputation was a lengthy one, where the soldier had to wait months for the stump to shrink and harden and heal properly. Anderson argues that these men

[342] You can read more about this in Chapter One of the thesis, which explores the limb fitting centres themselves. A need for more space was a constant in the running and managing of them.
[343] Anderson, "Jumpy Stump".
[344] *Ibid,* p.11.

were not just physically vulnerable, but their bodies became sites of great interest and underwent scrutiny which afforded them no sense of privacy.[345] Doctors and limb fitters were there throughout the healing, the fitting and the training, and the point is raised about the humiliation of photos taken of men wearing their new artificial legs, usually standing without trousers on. This lack of privacy as well as the loss of a limb must have made for an overwhelming situation. In her study of photographers Cundall and Howlett in the Crimean War, Bates highlights how these portraits of wounded men blurred lines 'between intrusiveness and intimacy,' and how the expressions on the men's faces highlight both suffering and trauma, as well as the progress of surgery.[346] The use of an artificial limb in one photo is meant to portray 'narratives of healing and hope' but conversely highlight an unwillingness to be shown-off in this manner.[347] Bartlett highlights that many of the photos taken in the Poppy Factory are at such an angle as to hide the artificial limb, and add to this narrative of usefulness and rehabilitation in the aftermath of conflict, as well as literally hiding the effects of war.[348] Linking to these ideas of privacy and intimacy, Ketley argues that the care provided (especially with regards to limb fitting, in the case of this thesis) 'fosters a level of intimacy between the two individuals, but it is a closeness formed upon a professional relationship and an unequal dynamic.'[349] Carden-Coyne furthers this arguing that hospital spaces were places where 'strong emotional bonds were formed' but many were 'intense' and 'temporary' forged through the nature of care provided and a camaraderie over the shared experience of injury.[350] In accounts of time spent in the limb fitting centres, the ex-servicemen typically never mention the other men they were there with, despite arguments and evidence

[345] *Ibid,* p.12.
[346] Rachel Bates, "Exposing Wounds: Joseph Cundall and Robert Howlett's Royal Assignment," *Critical Military Studies,* 6:2 (2020) pp.118-139 (p.137), doi.org/10.1080/23337486.2019.1631727.
[347] *Ibid.* p.126.
[348] Bartlett, "Reassembling Disabled Identities*,"* p.14.
[349] Ketley, *Homes of Healing,* p.214.
[350] Ana Carden-Coyne, *The Politics of Wounds: Military Patients and Medical Power in the First World War* (Oxford University Press, 2014) p.191.

in secondary literature to support ideas of emotional bonding between "patients" themselves and between "patients" and male orderlies.[351] This chapter shows that these men worked together closely, and often intimately depending on where the stump was situated, but little is mentioned of this in the sources I uncovered for this research. However, examining these fitters and instructors does allow for these roles to have more of a place in the history of the limb fitting centres and adds to the usual narratives of female-centred care being provided in the war hospital.

Medical professionals understood the complications and risks that could come with an ill-prepared stump, especially that it would eventually be unsuitable for the use of an artificial limb. These difficulties were not just in terms of the actual wearing of the artificial limb in itself, but also the extra pressure and rubbing from the limb socket could cause medical issues with the stump and, overall, for the ex-serviceman in question. As Anderson argues, for the doctor, a healed stump was 'a successful outcome in a medical procedure, and a man returned to civilian life, able to take part in economic and social activities.'[352] Again, this theme of economic viability is prevalent even at this initial stage of the treatment process. A healed stump equated success because it meant that an artificial limb should be able to be fitted to the man in question, which would further set him on his path back to civilian life and society. Even after being fitted with an artificial limb, proper stump care was of the highest importance. This was something that was taught to these men whilst they were in the hospital setting, and was something they would have to continue to practice even after leaving the wards. Caring for the stump properly was a legacy from this initial medical and surgical care, and further highlights

[351] Carden-Coyne, *The Politics of Wounds,* p.251.
[352] Anderson, "Jumpy Stump," p.13.

the importance of the medical professional in this journey. However, it also afforded the ex-servicemen some autonomy over their own care. They were taught how to look after their stumps, but they had to continue to undertake the process and look after themselves. A stump that was not properly looked after could cause a number of problems.

In his recollections of his injuries during the Second World War, Private C talks a lot about his experiences with amputation and re-amputation.[353] Upon returning to Britain, he had to undergo re-amputation on his arm and said that his stump looked 'like a log of wood.'[354] Private C was then sent to be fitted with an artificial limb. However, upon arrival at the centre, the doctor there informed him that 'If you want to have a first-class arm on that stump, you need to have a re-amp.'[355] Here, the advice of the medical professional is clearly shown, but it is something that Private C initially rebelled against. He did not want to spend the time in hospital that would come with another surgical procedure, but eventually agreed to having it done if the surgeon could undertake the operation as soon as possible.[356] After the healing had been completed, Private C returned once more to have an artificial arm fitted. However, upon having an artificial arm attached to his stump it was quickly realised that there was a problem. Private C reminisced that: 'In no way could I wear this artificial arm, because the bucket was pressing on the nerve.'[357] At this point, Private C was adamant that he would just not use an artificial arm and that he did not want to have to undergo any further operations in order to be able to do so. Notably, or at least how Private C remembers it, the doctor agreed that no more surgery would be necessary and that he would have a talk with the limb fitters to make sure a suitable arm was provided for Private C. This somewhat goes against the idea that doctors

[353] IWM, "Raymond Caswell (Oral History)" produced 1997, reel 3, online recording, catalogue number 17285, <https://www.iwm.org.uk/collections/item/object/80016823> (accessed 07/08/2023).
[354] *Ibid.*
[355] *Ibid.*
[356] Private C and the sense of time are explored further in Chapter Four.
[357] IWM, "Raymond Caswell," reel 3, online recording, catalogue number 17285, <https://www.iwm.org.uk/collections/item/object/80016823> (accessed 07/08/2023).

were striving for the perfect stump to be created. However, we still see the “experts” being the ones who are having the conversations about what is best for Private C. He believed that he would have been fine without an artificial arm, yet the doctor argued that they would be able to find an arm that would suit him. The provision of artificial limbs for disabled ex-servicemen seems to have been the priority and what these spaces were told to provide for these men. Private C only had some autonomy in being able to say that his stump was too painful for the initial limb that was offered to him, but that does not stop the medical professionals from insisting that a limb will be found for him.

The doctors and surgeons played this pivotal role when it came to the actual amputation and other subsequent operations. However, they also held the power over when a man could be officially sent for the fitting of a limb. If the stump had not healed properly, or if further complications arose, these professionals could delay the next step. Naturally, it was of the utmost use to have medical staff around to deal with any complications arising from the site of amputation, whether more immediately or further down the line. This can be seen in parallel with the importance of having proper fitters and instructors on hand, which the rest of the chapter will delve into. Having staff on site to deal with problems as they arose was one of the benefits of these limb fitting centres – hopefully allowing for any issues to be solved as quickly as possible, and without too much inconvenience to any of the men involved. Once a stump was deemed to be sufficiently healed, and hardened, however, the ex-serviceman could move on to the next stage in the rehabilitation process: being fitted for an artificial limb.

Limb Fitters:

The fitting of an artificial limb was essentially the whole purpose of these limb fitting centres. To have these spaces where ex-servicemen could go and be given the proper attention required to find a properly fitting limb, and one that would be of most use and comfort to them, was paramount. Speaking during the First World War, the artificial limb maker Rowley believed that 'the limbs are made under the men.'[358] The idea was that each man would leave the limb fitting centre with a limb that was perfect for him and that would have been crafted to his needs and proportions. This is where both the skills of the fitters and the manufacturers were of the utmost importance. As well as ensuring that the ex-serviceman received the best fit of limb, these limb fitters also had some knowledge of, and expertise in, the types of limbs on offer in these limb fitting centres.[359] Discussions on expertise with regards to artificial limbs will become even more important in the section on limb instructors, but the fitters worked in tandem with the instructors (once they were employed) to ensure that the most suitable limb was provided for each man – or to at least offer up their advice on what would be the most appropriate limb.

The work of these limb fitters is almost taken for granted in the histories of the limb fitting centres. We know that they were there and that they were undertaking this very important job, but they are rarely named and little detail about what their roles actually involved appears to be available. Limb fitters were clearly a pivotal cog in the machine that was getting these limbless ex-servicemen integrated back into society. Research discussed in this chapter shows that the fitters worked closely with all of the main actors – the medical staff, limb manufacturers and limb instructors, as well as the ex-servicemen themselves. A well-fitting

[358] TLA, News Cuttings No.1, *Evening News*, September 1915, H02/QM/Y/01/001.
[359] TNA, Conference of limb fitting surgeons, PIN 38/404.

limb was something that was necessary to allow an ex-serviceman to actually use his new limb and, perhaps just as importantly, to want to use it. These fitters had to ensure this good fit, and make sure that the necessary measurements of the remaining stump were captured so that the limb maker could create the correct limb. A certain expertise was necessary in order to be able to undertake this job. It sounds almost easy – just measuring and fitting – but these measurements needed to be precise in order for an ex-serviceman to find the artificial limb he was given to be worthwhile. If a limb did not fit properly, then there would be no point in the ex-serviceman moving on to the next step in the rehabilitation journey and actually learning to use the artificial limb given. This proper fitting was essentially 'make or break' for the limbless ex-serviceman. Talking in a more modern context, Kurzman shows through his own experience as an artificial limb user that 'the process of fitting and dynamically aligning a prosthesis is integral to making and using one.'[360] Virdi also explores this idea of a 'good fit' and comfort in her work on artificial eardrums.[361] Kurzman shows that collaboration between the prosthetist and the user is paramount in being fitted with a suitable limb.[362] Communication between the two was very important in achieving this, however Kurzman highlights that sometimes the feeling of 'wrongness' in an artificial limb can be difficult to communicate to the fitter and this can lead to problems and a breakdown of relationships between the two.[363]

Although a more modern example than the focus of this thesis, Kurzman's work gives a broader insight into some of the skills that limb fitters would have had to possess. Clearly, good communication was pivotal – from both sides. A limb fitter would have needed to be able to communicate effectively and be able to explain to the ex-serviceman what he was doing and

---

[360] Steven Kurzman, "There's No Language for This: Communication and Alignment in Contemporary Prosthetics," Katherine Ott, David Serlin, and Stephen Mihm (eds.) *Artificial Parts, Artificial Lives: Modern Histories of Prosthetics* (New York University Press, 2002) pp.227-248, (p.228).
[361] Jaipreet Virdi, "Between Cure and Prosthesis: 'Good Fit' in Artificial Eardrums," Claire Jones (ed.) *Rethinking Modern Prostheses in Anglo-American Commodity Cultures, 1820-1939* (Manchester University Press, 2017) pp.48-69.
[362] Kurzman, "There's no Language for This" pp.230-233.
[363] *Ibid.* p.233.

also needed to be able to ask the correct questions to ascertain if the correct fit had been achieved. Linked to this, a fitter would also need to be able to listen to what an ex-serviceman was saying. Kurzman shows that communicating the feel of an artificial limb is not always a simple task and that there is 'no language for this…'[364] A modern day prosthetist would also normally go through a patient examination with the user in order to ascertain basic facts such as age, height, weight, general health, fitness levels, as well as checking the stump. A prosthetist has to get to know the body they are working with.[365] I do not think it is too much of a stretch to presume that a limb fitter in the world wars was undertaking a similar sort of role. Conversations between the fitter, the ex-serviceman and the instructor would occur in the space of the limb fitting centres. The medical staff would have approved the stump for the fitting of a limb, but the fitter would still need an idea of what the ex-serviceman could bear.

Relating to this is one account of an ex-serviceman who was being treated at Roehampton during the First World War, which concerns the fitting of artificial leg and how he found the whole process. After a few weeks of trying to wear the leg, the man in question had to be seen by the Officer in charge as complaints of a pain in the back of his stump each time he attempted to keep the limb on were becoming common.[366] This discomfort whilst wearing the limb appears to have been a common occurrence for Private B and affected his relationship with using the leg. Later in his account of his time at Roehampton, Private B is once again complaining of pain in his stump. At this point, the medical officer believed that he was lying and that Private B was not actually making any attempt to wear the leg and acclimatise to it - therefore, as a result of this medical 'expertise' Private B continued to wear the leg, until his

[364] *Ibid.* p.229.
[365] *Ibid.* p.234.
[366] IWM, Private Papers of JF Bunn, p.62, JFB09/27/1.

stump became so inflamed that he could no longer even attach the leg to his stump.[367] This account suggests some of the issues that could arise in this initial stage of being given a new limb, especially with regard to the proper fitting of a limb, and waiting for the stump to be properly healed. The experience with how wearing an ill-fitting artificial leg was affecting the stump of the ex-serviceman in question does offer insight into the more difficult side of this initial point in the rehabilitation journey. Carden-Coyne talks of 'wounded men feeling disempowered, obliged to accept certain treatments, and [feeling] without personal authority over their own bodies.'[368] Wearing and using an artificial limb was something that these men were having to adapt to, in every sense of the word, and ill-formed stumps, or even sensitive stumps, were part of this challenge. Even today with much more advanced artificial limbs, comfort in wearing an artificial leg (in particular) for long periods of time is still an issue.[369] There is also the issue of pressure being placed on this wounded area and causing a multitude of problems, like the ex-serviceman in the anecdote above was experiencing. Once again, this highlights the importance of these limb fitting centres being spaces where various staff could work together – from medical staff to limb fitters – to try and resolve some of these issues, or at least lessen their impact.

Another important aspect of the fitting of a limb was knowing the activity and fitness levels of a man and what he hoped to be able to do with his new limb once it had been fitted. Some of this work would overlap with what limb instructors were expected to undertake, but it was a conversation that needed to occur between all actors within the limb fitting centre. Initially, for leg amputations, all ex-servicemen were given a pylon leg with which to practice getting used

[367] *Ibid.* p.63.
[368] Carden-Coyne, *The Politics of Wounds,* p.275.
[369] Harry Parker discusses this in his recent book: *Hybrid Humans: Dispatches from the Frontiers of Man and Machine* (Wellcome Collection, 2022).

to an artificial leg. Once they had progressed enough with this, they were given a more articulated leg which would be better suited to their perceived needs. Here, the limb fitter would play a role again in adjusting and fitting this new limb for the ex-serviceman. The image below appeared in a large, bound photobook sent out by the limb fitting centre at Erskine to show the work being undertaken there. It was meant as a promotional keepsake, essentially, but it is one of the few places where a limb fitter is actually depicted. Here the pylon leg is on the bed behind the ex-serviceman and the fitter, and it is clear that a more articulated leg is being fitted to the ex-serviceman. Despite taking place next to a row of beds, this is a very personal and arguably private undertaking. For the limb to be fitted, the ex-serviceman had to be in some sort of undress, which raises crucial questions regarding the Second World War and who was fitting limbs for women.[370] However, once again, the official sources that exist do not discuss this in any great detail.

[370] This is a question that the answer has been difficult to ascertain. Plans and descriptions of an expanding Roehampton in the Second World War indicate that space was created for the privacy of women in this scenario. However, it is never discussed in more detail beyond that.


**Figure 1.8. Artificial Limb Being Adjusted by Limb Fitter, at the limb fitting centre at Erskine**

Artificial legs were one area where the line between fitter and instructor blurred somewhat. Therefore, I will use it as a bridging example between the two roles. Instruction in the use of artificial legs came alongside the proper fitting of the limb. The leg could not be passed as fit for use until the ex-serviceman could demonstrate that he was capable of walking with some semblance of normalcy when using it. Every hospital and centre that dealt with the fitting of artificial legs had an exercise room or a gallery for this purpose and ex-servicemen would have to train in, and adapt to, this new way of walking. At the limb fitting centre in Cardiff, a golf course, complete with bunkers, bridges, and stiles, was erected for use by the ex-servicemen

being treated there. The idea behind the construction of such a course was to allow the men to be able to practice using their new artificial limbs, especially over a more difficult terrain than that which the hospital gym would allow for.[371] Once again, practicing these movements in the same space as the limb fitters and surgeons allowed for any adjustments and repairs to be made on site. This also afforded the opportunity for medical staff to observe if the stump was sufficient for the wearing of the artificial leg, and to see if the limb had been correctly measured for the ex-serviceman in question. Exercising also had the extra benefit of allowing these men to get up and about and not just be stuck sedentary in hospital beds all day, and would naturally have added to fitness levels. Allowing for more engaging activities, like the golf course at the limb fitting centre in Cardiff, meant ex-servicemen could practice walking under the guise of this distraction – staff also hoped that it would feel like less of a chore for the ex-servicemen if they were doing something fun whilst also adjusting to their new legs. The different terrains of the course would also allow for a more natural feeling to the whole exercise, as walking around in real life was not likely to just be all flat surfaces like in the exercise rooms and halls of the limb fitting centres.

The training in the use of artificial legs does not have as much primary source evidence attached to it as the training of artificial arms does – perhaps because of the nature of the training being a more immediate and necessary occurrence at the limb fitting centres. Insight into leg instruction is most often found when complaints are made about the provision of it. A file held at The National Archives deals solely with complaints relating to leg training and the amount of time offered for it.[372] This slew of complaints resulted in Charles Kenderdine having to write to every limb fitting centre and hospital asking that 'every care may be taken to see

[371] Anderson, *War, Disability and Rehabilitation in Britain,* p.57.
[372] TNA, Complaints of defective instruction in the use of artificial legs at limb fitting centres, PIN 38/476.

that men are properly instructed in the use of their artificial limbs before discharge.'[373] This came after a series of complaints from late-1919 and early-1920. In one letter, an ex-serviceman complained that he did not believe that the ten days allocated to him for fitting, adjusting and training were anywhere near enough, as most of that time was taken up in the adjustment phase of this plan, and not enough time was given over to the actual training.[374] His complaints centred around the fact that him and his fellow ex-servicemen were only on parade for an hour or two per day and that he was discharged without the option to undertake any further training.[375] When he was leaving the hospital, he had to have the aid of a nurse to walk over to the car that would take him home which resulted in him stating that he believed 'a longer time of training in walking should be given to the men before attempting to cross streets from Hospital to their homes.'[376] These complaints are valid, but the most notable part is the insight it offers to the period of time that the fitter could spend working on the one ex-serviceman. The adjustment phase is something that the fitter would have been closely involved with and he would work with the ex-serviceman to get that right fit for the artificial limb.

Although leg instruction was part of the care provided immediately at the limb fitting centres, and was something that an ex-serviceman could not leave the centres without, this is where the most complaints seem to arise. There seems to be less immediate worry about the lack of proper arm instruction from the ex-servicemen themselves, but that could be because this was never originally offered and ex-servicemen could not complain about the quality of something they never received. In comparison to this, it is those in charge of the limb fitting centres and

[373] *Ibid.*
[374] *Ibid.*
[375] *Ibid.*
[376] *Ibid.*

the State who are worried about the lack of arm instruction, whereas with legs the complaints appear more likely to come from the men themselves.

Leg instruction appears to become a slightly different entity in the Second World War. As with the First World War, it was very much something that was given alongside the actual fitting of the limb, and very few specialised Instructors were hired separately for that role as a result. However, in the Second World War, there were far larger numbers of Leg Instructors employed. Perhaps this was a lesson learnt from the complaints of the previous war. As with all instruction, the purpose of these Leg Instructors was to make sure that the ex-servicemen could walk proficiently with their new limb. They were also able to pass on small, but very useful, pieces of information. Here the boundary between fitter and instruction blurs somewhat as much of what is described in the following example is something that typically would have been the role of the fitter. An ex-serviceman was complaining that his artificial leg was shorter than his natural leg.[377] However, the Instructor was able to explain that artificial legs were ¾ of an inch shorter in order to alleviate the potential for the leg to drag when using it. If this was in fact an Instructor who passed on this knowledge, then having a figure of authority who also used an artificial limb made this knowledge more real to those who were receiving it, and almost acted in a way to make them actually believe what they were being told. However, this knowledge was predominantly something which a limb fitter would impart and it would be his role to have these conversations with the ex-servicemen and use his knowledge and skill to deal with the problem. I suspect that in some cases the terms fitter and instructor have been used interchangeably in the sources, especially where the lines between the roles were somewhat blurred (as is the case with artificial legs). This could also indicate

[377] TNA, Appointment of Instructors, PIN 38/473.

that the ex-servicemen themselves were not fully aware of the different roles at this stage of the limb fitting process and offers another view into how these 'experts' were perceived by those who were receiving the help from them.

Limb Instructors:

The need for instructors for artificial limbs became very clear as the First World War continued. Arm Instructors, in particular, were the priority when discussions were being had between the limb fitting centres, the Ministry of Pensions, and the Treasury. These discussions really took hold in September 1918, when the Ulster Volunteer Force Hospital and the Duke of Connaught's Hospital urgently requested an Arm Instructor to work at their institutions. From then, discussions with the Treasury evolved into a need for there to be Instructors at all limb fitting centres in order to 'encourage and train men in the use of their artificial arms,' in particular.[378] The original plan was to not just have these Instructors at the main limb fitting centres, but also to have them based in the smaller hospitals and wards that were also aiding these ex-servicemen. With that in mind, Charles Kenderdine went to the Treasury with a proposal for the appointment of twelve limb Instructors. He knew that this proposal was unlikely to be accepted, and was knowingly asking for more men than were potentially needed. Kenderdine's plan here was to fully make the State aware of the need for these Instructors and, as a result, hopefully manage to fill some of the vacancies for these positions.

The instructors at the limb fitting centres were to be chosen by Kenderdine himself and were to be directly paid and employed by the Ministry of Pensions. Like with much to do with the limb fitting centres, there was a lot of discussion and time taken around the organisation of these

[378] TNA, Appointment of Instructors, PIN 38/470.

instructors and in January 1919 Kenderdine was still emphasising 'the necessity for immediate action' in appointing the required men.[379] At this time, it was estimated that 3000 men still needed to be fitted with their artificial arms; with 10,000 having already been fitted but having received practically no instruction in how to use them.[380] Fears around whether or not these ex-servicemen would actually take up the offered training are obvious in official documents, hence the desperate need to catch those men who had yet to go through the limb fitting process. It was believed by the State that if the proper instructors were provided then these disabled ex-servicemen would be accepting of the training, and it was hoped that men who had previously been fitted with an artificial limb would return to undertake actual training in their use.[381] One month later, in February 1919, the Treasury finally agreed to the appointment of instructors at the limb fitting centres.[382] Local War Pensions Committees were instructed to let ex-servicemen know about the newly existing facilities for limb instruction, for those who had already been fitted with a limb and who might consider returning to a centre for this training. Again, here, we see the number of different players that had to be involved in these processes in order for them to come to fruition and actually be potentially useful to the ex-servicemen.

These Instructors were to be men who had lost limbs themselves. Ideally, they would have only lost one limb and would be proficient in the use of their own artificial limbs, in order to be able to show other ex-servicemen what could be done with their own, new limbs. The lament from those trying to organise the scheme was that 'suitable men were hard to find' and even with funds allocated for these positions, finding the correct instructor was not a swift task.[383] The

[379] *Ibid.*
[380] *Ibid.*
[381] *Ibid.*
[382] *Ibid.*
[383] *Ibid.*

Instructors themselves were hired on a full-time basis, and came under the control of the Officers in charge of the limb fitting centres they were based in. It was these Officers who allocated their duties to them. Captain Maxwell, who himself was a one-armed ex-serviceman, was the Chief Arm Instructor for the Ministry of Pensions, and was essentially in charge of the instructors employed by the various limb fitting centres overall. He initially started out at Charterhouse Hospital, but eventually moved to Roehampton to help oversee the training there. Kenderdine was adamant that 'we must have men well paid and of good standing, possibly discharged officers.'[384] His fear was that if the instructors chosen were not well remunerated for their work, they might work together with the limb makers and 'lead us into gross extravagance.'[385] Again, this links to the idea of the economic waste perceived by the State from the lack of proper training in artificial arms, in particular, but also suggests that the 'wrong' man might be willing to give out unnecessary artificial limbs or attachments for those with artificial arms. The instructors also had to undergo training for their new roles – something which was undertaken at Roehampton.

In the first report from the Arm Instruction School at Roehampton, from May 1919, an indication of what actually took place at these so-called 'schools' is given.[386] Written by the Chief Arm Instructor it offers insight into the system that he set up at Roehampton, which was a model for what happened at other limb fitting centres across the country. One of the big appeals for this training was that men were now able to see different types of artificial arms in use before they were fitted with their own and could view what arm might appeal to the work they hoped to undertake upon leaving the limb fitting centre. They were now afforded the opportunity to learn from, and make a choice aided by, the lived experience of other ex-

[384] *Ibid.*
[385] *Ibid.*
[386] TNA, Appointment of Instructors, PIN 38/471.

servicemen, and the limb instructors themselves, in these institutions, instead of previously just being fitted with a new limb and being sent on their way. Here, this lived experience was paired with the expertise of those fitting the limbs and caring for the stump to afford a more well-rounded idea of what life with an artificial limb might be like.

Upon entering Roehampton, the limbless ex-serviceman was sent to the Chief Arm Instructor, who would show him around the training school and explain the various types of arms available. This tour also allowed the ex-serviceman to ask any questions he might have about the process and about the various, different arms that he could choose from. It also allowed the instructor to question the man about the line of work he hoped to pursue and the instructor could then suggest what he thought was the most suitable arm for the man in question – again bearing in mind the importance of the stump length, as well as the occupation. After all this immediate conversation had taken place, the ex-serviceman had a consultation with the surgeon, in order to examine his stump and make sure that it was suitable for an artificial arm to be attached to it. At this point the surgeon would make sure that the visit to the school had actually taken place and that the ex-serviceman had had the opportunity to look at the limbs on offer. Once all of this had been undertaken, the Instructor, the surgeon and the ex-serviceman himself would decide together what they thought was the best arm for the man. The biggest advantage to all of this was that the man in question now had some choice in the arm that he would be using from then on. This choice was also backed up by the expertise of those who were involved from the limb fitting centre side of things - therefore not allowing the ex-serviceman to make a wildly inappropriate choice of arm for himself and his future plans. This process would be undertaken once more when the ex-serviceman returned for a second or duplicate limb. By the time of renewal, many of the artificial limbs previously used had become obsolete, so it was important that information

about these newer limbs could be provided. Again, this is where expert knowledge of the latest technology was of great importance.

It was agreed by the State and those working at the limb fitting centres that the primary function of these Arm Instruction Schools was to be:
(a) to secure for the disabled man the most useful type of arm possible, and
(b) to make him proficient in the use of it[387]

Those involved with the setting up and running of these training programmes went to great lengths to make sure that the work undertaken there was 'functional and not vocational.'[388] Essentially, the instructor's job was to give training in using artificial limbs that would mimic as close as possible the normal function of what could have been done with the natural limb before amputation. An ex-serviceman being able to go about everyday life was the main goal of the State for instructors and 'proficiency in the use of the Artificial Arm is primary.'[389] Some elementary training was given in certain tasks, but vocational workshops were set up elsewhere on site at the limb fitting centres to train men for a return to the world of work. Basic training was given in wood work, carpentry, engineering, metal work, agricultural work, gardening, and clerical work. However, the purpose of this was to get a man used to different movements that his artificial arm might have to make and the pressure that it might have to undergo when using certain tools. It was the opinion of those working there that an ex-serviceman should not be allowed to sign for his limb until he had actually been afforded the opportunity of testing it out, which was what this training was pivotal for. It was easier, and

[387] *Ibid.*
[388] *Ibid.*
[389] *Ibid.*

cheaper, to repair or replace an unsatisfactory limb when the ex-servicemen were still at this stage of their journey and were still on site at the limb fitting centre.

Linked to the economic side of supplying these artificial arms was the new rule that the only appliances now being supplied with an arm were a hook, a knife, and a nail brush.[390] If another appliance was required by an ex-serviceman, he had to prove his need for it and had to have undertaken adequate training in the use of it. This then had to be signed off by the staff at the limb fitting centre to show that all protocols had been followed and adhered to. These new rules came into place after many men had not received any training in the use of their artificial arms and therefore either were not using them effectively (and therefore were not using the extra appliances given with them) or were choosing not to use them at all. It was this perceived economic wastage that really set the impetus for the State demanding this proper training and proper advice being given to the ex-servicemen who had lost arms in the war.

Equipment and tools were adapted to try and aid these men in this vocational side of their training, especially for those who required the use of artificial arms. In 1918, the Science Museum in London undertook some observations regarding how the body is utilised when using certain tools.[391] This expert from the Science Museum visited the centre at Roehampton in order to inspect the methods for fitting artificial arms and to see how ex-servicemen were being trained in these more vocational pursuits. Many of these basic tools were requested by the Arm Instruction Schools when they were setting up their premises initially – e.g. vices, mallets, saws, chisels, and screwdrivers.[392] Therefore, despite the fact that the training initially

[390] *Ibid.*
[391] TNA, Investigations by Artificial Limbs Section, M.I.D., into arms and hands movements while using hand-tools, MUN 7/331.
[392] TNA, Appointment of Instructors, PIN 38/471.

supplied by Arm Instructors was not vocational in purpose, it was setting these ex-servicemen up to be able to continue on at the training workshops on site at the limb fitting centres.

If men wished to actually learn a trade in full, they would have to undertake different training provided by workshops set up specifically for this purpose. This initial trial with tools was about exacting movement and generally giving the ex-servicemen a chance to adjust to their new limbs. However, with these schools not appearing until 1919, many men had passed through the doors of limb fitting centres without any of this help and had been sent out to society again not being able to make the most of their limbs. The economic repercussions of more repairs from improper use, and men just not actually using their artificial arms, resulted in this need for actual training finally being realised.

Some limb Instructors did continue to undertake work into the 1920s. In particular, instructors were immensely important in the case of ex-servicemen who were returning to receive a duplicate, or second, limb. By the time of renewal, many of the artificial limbs originally supplied were obsolete and therefore instruction needed to be given, and information provided, by these trained men, to allow the ex-servicemen to get used to these newer limbs. All men admitted to the limb fitting centre would see a limb instructor in the first instance, providing the argument that they were 'a most useful asset both to the Surgeons and the pensioner.'[393] With these arguments in mind, it seemed impossible to do away with the instructors, or even further reduce their numbers than had already occurred. The majority of these remaining instructors were for arm cases, by the 1920s. However, arguments were made for the importance of having at least one fully trained Leg Instructor still in position. In general,

[393] *Ibid.*

a man would not have been allowed to leave a limb fitting centre if he could not effectively walk on his artificial leg. This learning to walk was something that was more closely linked to the actual fitting of the limb itself and was something that men were forced to practice before they were discharged. In general, the functions performed by legs are infinitely less varied than those performed by arms, which is why there was such a strong focus on Arm Instruction.

The duties of the Arm Instructors, and therefore what the ex-servicemen could expect to receive, were reconsidered in 1921 – coinciding with the Treasury trying to reduce the number of Instructors remaining. Many of these responsibilities were what had previously been undertaken, but they were now expanded on to make sure that everyone fully understood the role, and could maximise it to its potential. These responsibilities were:

(a) To demonstrate the practical utility of Artificial Arms and Appliances to all pensioners, before a choice is made.

(b) To recommend the type of Arm and Appliance most useful to the pensioner from the point of view of his occupation.

(c) To inspect all new arms and appliances from the practical point of view, submitting each to a series of practical tests at some form of manual labour in the presence of the pensioner, before he signs for them, that they are satisfactory.

(d) To give whatever instruction is necessary in the use of new arms and appliances.

(e) To recommend all repairs and renewals. And to prevent arms and appliances from being condemned as useless, which may be repaired or renewed at a reasonable cost.

(f) To exercise a rigid control over the issuing of all arm appliances for manual labour.[394]

With many ex-servicemen requiring initial training, or renewal of artificial limbs, these Instructors were just as important at this stage as they had been a few years previous. There were over 20 different arms and around 100 different appliances that could be offered to an ex-serviceman by this time.[395] The instructor was the only real authority in the employment of the Ministry who had a vast knowledge of all these different options and without his advice, it was feared that wholly unsuitable types of arms and appliances could be issued. Not just from the point of view of the negative impact this could have on the ex-serviceman, there was once again a fear of the money that could be wasted in such an undertaking. Many of these newer arms and appliances were deemed to be much more complicated, also, and if the ex-serviceman was to get the most out of them, then instruction was sorely needed for this. Arm Instructors were also afforded the opportunity to test out new arms and appliances themselves and give their opinions on whether or not they should be accepted for general use by the Ministry of Pensions – one of the few times that discussion between user and maker is ever properly mentioned in documentation. Therefore, it was still necessary to keep the Arm Instructors in position, for everyone involved in this process. It boiled down to two main principles by this point: who better to encourage these ex-servicemen to undertake training than someone who had lost an arm himself; and what made the most economical sense both in the provision of limbs and appliances, and in how likely the man in possession of them was to utilise them properly. Here it becomes apparent just how important these instructor roles were, but also how much power was afforded to these men. The fact that these instructors were able to influence what the Ministry of Pensions supplied to the wider ex-serviceman

[394] TNA, Appointment of Instructors, PIN 38/472.
[395] *Ibid.*

community shows the trust that was placed in them. These men had been taken from the pool of disabled ex-servicemen and this is one of the rare, obvious, cases where we can see a very small number of these ex-servicemen having their opinions and needs valued and considered. This embodied knowledge that they had was important and useful to the State and afforded the instructors this sense of being experts (for as long as the State needed them).

All the same, provision of Limb Instructors was essentially done away with in 1922. From September 1922, the two remaining Assistant Instructors were relieved of their duties, with the final Leg Instructor having gone in 1921. The Ministry of Pensions managed to retain Captain Maxwell as, without him, there would have been no-one within the Ministry who had such expert knowledge of artificial arms and their appliances. To meet their future obligations to these limbless ex-servicemen, the Ministry argued that they would always need someone with this expert knowledge.[396] As an initial step after all Instructors were gone, there was a move to a system of Limb Inspectors instead. All qualified engineers, these men would inspect the work being undertaken by the limb makers, and examine and authorise all new artificial limbs being manufactured. It was also their role to assess repairs that were required and approve the work being undertaken. This role was nowhere near on par with the instructors who had been undertaking these duties previously. However, by 1923, the State wanted to reduce this role too, as they believed that it was too time consuming for the men undertaking it.[397] The State began to believe that inspecting every limb was slowing down production and was therefore costing them more money than was necessary, as well as inconveniencing the ex-servicemen who were waiting for the limb in question.[398] Therefore, from the mid-1920s this knowledge and advice that the instructors retained was no longer something that the State was interested

[396] *Ibid.*
[397] *Ibid.*
[398] *Ibid.*

in. It was the State who decided that this role was obsolete and despite retaining one man, an official space for the passing on of this knowledge no longer existed.

'The number of cases has lately shown a very material increase and it is considered that the time has come for the appointment of Instructors,' began a discussion amongst the various Ministries involved in the care of limbless ex-servicemen, in December 1943.[399] Up until this time, the number of arm cases in this war did not appear to justify the appointment of Limb Instructors once more. However, there had been a voluntary arrangement made with limb makers to train the small number of cases that needed training. It is notable that this task, which had formerly been the domain of experts (limbless men who were very adept at using their limbs) was given over to a different type of expert, with a different knowledge base and skill set. At this stage in the war, there were three main centres for arm cases – Roehampton, Leeds, and Glasgow. The proposal was that each centre would receive one Instructor. Once more the requirements for these Instructors were that they must be men who were skilled craftsmen in some trade, who had themselves lost an arm, and had become highly experienced in the use of artificial arms and could therefore naturally teach others how to use theirs.[400] The necessity for an appropriate rate of pay to attract the right sort of man for the role also reappeared in these initial discussions.[401] In terms of the men who were to be chosen for the job, the State wished to recruit these new Instructors from ex-servicemen who were currently passing through the limb fitting centres, or had recently passed through. The State and the centres might have been following the same protocols as in the First World War, but they were interested in training new ex-servicemen for the role this time round. The expertise gained in the First World War seems to have been ignored and forgotten and instead the State wanted

[399] TNA, Appointment of Instructors, PIN 38/473.
[400] *Ibid.*
[401] *Ibid.*

fresh faces in to lead this training and instruction. It is significant that something seems to be lost here. What was happening to the men who needed new limbs in the inter-war period? We know that the Ministry of Pensions had retained one man to help retain some of this knowledge and expertise, but it does seem to take them many years into the Second World War to realise that this scheme might be useful once more. Here, there is evidence of the State controlling this knowledge and expertise and 'legitimising' it when it was most useful to them. When it was not deemed as useful, such as in the inter-war period, this knowledge was not given an official capacity and instruction was no longer offered at the same level. If the centres had continued with the scheme of employing Instructors into the 1920s and 1930s, then perhaps there would not have been such a scramble to hire new instructors when a new war broke out.

Approval for the appointment of Instructors came much more swiftly in the Second World War. The main issue to overcome, however, was the great difficulty in actually finding men to appoint as instructors. It was not until the 24th March 1944 that the first instructor was hired, for the vacancy in Scotland. Confirmation that the initial three instructor roles had been filled came in January 1945. However, this also came with the request for more instructors, for different regions, due to the increasing number of ex-servicemen that now required instruction. The process almost happened in the reverse of how it did in the First World War. Then, the limb fitting centres wanted to have as many instructors as the Treasury would allow. In the Second World War, there appears to be a much more gradual building up of the scheme. Applications from men who were interested in these roles are contained within official documents, through which it can be discerned that appeals were put out through formats such as the BBC and newspaper reports in order to try and fill these roles, suggesting that there were not enough suitable men (as decreed by the State) passing through the doors of the limb

fitting centres at the necessary time.[402] Once again, the question is raised as to why Instructors were not retained from the First World War or even trained up in the inter-war period in order to continue with this necessary role.

With the return to arm instruction in the Second World War, it does not appear as though much changed with the duties that these trained men were expected to undertake. Initially, with there being a smaller number of artificial arms required, the limb manufacturers themselves undertook any necessary training. However, as the war continued on, Arm Instructors were hired once more to give training in the use of new artificial limbs and help in picking the most appropriate limb for the ex-serviceman. In general, here, there is a continuation of the role of the instructor from the First World War, and the aid that these limbless ex-servicemen could expect to receive was on similar grounds to what their predecessors also received. Once more, this was general instruction in the use of an artificial limb, and then if more training was deemed desirable, the Ministry of Labour had further vocational programmes that could be undertaken.

Artificial legs, both in terms of fitting and instruction in their use, were very different from artificial arms, as has been discussed earlier in this chapter. An ex-serviceman who had had a leg amputated was quite incapable of leaving the hospital until he had been properly fitted with an artificial leg and had been trained in how to use it. This was unlike those receiving new arms. They still had both of their legs and were capable of, and quite often desperate to, leave the hospital and go back to their homes and families. Missing an arm made that a much easier feat than missing a leg, which was why initially arm instruction was not a priority – until the

[402] TNA, Appointment of Instructors, PIN 38/473.

economic ramifications of the lack of training and the correlation between this and men not using their artificial arms properly, or at all, was made. Therefore, the instruction for men requiring artificial legs was treated in a very different fashion from those requiring artificial arms.

Much of the focus in the 1940s, as in the First World War, lay with the initial appointment of Arm Instructors. However, in the summer of 1945 the focus suddenly shifted to teaching those who had legs amputated to use their new limbs proficiently. A memo relating to the employment of Leg Instructors suggests that there were now Instructors in many of the major cities in the UK, and that these had all passed through the appropriate training period at Roehampton.[403] With the growth in appointment of Leg Instructors to work in these regional offices, a further five instructors were appointed in August 1945.[404] This is a very discernible difference from the attitude towards giving instruction in walking from the First World War. Here, the Limbless Ex-Servicemen's Association in Birmingham also gave up space in their club house for instruction in both artificial arms and legs. From September 1945, the Association gave over their premises to the Ministry of Pensions on Tuesday and Thursday evenings for this training.[405] It was a beneficial agreement to both sides, especially as the rooms used on site had to be properly cleaned and fitted out for the work. It also gave the Ministry easy access to a space where this training could be undertaken. With this also came a sense of community in the city, as well as alleviating any problems with trying to recruit someone for the Midlands. A room was adapted for demonstrations of artificial limbs to those coming to the Birmingham 'school,' but they also had the social benefit of getting to play games such as billiards with others who had lost limbs in the wars. Once again, this was what the instruction was all about –

[403] *Ibid.*
[404] *Ibid.*
[405] *Ibid.*

it was general, in a sense, with the main purpose being to give the ex-servicemen confidence in using their artificial limb. It could also be viewed as a preparatory step towards undertaking more industrial training under the Ministry of Labour. This links back to the rehabilitation that is often discussed when looking at disabled ex-servicemen in wartime – the sort of training that would allow them to undertake a vocation again in the future.[406]

Conclusion:

This chapter has focussed on two pivotal actors in the limb fitting centres, but ones that are rarely mentioned in histories of limbless ex-servicemen and the two world wars: the limb fitters and the limb instructors, and how their skills and expertise were an important part of the journey from amputation to an ex-serviceman being able to return to society with a suitable artificial limb. Little information exists on a personal level (no memoirs or oral histories) from the men that were employed in these roles, forcing this chapter to look at these positions through the lens of the State expectations for these roles and how the State and the centres engaged with this knowledge and expertise that these men held.

Essentially, all of this came down to the idea of expertise. At different stages of the journey, different people held the power and the expertise on what would happen to the ex-servicemen. In the case of amputation, it was medical expertise which determined when the stump was "good enough" for an artificial limb to be attached and whether or not more surgical intervention would be needed. It was these medical professionals who decided when

[406] See: Julie Anderson*, War, Disability and Rehabilitation in Britain;* Deborah Cohen, *The War Come Home;* Jeffrey S. Reznick, *Healing the Nation*; Emily Bartlett, "Reassembling Disabled Identities".

an ex-serviceman was fit to be sent to the limb fitting centre for the fitting of a limb. Here, the limb fitters had to use their skills to make sure that exact measurements were made and that a properly fitting limb would be made for the different ex-servicemen. The limb Instructors held a lot of power in terms of teaching these ex-servicemen to use their limbs. These instructors were disabled ex-servicemen themselves, so they also had this lived experience and embodied knowledge to rely upon – which is something the final chapter of this thesis will explore in more detail.

Ex-servicemen were not supposed to leave the limb fitting centres without being able to walk with their new legs. A properly healed stump and a properly fitting artificial limb were integral to this. However, the training needed only to be adequate enough for a man to be able to move around. He was not expected to stay until he could run with ease again, for example. Being able to comfortably attach the artificial limb to the stump and being able to walk across the room were the main purposes of this initial training. Investigations were undertaken to see how the body moved, and where weight bearing occurred, in order to aid with the manufacturing of the most appropriate legs for these ex-servicemen. There was a much bigger push for Leg Instructors in the Second World War, than there had been in the First World War. This could be a lesson learnt from the First World War, especially about how useful lived experience could be in motivating men to use their limbs. It also allowed these ex-servicemen to see what they could achieve and, naturally, advice was probably easier to accept from someone in a similar situation. Embodied knowledge and lived experience played a pivotal role in the lives of these disabled ex-servicemen. Here, it can be seen in a much more legitimised and official capacity. However, as the next chapter will show, embodied knowledge was also something that was a powerful tool in the personal, and home, lives of ex-servicemen. This embodied knowledge could also be used to subvert the care offered by the limb fitting centres.

Artificial arms in general are much more complicated than artificial legs are, and need to be able to undertake a wider variety of movements. Continuous advances were also being made in both artificial limbs and the appliances attached to them (which was investigated more in Chapter Two). Therefore, instruction in arms was seen as the biggest priority, by the State. Economic fears over money spent on giving men limbs and then them not using these limbs were rife, but lack of proper training also made future vocational training potentially more difficult too. This would also have an economic impact in terms of these men being able to return to work. Despite this, Arm Instructors were not initially employed until 1919, and were a relatively short-lived endeavour. For the interwar period, only the Chief Arm Instructor remained in position at the Ministry of Pensions, because expertise was still required. Being able to go through the process of choosing the correct limb for oneself and being properly fitted and shown how to use it must have made the idea of wearing an artificial limb much more manageable. As with the Leg Instructors, it was the lived experience merged with medical advice that was the real crux of the instruction. This was where it became original and useful and the potential for it to succeed really came into being. However, it might have come into fruition a little too late for it to have been as effective as desired.

One of the successes of the limb instruction programme was that it gave jobs to a few ex-servicemen who had lost limbs in the wars. This was one of the main criteria for an instructor – he must have lost a limb in the current war, and he must be proficient in using his own limb. These might have only been short-lived contracts, but they were reasonably paid and acted as proof that men could return to the work force after losing a limb. Having an ex-serviceman be the one who trained you and advised you would also act as a transition from military life into the civilian world.

One area where more work needs to be undertaken, in general, but particularly with regards to this chapter is exploring what was done for women, instruction and artificial limbs. This was not so much a pressing issue in the First World War, but the Second World War and the Home Front brought more women casualties with it. Limb fitting centres were providing artificial limbs for these women, but there does not seem to be much on whether or not they were receiving training, or how the fitting for a limb was undertaken.[407] Training in basic arm and leg movements would have been easier to undertake, but much of the remaining training tended to focus on vocational work that men would stereotypically undertake. Would women have been afforded this same opportunity? Or were they just to be grateful to have been given an artificial limb? As seen in Chapter Two, it has also been nearly impossible to find information on what limbs were given to women and how they differed from, or were the same as, those designed for ex-servicemen. The lack of discussion around women and artificial limbs is also highlighted in December 1943, in passing, in a letter from a man who had two artificial arms.[408] He had been an in-patient at a centre in Wales, where he met three women who had lost hands. In this encounter, he was able to have a conversation with them about what had been provided to him, and also show them what he could do with his artificial arms. What saddens, and interests, him most is that these women had never seen artificial hands or arms until this point and had no idea what could potentially be done for them. One woman believed that 'of course we won't be able to do very much with them,' as there had been no proper conversation or training offered to them to say otherwise, until they met this ex-serviceman.[409] He lamented the lack of knowledge around artificial limbs that those who were not ex-

[407] Anderson is one of the few historians to have uncovered work on this as shown in: Anderson, "British Women, Disability and the Second World War."
[408] TNA, Appointment of Instructors, PIN 38/473.
[409] *Ibid.*

servicemen seemed to have, and used this to suggest that everyone who lost a limb should be able to at least meet with someone who had also done so. Here we see a limbless ex-serviceman essentially undertaking the role of instructor and using his lived experience to pass on knowledge to others in the same position as him. He had taken on the role of expert in this scenario, and had not been officially appointed this role like instructors were. This brings up questions of who the experts actually were and who was allowed to take on this role and have this expertise. Of course, the ex-servicemen had their own lived experiences and expertise through this, but in this 'rehabilitation' journey the 'experts' were typically those who had been appointed by the State. The importance of lived experience and embodied knowledge is something that is explored in more detail in the final chapter of this thesis and brings more of the personal expertise and skill to this wider history.

## Chapter Four: Lived Experience of Limb Loss and the Two World Wars

### Introduction:

Being interviewed for the oral history collection at the Imperial War Museum after serving in the Second World War, Private WC had the following to say about his leg being amputated: 'I remember lifting the sheet back after he told me and there it was. Gone. Now that time, I'm not afraid to say it either, the tears came into my eyes, when you realise a 23-year-old…his leg had gone. So that was the start of trying to get better again.'[410]

This testimony brings home the reality of someone so young losing a limb and that visceral reaction to such a life-changing event. It also perfectly reflects on everything that this thesis has explored thus far – care from the initial point of amputation. It is a very emotional reflection on the loss of a limb, but one that was likely experienced by many ex-servicemen. As has been previously discussed, there was a fear around becoming 'maimed' in war, and this interview highlights some of that emotion. One of the most significant aspects of the above recollection is that his focus was on 'trying to get better again,' which ties in with discussions of the care provided at the limb fitting centres and the ability to use an artificial limb well, and to return to that masculine identity that meant these men were "better" again.[411]

Insights from the personal voices of these disabled ex-servicemen have been peppered throughout the preceding chapters, but this has all been leading up to the main question of: how did any of this aid and support transfer into the realities of leaving the limb fitting centres

[410] IWM, "Joseph William Clark (Oral History)" produced 07/10/1997, reel 23, online recording, catalogue number 17628, <https://www.iwm.org.uk/collections/item/object/80016742> (accessed 07/08/2023).
[411] *Ibid.*

and returning home? Many of the sources utilised for this journey throughout the thesis have offered a very top-down approach to this history, something which Anderson laments in her work on limb fitting centres.[412] These aspects of the history are important to tell and understand, but they can only be enhanced by including insights from the ex-servicemen themselves and how they experienced this trauma and the aftermath of it.

Finding the voice of the ex-servicemen in these histories can be a difficult pursuit. Yet it is one area of increasing importance to historians, and one which Gagen's work highlights perfectly, showing how paramount and rewarding getting the voice of the disabled ex-serviceman into this work can be.[413] Gagen's article focuses on one man and his experience of losing an arm in the First World War, which, as Gagen herself argues, 'enables the comprehensive examination of lived gendered experience, which is often difficult for historians of disability to accomplish.'[414] Having such an extensive archive for one man is essentially the dream for historians wishing to focus on the experience and life-cycle of a disabled ex-serviceman, but is unfortunately not something that thesis has.[415] Instead, this chapter uses a variety of sources from objects to personal letters to oral histories to bring the voices of some of these men back into their own histories. Ultimately, this is a history of these disabled ex-servicemen and their experiences and views are at the heart of this work. Loughran argues for the inclusion of 'other groups' in the histories of war and trauma.[416] With regards to shell shock, Loughran argues that

[412] Anderson, "Separating the Surgical and Commercial" p.174.
[413] Gagen, "Remastering the Body".
[414] *Ibid,* p.526.
[415] Historians such as Meyer and Boyle have also explored the importance of the information about ex-servicemen and their lives that can be told through the pension files in PIN26 held at TNA. See: Boyle, '*Do You Not Think I'm Entitled?';* Jessica Meyer, "Wounded in a Mentionable Place". These files have not been overwhelmingly used in this thesis because there is no immediate counterpart that is as rich as this for the Second World War, and it would create a huge imbalance in the thesis.
[416] Tracey Loughran, "A crisis of masculinity? Re-writing the history of shell-shock and gender in First World War Britain," *History Compass,* 11 (9) 2013, pp.727-738, (p.734), doi.org/10.1111/hic3.12082.

there was a wide range of experiences relating to the mental trauma of war and that we need to explore all aspects of this in order to create a broader picture of the experiences of war.[417] As historians, our work is richer is we use an approach which 'both encompasses a wider range of experiences and which is alert to the differences between, and the specificities of, these experiences.'[418] This chapter aims to bring together different experiences of ex-servicemen in the two world wars in order to show a more realistic view of what life was like in the aftermath of amputation. Loughran also argues for a more empathetic approach to histories like this, which is something hearing the actual voices of the men can help facilitate.[419]

As the previous chapters have shown, a lot of support was given from the State to these ex-servicemen, in both conflicts. This support came in the form of medical, economic, technological, and rehabilitative aid: artificial limbs were manufactured and provided; medical care was given; men were trained up in the use of their artificial limbs and in new trades that they could undertake; and pensions were provided. From all fronts, the picture the State was painting was one of total support. Yet, how did this play out in reality? Using personal testimonies gleaned from oral histories, letters, and official documents, as well as objects held in museum collections, this chapter will give an insight into the post-war lives of these ex-servicemen and how they were utilising this support and/or advocating for themselves for better support and ways to make this post-war life a little easier.

---

[417] Loughran, "A crisis of masculinity?" p.734.
[418] *Ibid.*
[419] Tracey Loughran, "Shell-shock, trauma and the First World War: The making of a diagnosis and its histories," *Journal of the History of Medicine and Allied Sciences,* 67 (1) 2012, pp.94-119, (p.116), doi.org/10.1093/jhmas/jrq052.

Carol Acton talks of memoirs from those who had witnessed wars as more reflective and giving time for the 'necessary space' between these traumatic events and their recordings, especially showing more 'conscious awareness of revealing or seeing' than would have been permissible in war.[420] Roper argues a similar point in his work and examines how much more reflective accounts could be after time had passed.[421] Through having these written testimonies in the forms of letters, diaries and memoirs, Acton and Potter have been able to explore the insights from medical staff, across various conflicts. They argue that it is this need to write that allows us to explore the 'subjective experiences of individuals' and their wartime experiences.[422] Subjectivity is the key point here. These experiences that are explored in this chapter are not universal and are not to be taken as such. The sources that do remain for, and by, these ex-servicemen shape what is explored in this chapter. Instead of memoirs, oral histories are utilised extensively here. The Imperial War Museum has a rich range of oral histories from ex-servicemen of both wars, which offer insight into their personal experiences of losing limbs in these conflicts and the aftermaths of this. Naturally, oral histories come with the caveats of having been recorded, in many cases, decades after the conflict in question, and researchers have to be aware of the problems with memory that might result from this passage of time. One must also be aware of the potential for leading questions in oral history interviews and how they might dictate the trajectory of what is discussed. All the same, having this personal testimony in some format is a rich resource for historians – especially when it comes to the Second World War. There is not the same wealth of textual documentation currently available to researchers for the Second World War, so these voices are even more powerful – compared to what has been uncovered for the First World War. Nonetheless, in the absence of memoirs

[420] Carol Acton and Jane Potter, *Working in a World of Hurt: Trauma and Resilience in the Narratives of Medical Personnel in Warzones* (Manchester University Press, 2015) p.18.
[421] Michael Roper, *The Secret Battle: Emotional Survival in the Great War* (Manchester University Press, 2009) p.21.
[422] Acton and Potter, *Working in a World of Hurt,* p.19.

and much written testimony, these oral histories offer researchers an insight into the lived experience of some ex-servicemen. These oral histories, utilised alongside official documents and material culture, offer a wider insight into life after amputation, and life after the initial visitation to a limb fitting centre.

Oral histories have been utilised often in the histories of medicine to provide alternative accounts, even when a rich amount of archival material is available.[423] As already mentioned, historians of medicine and disability have become more interested in including the patient's story in histories. And whilst this thesis utilises oral histories to bring these voices into this work, there are naturally concerns around using histories that have been undertaken in the past. Issues surrounding whether these histories are actually 'good' and why stories are told and what stories are told were naturally at the forefront of my mind when listening to the testimonies that I did.[424] The motives for taking part in an oral history interview are not always obvious. As Winslow and Smith have argued, 'personal reflections convey how the narrator perceives the significance and impact of events and actions, and can reveal their attempts to make sense of the past.'[425] Jessee talks of this with regards to interviews they undertook where the interviewee portrayed themselves in contradicting ways through the interviews, in a presumed attempt to convince himself, in this scenario, that he still retained some of his pre-genocide humanity.[426] In this respect, researchers using oral histories not recorded by themselves need to consider how interviewees might choose to portray their pasts. Personal experiences are often portrayed long after the event, allowing for a 'whole life context' in which the interviewee can shape their life story in a manner that is comfortable for them.[427] All

[423] Michelle Winslow and Graham Smith, "Ethical Challenges in the Oral History of Medicine," Donald A. Ritchie (ed.) *The Oxford Handbook of Oral History* (Oxford University Press, 2012) pp.372-392, (p.377).
[424] Winslow and Smith, "Ethical Challenges in the Oral History of Medicine" p.380.
[425] Winslow and Smith, "Ethical Challenges in the Oral History of Medicine" p.384.
[426] Erin Jessee, "The Limits of Oral History Ethics and Methodology Amid Highly Politicized Research Settings," Robert Perks and Alistair Thomson (eds.) *The Oral History Reader* (Routledge, 2015) pp.674-688, (p.680).
[427] Winslow and Smith, "Ethical Challenges in the Oral History of Medicine" p.385.

the same, historians of medicine remain positive about being able to include these personal narratives in their work, and I believe having the men's voices adds another layer to the history of post-war care. Boyd talks also of the words he read on paper suddenly taking on a new meaning when he could hear the voice of the man in question and 'even though I had read the books, it was not until I spent hundreds of hours critically and deeply listening to these field recordings that I felt connected to this community and somewhat responsible for their stories.'[428] As much as using oral history collections in archives can be a very time consuming and, at times, frustrating pursuit, the chance to hear voices and tone, and bring these voices to research, is a worthwhile undertaking.

This chapter will explore three main areas that are often discussed by ex-servicemen through these available sources: adapting their artificial limbs; employment; and the idea of time. The relationship with/to the artificial limb is something that this chapter will explore, particularly through ex-servicemen adapting and tinkering with their limbs to make this State-provided technology something that worked better for them and fit their needs more effectively. Using the material culture of the actual artificial limbs themselves to highlight this adaptation is something that has been under-utilised in the histories of these wars. These artificial limbs show something different from the narrative told in Chapter Two and further highlight the subjectivity of the experiences of these ex-servicemen. Linked to this is the story that the limb fitting centres and the State were indicating of their rehabilitation schemes being a success and allowing many men to return to some form of work. For many men, this might have been the case, but this chapter also uses personal testimony to show the more negative side of this, as well as men advocating for themselves and the future employment that they wished to

[428] Douglas A. Boyd, "'I Just Want to Click on it to Listen' Oral History Archives, Orality and Usability," Robert Perks and Alistair Thomson (eds.) *The Oral History Reader* (Routledge, 2015) pp.117-134, (p.122).

undertake. The story of Private K in the First World War highlights this advocacy perfectly. Finally, one of the most natural, but again under-explored, aspects of all of this is examined: just how long every part of this process from amputation to limb fitting to repairs and replacements could take. Many men mention this idea of time in their testimonies and it really highlights the more mundane, but very important, realities of undergoing treatment.

Adapting (to) Artificial Limbs:

'And the firm that made it, I never even saw them.'[429] As has been explored in previous chapters of this thesis, there were many different makers employed in the manufacturing of artificial limbs for ex-servicemen, in both world wars. The quote that begins this paragraph comes from an interview with a gunner who had his leg amputated in 1917. Gunner T did not know that he was going to have his leg amputated, however, instead believing that he was going for an operation to drain fluid from his leg. When he awoke from the procedure, his leg was missing.[430] Looking down and realising that his leg was missing created an obvious moment of shock to Gunner T, with him reminiscing that: 'I'd rather stopped out than lose a leg…. I thought at the time I'd rather have been killed.'[431] This was not an uncommon sentiment and this fear of how one would cope with a missing arm or leg, especially upon returning home, was common.[432] Another added fear which was very much linked to this was that Gunner T believed that certain people did not want to have anything to do with you once you

[429] IWM, "William Henry Towers (Oral history)" produced 1989, reel 9, online recording, catalogue number 11038, <https://www.iwm.org.uk/collections/item/object/80010814> (accessed 07/08/2023).
[430] IWM, "William Henry Towers," reel 8, online recording, catalogue number 11038, <https://www.iwm.org.uk/collections/item/object/80010814> (accessed 07/08/2023).
[431] *Ibid.*
[432] Emma Newlands explores this idea of fear in her work in Newlands, "Man, Lunatic or Corpse".

had lost a limb or become disabled.[433] In particular, his concerns focused more upon the effect that his amputation would have on his relationships with women back home and what that might mean for his future, particularly in terms of a family life.[434] Here, once again, a typical, masculine ideal was potentially being interrupted. Gunner T was concerned that he might not be able to undertake that typical role of finding a wife and having children – all because he had lost a limb in the war. Gagen explores this idea in more depth in her article on Middlebrook, saying that 'no patient consultation occurred before the amputation' for many servicemen.[435] In particular, Gagen explores the journey that Middlebrook goes through with regards to his sweetheart and how she might feel towards him upon his return, missing an arm. It was only upon the approval from this "female sphere" that Middlebrook felt like he could stop wearing his artificial arm.[436] Much of the scholarship focuses on whether or not an ex-serviceman decided to utilise the artificial limbs that they were given, but in the case of Gunner T we can explore how he adapted to his artificial leg and made it more comfortable and more useful for himself. Building on the work of historians such as Gagen and disability historians, such as McGuire, Virdi, and Ott, this section focuses on ex-servicemen adapting the State provided technology that they were given and uses oral histories alongside material culture to explore these men tinkering with their artificial limbs and using skills that they already had in order to do so, so that they would be able to continue using the artificial limbs that they were provided with.[437]

---

[433] IWM, "William Henry Towers," reel 8, online recording, catalogue number 11038, <https://www.iwm.org.uk/collections/item/object/80010814> (accessed 07/08/2023).
[434] *Ibid.*
[435] Gagen, "Remastering the Body, Renegotiating Gender," p.529.
[436] *Ibid.* p.536.
[437] See: McGuire, "The Categorisation of Hearing Loss Through Telephony in Inter-war Britain"; Ott, "Disability Things"; and Virdi, "Between Cure and Prosthesis".

Exploring the tinkering and repairing that ex-servicemen undertook to their artificial limbs highlights a different narrative from the usual wearing a limb versus choosing not to wear a limb. These stories are important; however, they typically centre around how useful the artificial limb was deemed to be by the user. As Chapter Three shows, many men did not undergo initial training in how to use their new artificial limbs, and this often resulted in some ex-servicemen being reluctant to use these new limbs, because they did not have knowledge of just what they could potentially achieve with their new arms, for example. Exploring how these ex-servicemen used their own skills and embodied knowledge offers a different insight into this lived experience. Some men persevered with wearing their artificial limbs until that relationship collapsed and they decided against wearing them, or no longer deemed it necessary, for example, the Private who had an arm amputated during the Second World War who said: 'They measured me up for an artificial arm. I had an artificial arm for some years but I find that it's a bug bear now, too much of a hassle, it gets in the way, especially given I'm driving… I'm better without it.'[438] Earlier in the interview he explained how cumbersome he found having an artificial arm to be.[439] Another Private from the same conflict agreed that: 'The only thing the artificial arm did for me was to fill a sleeve.'[440] These user stories show some of the realities of the technologies provided by the State for some of these ex-servicemen. In this case, these men opted to forgo using their artificial limbs or did not find them useful. Perhaps they did not have the same acquired skills to adapt their artificial limbs to be more useful or comfortable to their lives. Or perhaps they had just found ways to work and live without needing to use their artificial arms. The decision to stop using an artificial limb is typically seen more in those who had lost an arm. Unlike the loss of a leg, it was easier to adapt to having

[438] IWM, "Douglas William Old (Oral history)" produced 10/05/2002, reel 5, online recording, catalogue number 23146, <https://www.iwm.org.uk/collections/item/object/80022126> (accessed 07/08/2023).
[439] *Ibid.*
[440] IWM, "Raymond Caswell," reel 3, online recording, catalogue number 17285, <https://www.iwm.org.uk/collections/item/object/80016823> (accessed 07/08/2023).

only one arm, and some men (such as the examples above) got by without an artificial one. However, some men adapted their limbs themselves and made them more useful and comfortable for their own needs. Exploring these embodied relationships and the tinkering that these ex-servicemen could undertake opens up an under-explored avenue in regards to disability and the First and Second World Wars. It is insightful to see this relationship between the user and the technology provided by the State being changed in the same way that these men were changing their artificial limbs, as is highlighted in McGuire's work on audio technologies and the Post Office in a similar time period.[441] As McGuire does for these different technologies, this section will explore limbless ex-servicemen using their own embodied knowledge to adapt and repair their own artificial limbs. Naturally, audio technologies and artificial limbs are both very different types of accessibility aids – but both show the ingenuity of men and what they could do with their own skills.

Returning to Gunner T, a little of the mindset of this ex-serviceman as he was initially confronted with this new life that the amputation of a limb had given him has been explored above. This initial shock and fear soon moved onto something else. From these initial worries regarding his disability, however, the oral history moves to discussions regarding Gunner T being given his artificial leg, which affords a more personal insight into this very institutionalised process. As the quote that begins this section highlights, ex-servicemen were unlikely to ever meet the actual manufacturers of the artificial limbs that they were being given. From previous chapters of this thesis, the fact that the medical staff, limb fitters, limb instructors, limb manufacturers and the patients were all under one roof at the limb fitting centres has been lauded. The ex-serviceman would meet with a member of every one of these

[441] Coreen Anne McGuire, *The 'Deaf Subscriber' and the Shaping of the British Post Office's Amplified Telephones 1911-1939,* (unpublished doctoral thesis, University of Leeds, 2016).

actors in the limb fitting process, except for the actual manufacturer of the technology they would be using. Gunner T viewed that as somewhat of a negative aspect of his treatment, but even more so when discussing the artificial leg that he was given:

'It were too stiff. It were quarter inch leather, it was like leather soles for your boots. And there was laces. I used to get a knife and pare it round where it were catching. See I was a pattern maker in normal times… It's always been a good fitting leg because I made do myself. Get them made approximate and then made them right fitting myself.'[442]

On first listen, this can easily be perceived as solely a negative view of the limb fitting process – here there is an obvious example of a potential failure in the whole system of being fitted with a limb, and something which went against the idea that each limb was fitted perfectly to each ex-serviceman. The fitting process in the limb fitting centres was where any problems such as this were supposed to be resolved – hence the different actors all being under one roof. From the quotation above, it would appear that this gunner had been failed somewhere in this process. The role of the limb fitters at the limb fitting centres was to ensure that a man was measured up for the best fitting limb, so that problems like these did not arise. However, as Chapter Three has also shown, the healing of a stump was not always a straightforward task, and perhaps this is where something had gone wrong in this process. The stump could easily change over time, meaning that men often had to return to the limb fitting centres for new limbs. Despite all of this potential negativity towards the limb fitting process, this oral history offers a far more vital insight into the attitude of Gunner T and his ability to utilise skills he already had in order to adapt his new artificial leg to fit him better. Historians of disability and technology are beginning to make more visible the 'discrepancies between the designed ideal

[442] IWM, "William Henry Towers," reel 9, online recording, catalogue number 11038, <https://www.iwm.org.uk/collections/item/object/80010814> (accessed 07/08/2023).

user and the disabled user in real life,' through exploring user experiences of technology, in particular, examining how users of this technology utilised their own skills and adapted technologies to their own needs and requirements.[443] Jaipreet Virdi has been undertaking research into how deaf people have engineered and modified their own hearing aids in order to troubleshoot technological failures or improve performance and how this sphere of tinkering benefitted many users of this technology.[444] Gunner T used this acquired knowledge from previous employment to tinker with his own artificial leg in order to make the fit more comfortable and therefore improving his performance when using it. He stated that his artificial legs had always fit him well because he had the skills to make that happen.[445] Gunner T understood what worked best for him and his body and this was 'something that only he could gauge,' as McGuire argues in her own case studies in her PhD thesis.[446] Gunner T was able to use this understanding of his own body and his own needs in order to forge a stronger relationship between himself and the artificial leg that he had to use.

Linked to this, Gunner T talked about being given a Desoutter leg and how that was much better fitting and 'a beautiful leg.'[447] Desoutter legs were originally designed and created by a man who used an artificial leg himself, suggesting that this embodied knowledge and experience was paramount when these legs were manufactured. This embodied knowledge created artificial legs that other limbless ex-servicemen wanted to use and wanted to be fitted with because they believed that they would work better than the artificial limbs which were

[443] McGuire, *Measuring Difference, Numbering Normal*
[444] Disability Visibility Project, "Q&A with Jaipreet Virdi," <https://disabilityvisibilityproject.com/2020/08/10/qa-with-jaipreet-virdi/> (accessed 06/02/2024).
[445] IWM, "William Henry Towers," reel 9, online recording, catalogue number 11038, <https://www.iwm.org.uk/collections/item/object/80010814> (accessed 07/08/2023).
[446] McGuire, *The 'Deaf Subscriber'* p.98.
[447] IWM, "William Henry Towers," reel 9, online recording, catalogue number 11038, <https://www.iwm.org.uk/collections/item/object/80010814> (accessed 07/08/2023).

initially provided by the State and did not have as much input from disabled users. Gunner T felt that he was eventually returned to a 'cheap leg' in the span of his lifetime of using one and this is the point where his own skills and embodied knowledge really shone through and came into their own.[448] Limbs being sent off for repairs and new limbs needing to be provided meant that many men did not necessarily use the same make of artificial limbs for lengthy periods of time. Much of the 'lived experience' research undertaken regarding men and their artificial limbs with regards to the war tends to focus on whether or not they actually wore it and used it and this idea of tinkering and adapting has been less explored.[449] The case of the gunner above begins to allow us to examine and explore the myriad ways in which these disabled ex-servicemen could utilise embodied knowledge to make their artificial limbs work better for them.

Material culture and examining the artificial limbs themselves also allows for an exploration of this lived experience of having an artificial limb in the aftermath of war. Above, the discussion has focussed on making an artificial limb more comfortable at the point of contact and an immediacy of this happening. But what about as the artificial limb grew older and went through the expected wear and tear? Previous chapters have explored this idea of the repairing of an artificial limb and how this could be a lengthy process, which often involved sending the limb off to have work undertaken on it. This is why men were given duplicate limbs. However, for many, the limb being sent off would be the one that was most comfortable and which the user potentially felt most affinity with and had utilised most in their everyday lives up until the point of breakage. Having this option of returning to a limb fitting centre or sending the limb

[448] *Ibid.*
[449] For example, Wendy Gagen's excellent article on J.B. Middlebrook, "Remastering the Body, Renegotiating Gender," focuses on societal attitudes to wearing an artificial arm and what it meant to discard that arm for the man in question.

off to be repaired by the limb manufacturers on site was a vast undertaking, and not one that every ex-serviceman was willing to undertake. It could be a very lengthy process and this relationship to time is something that will be explored elsewhere in this chapter.

**Figure 1.9. Prosthetic Leg, c. 1915 – also known as the "roofer's leg**"

The image above shows a very visceral example of what might occur when an ex-serviceman was not willing to send his artificial limb off for repair. There are many examples of artificial limbs in museum collections where actual wear and usage is not always the most obvious. Here, however, it cannot be denied that this artificial limb was most certainly used, and for a long time. The artificial leg itself is a basic pylon type, which was normally given initially to practice walking and to allow the user to get used to having to wear an artificial limb. Normally,

an articulated leg (one with more shape and with at least a knee joint) would be given to the ex-serviceman once he was proficient in the use of the pylon leg. However, in examining the artificial leg above, it is clear that this pylon leg was used for much longer than this prescribed norm. The man who used and repaired this artificial leg was a roof thatcher and tiler. The image above clearly shows the ex-serviceman having used the tools of his trade and materials that he understood to repair his artificial leg. Both cement and glue have been used here, over several decades. The catalogue entry for this artificial leg informs us that the ex-serviceman refused an articulated leg and made these very extensive repairs himself.[450] It ends by stating that he did eventually accept a 'conventional' artificial leg, which had to be heavily weighted to allow him to walk effectively, as he had become so adept at walking with the weight of all the cement that he had used to repair his initial artificial leg.[451] Artificial limbs themselves were already heavy pieces of technology, crafted as they were from wood or metal.[452] The addition of all that cement would have added much more pressure to the everyday wearing of the leg and could potentially have had repercussions for the stump of the disabled ex-serviceman. Yet, this was the artificial leg that he clearly felt the most comfortable using, and it could be argued that there is almost a caring and loving attitude towards the way that he repaired it himself for so long.

---

[450] Science Museum Group. Artificial leg with extensive home repairs, England, 1914-1918. 1999-484 Science Museum Group Collection Online, <https://collection.sciencemuseumgroup.org.uk/objects/co476577/artificial-leg-with-extensive-home-repairs-england-1914-1918-artificial-leg> (accessed 30/08/2023).

[451] *Ibid.*

[452] Being able to handle artificial limbs in the collection at Thackray really brought this home for me. It is easy to create an image of what we think an artificial limb must be like, if we base it on just textual sources, or even photographs. I had not appreciated how unruly and just generally clunky and heavy that an artificial limb would be until I was transferring one from a box to a table so that I could have a closer look at it. For the limb being discussed above, I have not been able to touch the limb itself as it is somewhat fragile with all the different layers of material on it. I have however seen it in person, as well as photographs of it, and it is an impressive sight – but a sight that just looks heavy and unwielding. Pylon legs were essentially just a chunk of wood, making them seem all the heavier without the bends at the different joints in the leg and foot.

Catalogue entries for objects donated to museum collections can offer this more personal insight to an object. It is likely that this story has been passed on by whoever chose to give this limb to the Science Museum – whether it was the man who used it, or whether it was a relative of his. This helps bring these objects to life and makes them more appealing. Many limbs in museum collections just have the maker, and potentially a year, attached to the object. Now, this is useful in terms of charting limb design and the use of materials, as Chapter Two has shown. However, these details ultimately tell you very little of the life of the object. Having a limb that has been so obviously repaired, and to have that as a case study for this thesis, brings the lived realities of these ex-servicemen more to life and allows this thesis to explore these ideas of tinkering or of utilising skills to adapt the technology, or in the above case, repair it. It shows that these ex-servicemen were not just passive creatures, accepting help from the State and believing that was all they were entitled to. As this section has shown, if some men were not happy with what they received, they could do something about it, and take some agency for their own care.

Arguably one of the most instructive aspects of these ex-servicemen repairing and adapting their artificial limbs is the relationship these examples have with work. For Gunner T, it was previous employment that furnished him with the skills to be able to make his artificial legs more comfortable for his own wear and adapt them to the needs of his body. The example of the artificial leg held in the Science Museum clearly shows that the ex-serviceman in question was using the tools of his trade in order to repair his own limb. This relationship between the disabled ex-serviceman and employment was one of the foundational reasons for the State supplying them with artificial limbs. Returning to work and being able to undertake employment with some success and ease whilst using an artificial limb was one of the cornerstones of the rehabilitation that these men underwent when in the limb fitting centres.

Again, this idea of rebuilding society through the provision of artificial limbs and therefore the chance to contribute to society and the economy once more is obvious here. This very masculine ideal is shown even through men sorting out their problems with their artificial limbs themselves.

Rehabilitation and Finding Work:

The rehabilitation undertaken at the limb fitting centres, or the workshops attached to them, was seen as one of the main outputs of the limb fitting centres and this work was a measure of the success in rehabilitating these ex-servicemen and returning them to a role of supporting the economy and being useful. Ideas of masculinity and gender are pervasive through histories of war, and are especially prevalent when looking at those "war-maimed." A new, less-masculine role was often assigned to the men who returned from war with a disability – attached to their economic capabilities and their need to be "mothered" by both state and family.[453] Koven highlights this idea in his article comparing 'crippled children' and those men disabled in the First World War.[454] At Chailey, initially set up to help disabled children, and taken over during the war, disabled men were paired up with one of the boys there to aid, and distract, these men in their rehabilitation.[455] In this scenario, these ex-servicemen have been reduced to a more child-like status in society, and this was used as a push to encourage them to persevere with the rehabilitation offered to them. Rehabilitation is frequently the lens through which we discuss disabled ex-servicemen, and is undoubtedly an important part of their journey, but often the focus is on this sense of usefulness.

[453] Reznick, *John Galsworthy and Disabled Soldiers of the Great War.*
[454] Koven, "Remembering and Dismemberment".
[455] Koven, "Remembering and Dismemberment," pp.1180-1182.

Workshops were erected in the grounds of the limb fitting centres in order to try and aid these men with finding employment, and decent employment at that, once they had left the wards. Not just intended as a forward-looking scheme, the workshops were detailed with the task of employing the spare time of those waiting for treatment at the hospital in 'useful and remunerative work'[456] Again, the use of the word useful is apparent. A large, substantially built building located to the south west of the house at Erskine was turned into a workshop. Within, the building was split into three sections, which housed rooms of different trade themes. Everything from shoemaking to hairdressing to gardening and tailoring was taught at Erskine. The east section of the workshop was dedicated to the making and adjusting of artificial limbs. In the west section stood equipment meant for the practice of wood work. This included a band saw, circular saw, benches, a turning lathe, planing machine and benches for wood carving.[457] Within this compartment could also be seen various examples of model yachts, chicken coops, and various kinds of cabinet and wood work, all of which had been completed by patients.[458] Basket making was also undertaken in this section of the workshop, and appears to be something that was very popular amongst the patients – as we will see in the case study used later in this section. The central section of the workshop was dedicated to teaching the art of weaving, and contained two weaving looms for this very purpose.[459] A booklet produced during the war regarding the training of those disabled soldiers and sailors at Erskine stated that a man could only be described as disabled in the commercial sense when his disability prevented him from achieving what was believed to be a normal output.[460] The booklet continued that: 'It is therefore in the interests of the men themselves and of the country that

[456] Reid, *The Princess Louise Scottish Hospital* p.43.
[457] Reid, *The Princess Louise Scottish Hospital,* p.44.
[458] *Ibid.*
[459] *Ibid.*
[460] Calder, *The Vanishing Willows,* p.20.

each man be trained to a trade in which his condition does not interfere with his productive capacity.'[461]

'Hope welcomes all who enter here!' was the motto for the training that was provided by the workshops at Roehampton.[462] Kenderdine realised that men who were slowly recovering from the loss of a limb might 'easily degenerate' and 'gradually come to despair as to their future' unless some form of training was linked to their treatment.[463] The mission of Roehampton, claimed an article from 1916, was to turn these 'disabled, crippled men' that entered the institution into those who were 'no longer useless, limbless creatures, but men anxious and fit to work again and take a place in the world of workers.'[464] Similar to what occurred at Erskine, workshops were erected in the grounds of the centre at Roehampton. Instruction in various work was available, with accounts talking of motor and electrical engineering, carpentering, accountancy, shorthand, and typewriting.[465] Twenty-four trades in total were available to practice in these workshops.[466] Men were able to learn new trades or practice the trade in which they had worked before the war, with the hope of returning to it.

To further aid these men, an employment bureau was set up at Roehampton. Notices were posted throughout the institution, advertising the positions that were available for the men convalescing there. Employers throughout the country were very interested in hiring men who

---

[461] *Ibid.*
[462] IWM, The Future of Our Disabled Sailors and Soldiers: A Description of The Training and Instruction Classes at Queen Mary's Convalescent Auxiliary Hospitals, Roehampton, and at Queen Mary's Workshops, Pavilion Military Hospital, Brighton, For Sailors and Soldiers Who Have Lost Their Limbs in The War, p.7, KO7/220.
[463] *Ibid.* p.8.
[464] TLA, Scrap Book of Mrs Gwynne-Holford, Founder of The Hospital. Includes Letters, Photographs and Press Cuttings Concerning the Hospital, *The Graphic*, 4th November 1916, H02/QM/Y/05/002.
[465] TLA, News Cuttings No.1., *Daily Mail*, August 1916, H02/QM/Y/01/001.
[466] TLA, News Cuttings No.1, *Daily Mirror*, August 1916, H02/QM/Y/01/001.

had been trained there, as they were not going to be called up again, they were very hardworking and disciplined, and they were very well practiced in their trades.[467] By September 1915, the General Committee were already reporting that 14 men had achieved good positions for themselves through the help of the employment bureau.[468] At this time, another 24 men who were currently at the centre had already been promised employment once they had left the hospital.[469] By the beginning of 1916, 207 men had found positions through the bureau; 237 had returned, or were returning to, their own, previous employment; 116 had been accredited to local authorities and organisations; and the secretaries of the bureau were in correspondence regarding positions for a further 75 men.[470] Even from this early stage, the founding of the bureau was already justifying itself. The number of men placed by the bureau increased steadily throughout the war years. By January 1919, 3335 men had been placed by the bureau; 6365 had returned to own employment; and 5127 had been passed on to Local Committees for employment.[471] The employment bureau was the first attempt in England to try and seriously deal with the question of what careers men could undertake once they had left the hospital. Gwynne Holford claimed that one of the most important results of this bureau was that it provided a working model for the rest of the country, and would aid those who had been appointed by the State to set up similar departments.[472]

As Chapter One has shown, these vocational training workshops did not remain in the hands of the limb fitting centres for long, and by the 1920s were predominantly being administered by the Ministry of Labour, at sites around the country – such as the Poppy Factory. The

[467] TLA, News Cuttings No.1, *The Times*, November 1916, H02/QM/Y/01/001.
[468] TLA, General Committee Minutes I, H02/QM/A/01/001.
[469] *Ibid.*
[470] *Ibid.*
[471] TLA, General Committee Minutes I, H02/QM/A/01/002.
[472] TLA, Scrap Book of Mrs Gwynne-Holford, H02/QM/Y/05/002.

rehabilitation in this thesis has focussed on the learning to use a limb and the roles of the limb fitters and limb instructors. However, this background information on the more typical rehabilitation schemes offers a further insight into the work undertaken at the limb fitting centres, but also sets the scene for the case study that is about to be discussed.

Not every man immediately benefitted from these employment workshops and bureaux set up. A notable example of one man who would eventually end up at the limb fitting centre at Erskine is that of Private K, who returned from the First World War in receipt of a 100% disability pension, after having both of his legs amputated. A Private in the 1st Gordon Highlanders, Private K had one of his legs blown off by a bomb in March 1916.[473] The other leg was so badly injured in the explosion that he had to have this amputated, too. Before the war, he had worked as a miner, something that was not an option for him upon returning to Britain.[474] After returning home from France and having more treatment at the limb fitting centre at Erskine, Private K initially received twelve months of training in boot repairing under the instruction of Bailie McIntosh, Bootmaker, a private employer, in Stirling. However, even with such training, he was never able to obtain employment as a boot repairer and was advised that he was unfit for such work. In a letter, he shared that 'The late Sir Wm. Macewen told me to give up as he said I was not fit for it.'[475] That a voice as official as Macewen's was telling Private K that he should seek different employment is significant. Private K received no pay during this training period except a one-off sum, essentially to keep him motivated. He was, however, receiving a full disability allowance at this time. The main issue was that Private K's legs had had to be amputated to within five inches of the hip joint, which had left him

[473] British Newspaper Archive (BNA), "Private Kelly, 1st Gordons," *Stirling Observer,* 28th March 1916, p.3.
[474] *Ibid.*
[475] TNA, Training Department: Correspondence with Thomas Kelly concerning an application for grants for trainees undergoing twelve-month training courses in boot repairing at the Erskine workshops under the Industrial Training Scheme, 1938, LAB 2/1195/TDS2884/1919.

practically helpless. As a result, he could not be sent to a regular training centre and therefore this is why he was eventually able to persuade Macintosh to take him on – as the repair shop was so close to where Private K lived: 'Mr McIntosh says he was at very considerable expense teaching him having to lift him off his chair and on again, hand him tools etc., and could not afford to pay him anything like 15/- [shillings] per week although he gave him something.'[476] The Stirlingshire Local Committee referred to this as a very exceptional case and wished for it to be treated as such. Local support was not uncommon, as Meyer has explored in her work on Arnold Loosemore, but it was still seen as the exception rather than the norm.[477]

'The special idea of the Committee was to give Kelly such a training that he could employ his time usefully and have a healthy interest in life. Mr McIntosh certified that he can do repair work and it has been reported to the Committee that he intends to undertake this work on his own account. The Committee are unanimous and think in all the circumstances, the best possible was done for Kelly and hope the Ministry will sanction the payment to Mr McIntosh for training Kelly.'[478]

McIntosh was aggrieved that he had not been paid for the training that he had delivered. It was further indicated that, in Private K's state, he could not work such regular hours as a man in good health and certainly his training gave a great deal of extra work to Mr McIntosh.

No mention is made of whether or not Private K received artificial legs. With such a small stump left, it would suggest that the answer to the question of whether he did or not would be no – this is furthered by the fact that McIntosh had to help him move around, and that he

[476] TNA, LAB 2/1195/TDS2884/1919.
[477] Meyer, "Wounded in a Mentionable Place," p.117.
[478] TNA, LAB 2/1195/TDS2884/1919.

seemed to have become very immobile, in general. This is in contrast to the many men who did receive artificial limbs and highlights a different side to the aftermath of having a limb amputated – one where a man was physically unable to even try to benefit from the technology that the State was providing for these ex-servicemen. Even his initial training came from a local level, instead of through the rehabilitation and employment workshops attached to the limb fitting centres. Here, an interesting relationship between government provided training and the ex-servicemen is highlighted. The quote above highlights that the Committee believed that the best possible had been done for Private K, however it is evident in how his story continues that K does not believe that this is the case. He is dissatisfied with the support that has been given to him and seeks to gain further experience in something that might result in actual employment.

In 1921, Private K opened a local Tobacconist's and Newsagent's.[479] Funded with his own money, he later received a grant for £40 to assist with keeping the business going.[480] The grant came from the Harry Lauder Million Pound Fund for Maimed Men, Scottish Soldiers and Sailors. Set up by the well renowned Scottish singer and comedian, Lauder had a great deal of sympathy, and support, for those who had been significantly injured in the war. Here, support for employment from other avenues is evident. The Harry Lauder Fund was charitable in nature, although once again had the backing of a very influential name in order to garner support for it. As with the limb fitting centres themselves, this idea of State and philanthropy working together to aid limbless ex-servicemen is still evident.

[479] TNA, LAB 2/1195/TDS2884/1919.
[480] *Ibid.*

However, this Tobacconist's and Newsagent's venture also proved to be unsuccessful for Private K and letters show a continued desire to be able to undertake some form of employment, this time in the form of basket making, at Erskine.[481] It is this desire to be trained at Erskine which has resulted in the file regarding his story to exist in the first place. Normally, some indication of the trajectory of the ex-serviceman's post-war life can be gleaned through pension files. This file had been contained within a Ministry of Labour file instead, but does contain many of the similar documents found in a pension file to help build up the picture of support – letters from the man himself, as well as letters from employers, family, etc. Through these letters an insight into Private K taking charge of what he wants from his future and his feelings with regards to how he and his fellow ex-servicemen have been treated by the government can be explored:

'There was not so much red-tape to go through in August, 1914, when the country was crying for men and I left a good job to join the soldiers, but now when I am a maimed and not fit for manual labour, this country has no further use for us. Yet it was to be a country fit for heroes to live in. I think you will better let me know if you are going to give me training – yes or no. Then I will know how to act by writing to His Majesty and explaining my case to him and I might get some satisfaction.'[482]

Written in 1925, this letter is angry. This is a man who was unhappy with what had been given to him in the aftermath of his life-altering injuries, in the aftermath of the war. Many of the letters that are usually seen from disabled ex-servicemen, or those writing on their behalf, in their pension files, are more reserved in nature, appealing to the Ministry of Pensions and trying to gain a little more support by submitting to the expectations of the State. Here,

---

[481] *Ibid.*
[482] TNA, LAB 2/1195/TDS2884/1919.

instead, was a man who was demanding that he get what he perceived to be what the State owed him and the aid and support that he deserved. In his letter he evoked these ideas of 'homes fit for heroes' and the standard of living that had been promised to returning soldiers.[483] His language is very evocative and cleverly used to highlight his plight. It shows a side of life after amputation that is not always easily found in the archival record. Private K might have received some advantages from local training and funding, but we also see him evoking the idea of State support and demanding this higher level of support. Not every man could use artificial limbs, and these men are typically absent from these histories – perhaps because they could not receive the full support of the limb fitting centres. Private K is a crucial example of a man who would not have benefitted from being fitted for artificial limbs, but who still wanted to take advantage of the other aid that these centres could afford limbless ex-servicemen.

Looking at the admissions records for the limb fitting centre at Erskine, it is made clear that Private K finally started to undertake training in basket making in 1928 – a perceived positive outcome after his previous failed endeavours.[484] Private K's story truly highlights someone advocating for themselves and doing what was necessary to achieve what they wanted. It also highlights a more local level of support, with his initial training coming via local government in his home county, and via a local tradesperson. For the majority of men, initial training came from workshops set up either on the grounds of the limb fitting centres, or attached to the limb fitting centres. Basket making was one of the popular trades that were taught in such workshops, so it is perhaps unsurprising that Private K would wish to undertake such training. Linked to this is that if he was as immobile as suggested, then a craft that was primarily worked

[483] *Ibid.*
[484] UGC, Admissions Register, 225/3/1.

with your hands was something that would have been well suited to him. These employment bureaux that had been set up in the limb fitting centres were supposed to be the main port of call for disabled ex-servicemen to gain some form of employment in the aftermath of the wars. The initial rehabilitation given in how to use artificial limbs was also supposed to set a man up to be able to use his limb for future careers, especially when many had to change what forms of employment they undertook, as many could not return to their former jobs. However, the assumption with this training was that every man would have been fitted with an artificial limb, and required help utilising this in a new trade. Here, however, the story of Private K highlights how not everyone immediately benefitted from these State-provided schemes. It was not until years after the initial amputation that Private K was able to undertake the training that he desired, and even with this came no guarantee of steady employment.

The Passage of Time:

One of the major factors of the care provided to these ex-servicemen was that it could be an arduous and lengthy process. The wait for the perfect stump to be created and then the wait to be fitted with an artificial limb could take months. Once a man had received his new artificial limb, he had to learn how to use it and then likely undergo some training with regards to the occupation that he was going to return to, as shown in the case of Private K above. When an ex-serviceman's artificial limb became damaged or broken, it had to be sent off to be repaired, or he could take it to the limb fitting centre himself and wait for the repair to happen. Moreover, these ex-servicemen were also having to constantly undergo re-examination by medical boards in order to continue to get the pension that they deserved. Time and the impact that all of this had on everyday life is something that is discussed in accounts from ex-

servicemen, or can be gleaned from the disability pension files. Until you hear the voice of the man talking about the amount of time these processes took, it is easy to dismiss how big an impact this had on their lives. Recently, projects such as the Wellcome-funded *Waiting Times* project have started to explore the idea of time and healthcare, and historians such as Anderson have explored how long the process of creating the perfect stump after amputation could take.[485] Building upon these ideas, this section will focus on how these lengthy processes actually impacted the ex-servicemen in question. For an area that comes up often in the oral histories from limbless ex-servicemen, it is an area that has remained relatively under-explored.

Historians such as Meyer and Boyle have utilised records in the First World War Pensions Award Files (PIN 26) at TNA to show the place that disabled ex-servicemen had within their families, local communities, and society.[486] For many of the ex-servicemen who lost limbs, their files are filled with medical reports which range from the immediate aftermath of the conflict to decades of treatment. Once fitted with an artificial limb, it is almost easy to forget that these men still had a whole life ahead of them, and that this would come with further problems as they aged; or their artificial limbs needed repaired; or a new limb was deemed necessary and they had to go through the whole process again. Being fitted with that initial artificial limb was not the end of the journey – in fact, as this thesis has shown, being fitted with a limb was really only the beginning of the new, post-war lives that awaited these ex-servicemen.

[485] Waiting Times: A multi-stranded research project on the temporalities of healthcare, <https://waitingtimes.exeter.ac.uk/> (accessed 12/12/2023).
[486] See in particular: Boyle, '*Do You Not Think I'm Entitled?*' and Meyer, "Wounded in a Mentionable Place."

For some, like Private H, the pension file is thin and only records his treatment up until 1919, when he was provided with an artificial arm.[487] After that there is no more information about what his life was like and it is easy to presume that everything was fine and that he did not have to undergo any drastic treatment. Private PB, however, had a much more detailed and problematic journey after his leg was amputated in 1917.[488] In May to July of 1921, reports in his file detail the problems Private PB was having with getting his artificial leg repaired. Once again, this involved a lot of back and forth with the hospital in order to have the leg examined, something that inconvenienced the Private and eventually led to him having to tell the workshop what it was that needed doing to his artificial leg.[489] Here we are offered some insight into a disabled ex-serviceman advocating for himself and continuing to press the matter until a suitable outcome is procured. This also links to the previous discussions on embodied knowledge and these ex-servicemen understanding what is best for their own bodies. However, an incident when cycling in 1937 resulted in Private PB needing to be hospitalised once more. When cycling his bike, his left lower limb (the artificial leg) slipped and resulted in pain in the stump and the thigh.[490] The artificial leg was also described as now 'turning slightly outwards' and his duplicate leg was 'worn out.'[491] Both the pain in the stump and both artificial legs not functioning properly anymore resulted in yet another return to hospital for this man. In September 1937 it was reported that Private PB was once more having to be fitted for an artificial limb.[492] This perfectly highlights how something as simple as slipping could result in more time being spent having to undertake the limb fitting process once more. An everyday activity such as cycling meant that this ex-serviceman had to go through the limb fitting process once more, and the resulting stump inflammation meant that this was once again a lengthy

[487] TNA, Private Charles HILLIER, Prince Albert's (Somerset Light Infantry), PIN 26/170.
[488] TNA, Private Percy Harold BOWERMAN, The Durham Light Infantry, PIN 26/1726.
[489] *Ibid.*
[490] *Ibid.*
[491] *Ibid.*
[492] *Ibid.*

process as he had to wait for the stump to heal and for it to be prepared for the wearing of an artificial leg once again. None of these men's journeys ended when they were first discharged from a limb fitting centre. As with all traumatic injuries, a lifetime of care was necessary. This is also why it was important that limb fitting centres and wards retained this knowledge and remained open after the initial 'rush' during both conflicts – provision of care was a constant requirement, especially as the body got older. This links back to the beginning of this chapter and the relationship between artificial limbs and the body. The need for repairs and replacement artificial limbs was always going to be a constant.

Upon returning to Britain in 1945, Private C was eventually sent to the hospital at Chapel Allerton, Leeds, to have an artificial arm fitted.[493] In his oral history interview, he stated that he was there for three months, owing to complications with his original stump and the need for re-amputation.[494] Initially, Private C refused to have the re-amputation but eventually agreed as long as 'they could have it done within a week' because he wanted to go home and see his daughter – who he had never seen before, due to him being on duty when she was born.[495] Familial relationship were important to these men once they returned from the front lines and began to re-integrate back into their old lives. Once no longer in the strictures of military life or hospital life, it was important to have the support of those at home. Re-amputation happened within the week and he was able to return home to see his daughter. Notably, despite his eagerness to be allowed to return home and see his family, neither his daughter or his wife are mentioned again in his interview after this point. However, with this re-amputation, Private C's journey was not over. He still had to be fitted with an artificial arm, which meant another

[493] IWM, "Raymond Caswell," reel 3, online recording, catalogue number 17285, <https://www.iwm.org.uk/collections/item/object/80016823> (accessed 07/08/2023).
[494] *Ibid.*
[495] *Ibid.*

return to the limb fitting centre. Within an hour of arriving, he was being fitted for an artificial arm. However, the arm being offered to him did not fit properly and was causing him pain in his stump, resulting in the limb fitting being cancelled. A third amputation was suggested, but Private C outright refused:

'So I said, you can forget about the artificial arm. I couldn't care less. So the surgeon said to me, Mr. Caswell in no way are we taking any more off your arm to fit an artificial limb. I'll talk to the limb fitters to make an artificial arm to fit your limb. Sorry, but you can get the next train home.'[496]

Here we see both this lauded system of having all the main actors under one roof at play once again, and the power that the medical staff had with regards to surgical intervention and creating the correct stump for an artificial limb. Equally important though, this anecdote also shows time being wasted once more and Private C once again not being fitted with an artificial arm. The initial story sounded promising with the fitting happening a very short time into his arrival at the centre, but for it to end with having to get the next train home instead of staying at the hospital like expected must have been very disruptive – both to Private C and to his family. It took a further three months after this episode for another summons to the hospital to arrive. This time the trip was a successful one, and Private C was fitted with a suitable artificial arm and was given two weeks of training in how to use it and how to undertake projects such as woodwork.[497] Linking back to discussions on employment, the case of Private C further highlights how this initial training also impacted on time spent away from home, as well as the time that was needed to be able to effectively utilise an artificial limb.

---

[496] *Ibid.*
[497] *Ibid.*

Another ex-serviceman from the Second World War also talked a lot about time and the process of travelling to hospital in order to undergo treatment. Private WC initially underwent treatment, and had his artificial leg fitted, in a hospital in Johannesburg, not in Britain.[498] All of his initial rehabilitation took place at the limb fitting centre in Johannesburg and with his South African-made artificial leg. Sounding very positive about the initial training in walking that he was given, Private WC also evoked the sense of time in a different manner, when discussing wearing his artificial leg: 'You used to wear it for so long and then when you got tired you used to go back to your ward and take it off. And then put it back on maybe after you'd had a rest.'[499] Not many accounts talk of the exertion that learning to use a new limb could cause, so this offers vital insight into that aspect of the overall rehabilitation journey that these men underwent, and how some could take longer to adapting to wearing and using an artificial limb than others. However, all of this acclimatising and rehabilitating to his South African limb was undone when he returned to Britain. Upon returning home, Private WC was sent to the limb fitting centre at Newcastle, because the limbs being made in South Africa were not deemed to be as good as those being made in Britain.[500] All of this training in South Africa could be perceived as a waste of time, but it would have at least prepared him for having to use an artificial leg and what that meant for him and his body. Having to get used to a new artificial leg so soon after being fitted with the first might have been a bit of a shock, but Private WC recalled the whole process:

'I was measured up. I was examined by a doctor there and I was measured up for a limb there. Well, I was measured for two, actually. When I got the first one, I had to keep going forwards

---

[498] IWM, "Joseph William Clark," reel 23, online recording, catalogue number 17628, <https://www.iwm.org.uk/collections/item/object/80016742> (accessed 07/08/2023).
[499] *Ibid.*
[500] *Ibid.*

and backwards to Newcastle, and I was still on Army pay of course. And I used to claim expenses when I got there – bus expenses. Once I got this leg and it was made, I still had the South African one. I had to go back and get a second leg and then they took the South African one and disposed of it.'[501]

What stands out most in the above recollection is the amount of back and forth to the hospital in Newcastle that Private WC had to undertake. Not everything in the limb fitting process could be done in one trip and he had to make continuous journeys to the hospital in order to be given the two artificial limbs that was standard procedure for ex-servicemen. There is no real lament about losing his South African leg and no real discussion of the move to being given a British leg instead. The real focus of this period for him is the amount of time that everything took and how it was not just a straightforward process. Once given his new British-made legs, Private WC still had to wait to be seen by a medical board in order to be demobbed and given a pension. All the bureaucracy of becoming a disabled ex-serviceman took time.

Conclusion:

The overall focus of this chapter has been lived experience – whether that be through the actual voices of the ex-servicemen or through a more abstract version of the 'voice.' Material culture and the home repairs undertaken to artificial limbs allows us to examine the relationships that some ex-servicemen had with this new technology, and has allowed this chapter to explore lived experience in this manner. For many ex-servicemen, they chose not to wear their artificial limbs after a certain point. But for those who did, these repairs allow us some insight into how these ex-servicemen were using knowledge and skills that they already

[501] *Ibid.*

had in order to manipulate the technology that they were given by the State. Exploring the repairs and the ideas of tinkering allow for a two-fold conclusion to be reached: the repairs suggest either a very personal and comfortable relationship between the ex-servicemen and their artificial limbs; or this acknowledges how time consuming and disruptive it could be to have to send an artificial limb away for repairs to be undertaken by someone else. In many cases, both realities were likely true. This use of embodied knowledge links to ideas discussed in Chapter Two when exploring who some of the limb manufacturers were. In some cases, these limbs were being made my companies who had disabled men at their fore. Both of these aspects allow a wider picture of the agency that disabled men had with regards to the limbs they were offered. Manufacturers such as Desoutter and Carnes were set up because these men were dissatisfied with the limbs on offer in the market at that time, and they decided to take things into their own hands. With the tinkering and repairing of their own limbs, the cases explored in this chapter also show the ex-servicemen themselves taking matters into their own hands. These examples across the thesis show the importance of lived experience and embodied knowledge at the user level of these technologies that were designed to help the war maimed. They highlight that State provided care was not perfect and that it did not suit everyone. Just like with limb fitting, every stump was different and therefore every limb had to be different. But also, every man was different and led a different life, and had different skills. Therefore, no experience of artificial limb use was universal.

The example of Private K in this chapter further highlights this uniqueness in experience that every ex-serviceman had. Rehabilitation was at the forefront of what the limb fitting centres were undertaking in both wars and making men useful again was a major part of the work undertaken there, especially with regards to employment. Private K is an example of a man who did not benefit from the fitting of artificial limbs (due to the nature of his amputations)

and as a result almost appears to have slipped through the cracks of the system in that respect. However, he is a prime example of a man advocating for himself and for the aid that he wants from the State. He is a strong character, which probably explains why he undertook so much employment of his own accord. His advocating is successful, in the end, and he manages to undertake training at Erskine – over ten years after the First World War had ended. Here, again, this idea of time and how lengthy these processes could be is evoked.

This idea of time plays a huge role in the whole experience after amputation of a limb. Being fitted with an artificial limb was not the end of the process - it was the beginning of a new life and one of adapting to having to use an artificial limb. One thing that comes across constantly in the records is this sense of time passing and the back and forth to the limb fitting centres and hospitals and to medical boards and in trying to find employment. For these men, returning to their home communities and societies took time, and living their lives and growing older meant more time being taken up with artificial limbs needing repaired and renewed, or accidents happening and stumps potentially needing medical treatment once again. Naturally, the body changes as it ages, and so too would the technology that was provided to these men. It wore down and aged, just as the human body does. Therefore, it is no wonder that this sense of time (in all forms) is evident in many of the oral histories or in the myriads of forms and letters in textual archives. Time is such a simple thing. It is something that we all experience, and it is unsurprising that many accounts complain of all the time taken up by the procedures of care. This thesis uniquely uncovers personal experiences of the limb fitting process and life post-war through this idea of time, and uses this to show this very human side of the whole experience.

The work undertaken at the limb fitting centres and the provision of artificial limbs has been the backbone of this thesis. It has allowed an exploration of the major points along the journey from becoming an amputee to being fitted with an artificial limb. However, by exploring the lived experiences of some of these ex-servicemen, it is apparent where some of these relationships between State and the realities of care provided fell short. This care provided by the limb fitting centres is always portrayed in a positive light by the official documents, which is why it is important to also be able to examine it through the eyes of those who were supposed to be benefitting from it. This allows for a more human insight into the realities of this experience and moves towards it not being a solely top-down history. The voices of these everyday, disabled ex-servicemen are important in creating this broader history of care post-war and show how different these experiences were for everyone.

# Conclusion

This thesis has examined the work undertaken in the limb fitting centres set up across mainland Britain from their opening in the First World War through to the end of the Second World War. Exploring two conflicts and the interwar period, has allowed this thesis to examine where there was a continuation in the care provided to limbless ex-servicemen, but also how some aspects changed between the two wars. It has explored questions of what limb design looked like and who was manufacturing these limbs. It has also raised questions around expertise and who was regarded to have this expertise at different points in the care process – from limb fitters and instructors, to the limbless ex-servicemen themselves. This thesis has ultimately questioned whether this care was appropriate for the injuries these ex-servicemen had and how it impacted their lives in a post-war society. It has shown that these limb fitting centres created a state of welfare before the Welfare State by providing this support under their roofs. They brought together this cohort of different actors to use their expertise and knowledge to provide for these limbless ex-servicemen. It enhances our understandings of post-conflict care by exploring the inter-war period and the Second World War, as well as the First World War.

Each chapter explores a facet of the chain of aid leading to the provision of the artificial limb – from the setting up of the limb fitting centres, to the manufacturing of artificial limbs, and the proper fitting and training in the use of them, to finally the post-war lives of some of the men who experienced this aid. No histories of either the First or Second World War in Britain have focused on artificial limb provision in such depth. It is a study of the interactions of space, people, and objects.

This thesis has brought together a number of historical approaches and methodologies from areas including disability history, welfare history, medical history, the history of expertise, material culture, and histories from below. Using these approaches has allowed this thesis to fully explore artificial limb provision in the time period of the two world wars, through the close reading of textual sources, oral histories, and material histories. It has advocated for the use of sources other than the traditional, text-based archive and has shown how using these different formats can help create a richer history, that is more inclusive of the lived experience of the limbless ex-servicemen of two world wars.

This thesis has been split into four main chapters, each representing major stages in the process of care provided by the limb fitting centres, and highlighting who held the expertise in this care at every point. Chapter One has explored the limb fitting centres themselves, using official sources to examine how they were set up and run. This has allowed for the tensions between State and philanthropy to be examined. More importantly, this chapter uses a 'four nation' approach to paint a picture of care across mainland Britain. Chapter Two uses the material culture of the artificial limbs themselves to explore limb design and the changes between the wars. Additionally, it also explores which limb manufacturers were working with the limb fitting centres and brings their histories into this wider story. Chapter Three has looked at the idea of expertise and who held this expertise in the limb fitting centres. Examining the medical staff, limb fitters and limb instructors, it has explored the idea of who were deemed "experts" by the State and the importance of these roles in the initial rehabilitation of the ex-servicemen. Finally, Chapter Four uses oral histories, official documents and material culture to explore the lived experience of a number of these ex-servicemen and brings their voices in to examine what they thought of the care provision explored in the previous chapters. By

interrogating these themes from the ex-serviceman's point of view, it reveals the insights of some men who were part of this chain of aid and allows for an exploration of just how valuable they found this care.

Chapter One focused on the limb fitting centres and how they were founded, organised and funded. Typically founded through philanthropic channels, State intervention came later in the conflict in most cases. Anderson's ideas of how these limb fitting centres changed the definition of medical care are central to this chapter.[502] A change that was not just seen in the buildings and stately homes that were taken over to care for and rehabilitate disabled ex-servicemen, the First World War also changed the relationship between the surgeon and the limb maker – with them both now working within the same domain – the limb fitting centre. This creation of a new space, where relationships between surgeon, limb-maker and disabled ex-serviceman were more closely intertwined, allows the overall thesis to explore in more detail the work undertaken there and the care supplied to these men. It has allowed for this idea of a state of welfare being created to come to fruition, as these centres were the first time that all of these experts in care had come together under the one roof to this extent. How everything being on one site - from potential re-amputation, to limb fitting, and limb use and rehabilitation - and having a dedicated site for all these steps to happen - is something that this chapter sets the scene for and explains why these centres were so important in allowing spaces for this to happen. This chapter is important in setting up the parameters in which the further care and aid for these ex-servicemen was controlled, funded, and housed. Linked to this idea of space is also the physical, geographical space of the different centres and how that impacted how they were run, and their futures. Roehampton remained the leading limb fitting centre

[502] Anderson, "Separating the Surgical and Commercial".

throughout both wars and worked closely with the State, whereas Erskine remained firm in its stance to be publicly and charitably funded and to solely care for disabled ex-servicemen. The fact that this chapter takes a 'four nations' approach to the subject has allowed for these tensions to be explored in more detail. Previous work, such as Reznick's, tends to focus on one nation or one hospital, but this chapter explores how these centres were developing in Scotland, England, and Wales.[503] Focussing on mainland Britain shows how each nation differed in their priorities with the care of these limbless ex-servicemen, while also providing a more in-depth analysis of post-war care in Britain as a whole. This chapter has shown that these limb fitting centres were pivotal spaces for the care of limbless ex-servicemen. Having ex-servicemen, limb fitters, limb instructors, limb manufacturers and medical staff under the one roof changed the nature of care that was provided for these men upon their return to Britain. The nature and number of cases returning also shows the importance of having centralised spaces for this care and for bringing "experts" from different points of care together. This idea of the expert and the centralised space of care is pivotal to the rest of the thesis.

Chapter Two furthered this idea of the expert by exploring the limb manufacturers and the limbs that they were creating. The chapter is separated into the manufacturers and the artificial limbs themselves to allow for both sides of this history to be told and to allow for a much wider picture to be created of where these limbs actually came from and why certain materials were used. The manufacturers section explored how each nation had a slightly different approach to who was creating the limbs for their centres and how this resulted in there being, at some points, a large number of manufacturers essentially doing the same job – from the help of shipbuilders in Scotland, to England utilising the skills of foreign limb makers

[503] Reznick, *Healing the Nation.*

who had already honed their trades. The need for artificial limbs on a large scale was obvious, but a large number of manufacturers also created problems when it came to repairing and replacing limbs in the future. An exploration of these manufacturers also allows us to see that many of these firms were initially created by men who needed the use of an artificial limb themselves and sets the path for the importance of lived experience and embodied knowledge that occurs in the final chapter. Exploring the artificial limbs themselves has allowed for another chronology of sorts to be created through an insight into the changes in materials used to create these limbs. From initial wooden peg legs to more advanced wooden legs and then light metals, great changes were made in the period from the First World War into the inter-war period. This is the first time that a study has taken on this level of exploration of materials of limbs for Britain and the two world wars. Examining the limbs held in museum collections has allowed this thesis to explore these changes but also allows us to see when advances stop being made at such a rapid level – for the Second World War, the majority of materials being used are those that were at the forefront in the 1920s and 30s. Moving away from more official records, this chapter also utilised trade catalogues created by the different manufacturers to examine why these companies were the ones to be making the limbs. Alongside this, artificial limbs held in museum collections bring material culture methodologies to this history to explore the objects themselves. Material culture is something that has been important throughout this thesis, but particularly in Chapter Two and Chapter Four.

Chapter Three has a main focus on the idea of the expert, and this is where the idea of different levels of expertise really begin to come to light. The medical expertise of those creating the stumps is explored, but more importantly this chapter is focussed on the figures of the limb fitter and the limb instructor. Both of these roles were pivotal to the success of the care provided in the limb fitting centres. However, they are typically missing from the histories

of rehabilitation – despite being the first point in the physical rehabilitation and the use of a limb. Limb fitters had to have the skills to be able to properly measure an ex-serviceman's stump and suggest a suitable limb for him. An improper limb was potentially catastrophic for a man, and could cause a multitude of problems. Limb instructors were not employed continuously throughout the war periods. These were ex-servicemen themselves who were proficient at using their own limbs and who were employed by the State to pass on this knowledge. This chapter has shown that expertise in the limb fitting centres was lauded when it was the State and the committees running the centres who appointed the experts and legitimised their knowledge and skill through this employment. A lot of work has been undertaken into rehabilitation and disabled ex-servicemen but it tends to focus on men returning to society and undertaking work.[504] The body and rehabilitation of the body damaged by war is often the lens that historians look at disabled ex-servicemen through, and while it is important, there are other facets of rehabilitation that need to be looked into further. As a result, this chapter is focussed on three aspects of the first steps in the overall rehabilitation journey and the steps taken to be able to get an ex-serviceman to the point where he might be able to undertake employment. It begins with amputation and the stump, exploring how medical expertise played an important role here in terms of getting the actual body ready for an artificial limb to be supplied. Once the doctors had created a suitable stump, the ex-serviceman could then be sent to a limb fitting centre where a limb fitter would take control of measuring for and fitting the appropriate artificial limb. The final step was the role of the limb instructor in showing these men how to effectively and efficiently use their new limbs. The example of Private K in Chapter Four explores this more traditional idea of rehabilitation and

[504] For example: Bartlett, "Reassembling Disabled Identities"; Kowalsky, "'This Honourable Obligation'"; McBrinn, "The Work of Masculine Fingers"; Anderson, *War, Disability and Rehabilitation in Britain";* Powell, *Bodies of Work.*

further highlights the unique experience that every ex-serviceman had. Rehabilitation was at the forefront of what the limb fitting centres were undertaking in both wars and making men useful again was a major part of the work undertaken there, especially with regards to employment. Private K is an example of a man who did not benefit from the fitting of artificial limbs (due to the nature of his amputations) and as a result almost appears to have slipped through the cracks of the system in that respect. However, he is a prime example of a man advocating for himself and for the aid that he wants from the State.

The importance of lived experience and embodied knowledge is something that is explored in more detail in the final chapter of this thesis and brings more of the personal expertise and skill to this wider history. Here, this embodied knowledge arises from skills that ex-servicemen themselves had and which they used to tinker with, adapt, and repair their own artificial limbs. This is not a 'legitimised' expertise such as was seen with those who worked in the limb fitting centres. Instead, this was a much more personal knowledge and skill. This use of embodied knowledge links to ideas discussed in Chapter Two when exploring who some of the limb manufacturers were. In some cases, these limbs were being made my companies who had disabled men at their fore. Both of these aspects allow a wider picture of the agency that disabled men had with regards to the limbs they were offered. Manufacturers such as Desoutter and Carnes were set up because these men were dissatisfied with the limbs on offer in the market at that time, and they decided to take things into their own hands. With the tinkering and repairing of their own limbs, the cases explored in this chapter also show the ex-servicemen themselves taking matters into their own hands. These examples across the thesis show the importance of lived experience and embodied knowledge at the user level of these technologies. They highlight that State provided care was not perfect and that it did not suit everyone. Just like with limb fitting, every stump was different and therefore every limb had to

be different. But also, every man was different and led a different life, and had different skills. Therefore, no experience of artificial limb use was universal. The whole process of post-war care was a time consuming one, as this chapter further highlights. Being fitted with an artificial limb was not the end of the process - it was the beginning of a new life and one of adapting to having to use an artificial limb. One thing that comes across constantly in the records is this sense of time passing and the back and forth to the limb fitting centres and hospitals and to medical boards and in trying to find employment. For these men, returning to their home communities and societies took time, and living their lives and growing older meant more time being taken up with artificial limbs needing repaired and renewed, or accidents happening and stumps potentially needing medical treatment once again. Naturally, the body changes as it ages, and so too would the technology that was provided to these men. It wore down and aged, just as the human body does. Therefore, it is no wonder that this sense of time (in all forms) is evident in many of the sources. Time is something that we all experience, and it is unsurprising that many accounts complain of all the time taken up by the procedures of care. This thesis has uncovered personal experiences of the limb fitting process and life post-war through this idea of time, and has used this to show this very human side of the whole experience.

Overall, this thesis contributes to the growing field of military welfare history. In defining this in 2023, Huddie and Carney explain that this involves asking question of 'war *and*' and looking beyond the traditional time of war itself and also looking beyond traditional State actors.[505] This thesis does just that by exploring the interwar period alongside the two world wars, as well as examining a host of different actors in the care provided for these ex-servicemen.

[505] Huddie and Carney, "Military Welfare History: What is it and why should it be considered?".

Through the limb fitting centres, this thesis has shown that philanthropy played a major role initially in the care of these men, but became somewhat diluted in England in particular once the State became involved. Focussing on mainland Britain has also allowed this thesis to delve into these tensions between State and charity and to explore how different nations approached this. Histories of medicine and war, such as Reznick's, typically tend to focus on one institution. This thesis therefore shows a wider, national, picture of care. The focus on the different experts within the limb fitting centres has also added to this larger picture of care. Exploring the limb instructors and limb fitters has added to the wider understandings of rehabilitation by focussing on the initial steps of learning to use an artificial limb and learning to have it attached to the body. Typically, this is missing from disability histories of war and is almost taken for granted. This thesis explores this almost mundane step to show the effort and skill that went into this stage of the process of care.

The value of disability history methodologies and material culture, in particular, to histories centred around war and conflict shines through in the research undertaken in this thesis. The tactile, hands-on approach to a history like this that material culture offers has allowed this thesis to explore the design and materials of artificial limbs over decades, and has shown how these changed depending on manufacturing ideas at the time.[506] Exploring the objects has allowed for a different approach to the ideas of expertise that are central to this thesis. They are tactile examples of the work that the manufacturers were undertaking, but the limbs also allow a more visual understanding of why it was important to have it fitted properly and the knowledge of how to effectively use a new limb. Wood was the traditional material of choice, yet as the world became more mechanized, lighter metals were requested in keeping with the

[506] I did not appreciate how cumbersome artificial limbs could be until I was actually able to hold some in my own hands.

modern world. Historians working with pension files and medical files have typically used medical history methodologies to reveal the 'patient view' and this has been an important means of bringing the real people back into these histories.[507] However, text-based documents can only tell you so much. Through the use of material culture, this thesis has been able to show that not all men were fully accepting of the limbs and care that were offered to them by the limb fitting centres. Examples of limbs held in museum collections show that some men made their own adaptations to their limbs or even repaired them – using the acquired knowledge that they already had. Examining the objects themselves has allowed for the agency of these men to be examined in a different way from how historians of war have typically done so up until this point. These objects, used alongside oral histories, have allowed this thesis to go beyond what can be gleaned from the written text and help create a wider picture of agency in these ex-servicemen. Subjective as these accounts may be, they have allowed this thesis to show that care in the limb fitting centres was not always as useful to the ex-serviceman as those running the centres might have expected. The lived experience of these ex-servicemen shows the realities of post-war life as a disabled man. Both the designers and the users are important parts of this history, but both have often been overlooked in the history of disability and conflict. Through material culture and trade catalogues, my research has been able to show how integral both were to the work undertaken at the limb fitting centres. As a result of this research, it has been possible to show that lived experience also played a pivotal role in the manufacturing of the limbs that were made for these ex-servicemen.

Each chapter of this thesis has utilised a different selection of sources in order to explore the different sections of these histories However, the use of different sources results in different methodologies being used throughout this thesis. Much of the research is rooted in official

[507] The works in Anne Hanley and Jessica Meyer's *Patient Voices in Britain 1840-1948,* show how important this is.

documents held at archives such as The National Archives, Glasgow University Archives and The London Archives (formerly London Metropolitan Archives). Through these sources, it has been possible to compare and contrast what was happening in terms of care at an institutional level during both world wars, and in the inter-war period – from the State, to philanthropists, medical experts, limb makers, limb fitters, limb instructors, and the disabled ex-servicemen themselves. These official sources and reports have allowed this thesis to investigate tensions in the running of and purpose of these limb fitting centres, initially set up during the First World War – especially regarding State intervention into these initially philanthropic undertakings. As important as these traditional official sources have been to the work of this thesis, the use of material culture methodologies and oral histories alongside these brings a different, more human, insight into these histories. As Roper has shown in his recent books exploring descendants' histories, objects, ephemera, and oral histories can help reconstruct the lived experiences of those who actually underwent the care lauded by these institutions, in the tradition of histories from below.[508]

Disability historians have been exploring objects and design more frequently in the past two decades and using this to show a 'tactile, sensory dimension of the past.'[509] Ott has been at the forefront of this, but increasingly more historians have been engaging with material culture and objects to examine the realities of technologies given to disabled people.[510] By doing so, disability histories are starting to focus more on use and adaptation of aids. This thesis has continued this trend by exploring the artificial limbs themselves and examining the materials and designs used in the construction of these, and also the relationship between the user and

[508] Roper, *Afterlives of War.*
[509] Katherine Ott, David Serlin (eds.) *Artificial Parts, Practical Lives;* and Katherine Ott, "Disability Things," p.120.
[510] See: Williamson and Guffey (eds.) *Making Disability Modern;* McGuire, *Measuring Difference, Numbering Normal;* Almond-Brown, *Spectacles and the Victorians.*

the limb. In histories of disability and the two world wars, material culture is something that should be utilised more frequently and a reliance on solely textual documents does not have to be the reality, as this thesis shows. The use of material culture in this thesis has also allowed for an exploration, in the final chapter, of how some ex-servicemen used their own skills and knowledge to undertake their own repairs on their artificial limbs. This embodied knowledge also shows itself in men tinkering with their limbs in order to make them fit better and work better for them in their everyday lives. Therefore, these ideas of user experiences of technology bring to the fore an under-explored area of the lives of these disabled ex-servicemen in their post-war lives. It has allowed this thesis to explore the idea of ex-servicemen themselves being experts in their own care.

This thesis ends with the formation of the NHS, but the lives of these men did not end then. The focus on limb fitting centres has shown that Roehampton continued as a space for limbless ex-servicemen to receive care for decades after the NHS was created. Roehampton did not become part of the NHS until the 1980s, by which point civilians who needed artificial limbs were already being provided these in NHS-run hospitals. Presumably, those ex-servicemen who could not reach Roehampton were also being treated by the NHS, but this is just speculation and this place of ex-servicemen in the NHS has been outwith the scope of this thesis. These limb fitting centres created a state of welfare before the Welfare State by providing this support under their roofs. They brought together this cohort of different actors to use their expertise and knowledge to provide for these limbless ex-servicemen. Yet it was only for ex-servicemen, for the most part. The interwar years saw some civilians benefitting from the expertise of these centres, but only in certain circumstances. Naturally, the Second World War saw a rising number of civilians being allowed access to Roehampton due to bombing raids and more injury at home. Once again, however, this expertise was only afforded to a select few, or

to those who could afford it. This thesis has focused on ex-servicemen so has not had the scope to focus on civilians. However, there is a potential future project in exploring amputees who were not military and the trajectory of their lives and their care before, and then within, the NHS. Scholars need to explore how this State care benefitted everyone else in society and not just those who lost limbs in the service of their country. How wider society benefitted from the expertise housed within the limb fitting centres is important future research. We know that some civilians began to gain treatment at Roehampton in the interwar period, but just how widespread was that help? I think there is scope for an interesting comparison here of the care provided for ex-servicemen and the care provided to the wider civilian population.

The work of the limb fitting centres did not end when the Second World War ended. These spaces, especially Roehampton, continued to help limbless ex-servicemen for years after the cessation of fighting because, as this thesis has shown, the process of limb fitting could be a lengthy one. Private O had his arm amputated after an injury caused by shrapnel in 1945. As a result, he did not attend a limb fitting centre until the following year. Speaking of his experiences with the artificial arm given to him at Roehampton, Private O gives a summary of his life with an artificial arm: 'They measured me up for an artificial arm. I had an artificial arm for some years but I find that it's a bug bear now, too much of a hassle, it gets in the way, especially given I'm driving… I'm better without it.'[511] Private O further highlights that life with an artificial limb continued and that sometimes this life could be hindered by the use of an artificial arm. The years after the end of the Second World War saw an increase in the number of beds occupied at Roehampton. Partly due to servicemen returning from overseas with injuries that needed attention, there were also those who were returning after being

[511] IWM, "Douglas William Old," reel 5, online recording, catalogue number 23146, <https://www.iwm.org.uk/collections/item/object/80022126> (accessed 14/05/2024).

evacuated during bombing raids. Wars have long-lasting legacies, and these disabled populations were one of them. This legacy was not just the men who were returning and needing an initial limb fitted, but also those who needed repairs and adjustments, or needed re-fitting. Towards the end of 1947, the Ministry of Pensions notified the Committee of Roehampton that the supply of artificial limbs to civilians, which had been in place for many years at this point, would cease from the 1st February 1948.[512] In the 1949 Annual Report, it is stated that owing to the introduction of the National Health Service, the work in providing and repairing artificial limbs for civilians had fallen to very small proportions.[513] Cases from the two world wars, however, were still being treated at Roehampton. In a Committee meeting at the end of 1949, the Chairman highlighted that 'in the treatment and the supply of artificial limbs Roehampton is more than a household word – it has an international meaning and reputation' – which this thesis has shown.[514] At this stage, the remit of the hospital was expanded to include disabled ex-servicemen and women from any war.[515] The need for this provision of care for those who lost limbs was unequivocally understood by those running, and working at, Roehampton. It was further highlighted by the number of ex-servicemen from the First World War who were still requiring treatment alongside those from the Second World War. Full control of Roehampton was finally passed over to the Ministry of Pensions in 1953, and it was not until 1982 that the Roehampton 'Trust' was sold to the National Health Service. In all of these years after the Second World War, it had remained as a limb fitting centre for disabled ex-servicemen. Like all theses, my research had to end somewhere and the formation of the NHS was an obvious point. There is however remit for a future researcher to explore the life of Roehampton as a post-war institution.

---

[512] TLA, Governors' Reports, Statements of Accounts and Lists of Donations, H02/QM/A/10/004.
[513] *Ibid.*
[514] TLA, Welfare Committee Minute Book, H02/QM/A/06/001.
[515] TLA, Governors' Reports, Statements of Accounts and Lists of Donations, H02/QM/A/10/004.

Examining two world wars has highlighted that in some cases valuable lessons from previous conflicts are often either forgotten or overlooked. My research has shown that there was some consistency in these two wars with regards to Roehampton remaining as a limb fitting centre throughout, but much of the policy was either scrapped or forgotten in between the wars. This resulted in, for example, the need to re-establish limb instructors during the Second World War. Historians such as Mayhew and Dixon-Smith have begun to explore ideas of rehabilitation and blast injury in more modern conflicts, but this is an area that historical research has the potential to have much more impact upon.[516] Harry Parker, a veteran of Afghanistan, has also started to undertake research based on losing both of his legs in conflict.[517] War is still very much a part of life in the world as I type this and limb loss is still prevalent as a result. More projects such as those mentioned above are beginning to explore the aftermath of disability and more modern conflicts. However, I think this thesis raises some important questions about the care provided for those made limbless as a result of war. Who is providing this care and who is deemed worthy of receiving care or a new artificial limb? More modern conflicts result in not just military personnel being injured or disabled. Newer weapons bring with them newer injuries (such as the blast injuries mentioned above) and who are the experts on how to deal with these injuries? This thesis has shown that there are ways of examining care and provision of artificial limbs to a large cohort of people and has highlighted the importance of different actors and different experts in the provision of this care. Even in terms of artificial limb design, there is definitely scope for someone to explore limb design in conflicts after the Second World

[516] Sarah Dixon Smith, David Henson, George Hay, and Andrew S.C. Rice, "Chronic post-amputation pain and blast injury: An analysis of British First World War Veterans' pension records, 1914-85" *Journal of Military, Veteran and Family Health,* volume 7, issue S2, November 2021, pp.64-73, doi.org/10.3138/jmvfh-2021-0044; and Emily Mayhew, *A Heavy Reckoning: War, Medicine and Survival in Afghanistan and Beyond* (Wellcome, 2017).
[517] Harry Parker, *Hybrid Humans.*

War – as well as the materiality and design of limbs given to those who are not in the armed services. This thesis has provided a framework for exploring the nature of welfare and care in the aftermath of major conflicts.

## Appendix One: Main Figures in the Limb Fitting Centres

This appendix has been added as there is a wealth of people involved with the setting up of the limb fitting centres, across all three mainland Britain countries. Having to explain who each one was when they appeared in the thesis text was detracting from the argument, so I have gathered them all here so that their roles and backgrounds are still part of the thesis.

### Charles Kenderdine:

Sir Charles Kenderdine was one of the founders of the limb fitting centre at Roehampton and served on the Committee until 1933. He also acted as the Chairman for the Advisory Council on Artificial Limbs at the Ministry of Pensions, and just generally did a lot of work on behalf of disabled ex-servicemen from the First World War. He was also Director of Artificial Limb Supplies at the Ministry of Pensions. He was the Honorary Secretary and the Treasurer to Roehampton and continued to work with the institution until his death. His wife, Lady Kenderdine, was involved with the Roehampton committee.

### Mrs. Mary Eleanor Gwynne Holford:

Gwynne Holford was instrumental in the founding of the limb fitting centre at Roehampton. An aristocrat, Gwynne Holford mobilised influential friends to start the centre there after meeting with a man in a military hospital who had lost both of his arms. So moved by this encounter, she was determined to do something to help him and other men like him. Gwynne Holford was pivotal in the running of the centre at Roehampton, and also advised on the setting up of the limb fitting centre in Cardiff. It was also thanks to her social contacts that Queen Mary agreed to become Patron of the centre at Roehampton.

Lady Falmouth:

One of the founders of Roehampton. She also served on the Committee for the limb fitting centre and was instrumental in how the centre was initially set up and run.

Kenneth E. Wilson:

The owner of the mansion at Roehampton. He agreed to lend the house to the Committee for the duration of the war, as well as the grounds surrounding it. He did so free of charge, and without him the limb fitting centre there would essentially have never existed.

Miss Munn:

Miss Amy Munn was appointed as Matron of the limb fitting centre at Roehampton. Having previously worked at Blenheim Palace Hospital, she was instructed to appoint her own staff at Roehampton. She was also linked to the centre at Cardiff, when that was being founded.

Sir Francis Lloyd:

Lloyd was a senior British Army Officer. During the First World War, he was responsible for the defence of London, and was given powers over hospitals (amongst many other things).

Sir Charles Crutchley:

Crutchley was a British naval Officer in both the First and Second World Wars.

Sir Alfred Keogh:

Keogh served as Director General Army Medical Services from 1914 to 1918. He supervised the expansion of the Army Medical Services to cope with the casualties from the First World War and was in charge of those services in the UK – therefore he was involved in agreeing to the opening of the limb fitting centres across Britain.

Sir William Macewen:

The eminent Scottish surgeon, Macewen was at the forefront of the founding of the limb fitting centre at Erskine. As well as founding the centre, Macewen was also the first chief surgeon there, and helped create the Erskine Provisional Limbs. He was instrumental in the running of the centre until his death in 1924. Macewen was a pioneer surgeon in the fields of brain surgery and also had an interest in orthopaedics. Before founding the limb fitting centre at Erskine, he was the Regius Professor of Surgery at the University of Glasgow, having had a prominent career up until this point. In light of this, it is probably unsurprising that he had the influence to get the centre up and running, and knew the correct people to help him do so.

Thomas Aikman:

Aikman was the owner of the mansion house at Erskine. He offered the committee free use of the house and the surrounding grounds for the duration of the war and for 12 months after peace had been declared. He also offered to sell the house for the agricultural value of the

surrounding grounds, in order to make the institution a permanent one – an offer which was gladly accepted by the committee.

John Reid:

Reid was the Vice-President of the centre at Erskine. He was also the one who bought the mansion from Aikman and gifted it to the committee for use as a limb fitting centre.

J. Lynn Thomas:

Thomas was a consulting surgeon for the Army during the First World War. He served on the committee at Roehampton. Yet, arguably more importantly, he founded the limb fitting centre in Cardiff.

Miss Clara Deacon:

Deacon was the Matron at the limb fitting centre in Cardiff. Before taking up this role, she had worked as Assistant Matron at Roehampton. As well as serving as Matron, she was also given the role of Commandant of the centre (a role that was usually afforded to men).

## Appendix Two: Biographies of the Ex-servicemen Mentioned in the Thesis

This appendix allows for some more background information about the figures mentioned throughout the thesis to be given. As with the above appendix, going into detail about where someone served or what they rank they were is not always appropriate in the main body of the thesis. However, these ex-servicemen are an important part of this history and I think it is important that both their stories are told in the thesis, but also that you have the chance to get to know them in more detail.

### Private J:

J was a British private who served with the 7th Battalion Queen's (Royal West Surrey Regiment), 55th Brigade. He enlisted in 1914 and was sent to the Western Front in 1915. He served in France until the Battle of the Somme, in 1916, where he was injured. Ultimately, his leg had to be amputated when he returned to Britain. This led to him being sent to Roehampton for the fitting of an artificial leg and to undergo rehabilitative treatment there. He eventually ends up with a light metal Desoutter leg.

### JF Bunn:

Bunn served on the Western Front during the First World War, as a Private in the Suffolk Regiment. Injured at various points whilst serving, he lost his leg in 1917 during heavy shelling. He had problems with his stump, which led to issues with him being fitted with an artificial leg at Roehampton. He ultimately wrote a diary of his time during the war, and his recollections of time at Roehampton are central to it.

Private C:

C served with the 4th Battalion King's Shropshire Light Infantry, 159th Infantry Brigade, 11th Armoured Division in North West Europe from 1942-1944. He was wounded by a mine in 1944 and underwent amputation of his left arm in the Netherlands. Re-amputation was something that he unfortunately had to go through, eventually rejecting a third amputation. He was eventually fitted with an artificial arm, which he found to be cumbersome and not particularly useful.

Private WC:

WC was a Private with the 9th Battalion Durham Light Infantry during the Second World War, serving in a variety of places from 1939-1944. He was injured whilst serving in North Africa, and woke up to find that his leg had been amputated. Initially he underwent limb fitting and rehabilitation at a hospital in South Africa. However, once he was back in Britain he was fitted with a British artificial limb and had to undergo the whole process of re-fitting and adapting to yet another new artificial limb.

Gunner T:

T was a Gunner who served with 245 Brigade, Royal Field Artillery during the First World War – from 1914-1917. He served on the Western Front and was wounded near Ypres in November 1917. His leg was amputated without him knowing that was the operation he was going for, which caused a lot of distress. He later had to undergo re-amputation to tidy up the initial stump. Towers is interesting as he talks a lot about the unsatisfactory fit of his artificial leg and how he had to tinker with the limb to make it fit better. He also became a fairly prominent

member of the British Limbless Ex-Servicemen's Association in Leeds.

Private O:

O was a Private who served with the 4th Battalion Dorsetshire Regiment, 130th Infantry Brigade, 49th (Wessex) Infantry Division, in the Second World War. Predominantly serving in France and Belgium, he was actually injured during an advance in Germany, in 1945. He was hospitalised in the Netherlands and was then eventually transported back to Britain. His injuries meant that his arm had to be amputated and he received treatment at Roehampton. Old suffered both these physical but also the psychological side of having been part of the war. He did use his artificial arm for many years, but found it to be cumbersome and had given up wearing it when his interview with IWM was undertaken.

Private K:

K was a Private in the 1st Gordon Highlanders during the First World War. Serving on the Western Front, Kelly had one of his legs blown off in an attack in March 1916. As a result of his injuries, he had to have his other leg amputated, too. Upon return to Britain, he underwent various spells of treatment at Erskine. With such little left of his legs, there is no indication that he was fitted for artificial limbs. He was initially able to secure employment locally in his town in Scotland, with him eventually returning to Erskine to undertake training in basket weaving (a common pursuit for many in these centres).

Nurse W:

W was a British nurse who served with the Voluntary Aide Detachment during, and in the immediate aftermath of, the First World War. She worked at the British Red Cross Hospital at Brooklands Hospital in Weybridge. Naturally, her account details numerous different injuries and outbreaks of disease, but more interestingly for this thesis, the hospital had a ward dedicated to limbless ex-servicemen. The nature of nursing and how difficult the work could be is something that her account really highlights.

# Bibliography.

## **Primary Sources:**


Glamorgan Archives:

Cardiff Royal Infirmary War Emergency Hospital, Whitchurch, Records, DHWHE

Prince of Wales Orthopaedic Hospital, Cardiff, Records, DHPW

Imperial War Museum:

Private Papers of JF Bunn, Documents.16985

Private Papers of Miss NM Scott, Documents.22770

Queen Mary's (Roehampton) Hospital, Roehampton House, S.W.15. For Sailors, Soldiers and Airmen Who Have Lost Their Limbs in The War, K.4394, Artificial Limbs Work at Roehampton 1915-1930.

Imperial War Museum Online:

Aston, Horace (oral history), 11039

Bland, Thomas (oral history), 11215

Caswell, Raymond (oral history), 17285

Clark, Joseph William (oral history), 17628

Gaffon, Horace (oral history), 16428

Jarman, Clarence Walter Harvey (oral history), 12925

Old, Douglas William (oral history), 23146

Quinnell, Charles Robert (oral history), 554

Raistrick, George Wilfred (oral history), 17334

Spong, Percy (oral history), 24525

Towers, William Henry (oral history), 11038

Warren, Margaret Goodwin (oral history), 512

The London Archives (formerly London Metropolitan Archives):

Queen Mary's Roehampton Trust, H02/QM

National Museum Wales:

Arm attachments, 66.264.1-8

Artificial leg, F87.24

Science Museum, London:

Alclad artificial left leg, London, England, 1924-1940, 1999-451

Artificial above knee prosthesis with wooden socket, 1999-435

Artificial 'bird cage' right leg, Europe, 1913-1923, 1999-472

Artificial left arm, United Kingdom, 1914-1916, 1999-535

Artificial left arm, United States, 1915, 1999-528

Artificial leg, England, 1890-1950, 1999-479

Artificial right arm, 1999-547

Artificial right hand, Europe, 1999-597

Artificial right leg, Scotland, 1914-1918, 1999-421

Artificial leg with extensive home repairs, England, 1914-1918, 1999-484

Certalmid hand with a moveable thumb, 1999-588

Hobbs-type artificial left hand, Europe, 1918, 1999-607

McKay artificial left arm, 1999-539

McKay-type artificial hand, Scotland, c.1920, A500480/1

Openshaw artificial wooden hand, 1999-591

Openshaw-type artificial hand, Birmingham, England, 1916-1918, 1999-594

Pilot's appliance for holding the joy-stick, England, 1942-43, 1999-635

Temporary pylon artificial leg, England, 1914-1918, 1999-418

Wooden 'Anglesey' artificial right leg, England, 1915-1925, 1999-444

Wooden artificial leg, 1999-468

Wooden prosthetic hand with rigid fingers, 1999-599

Special Collections, University of Leeds:

Liddle Collection:

Bailey, W, LIDDLE/WW1/GS/0072

Copeland, JH, LIDDLE/WW1/GS/0359

Cottam, FT (eric) LIDDLE/WW2/ARMY/040

Curtis, Reg, LIDDLE/WW2/ARMY/044

Dunne, PJ, LIDDLE/WW2/NAVY/017

Joss, CGW, LIDDLE/WW1/GS/0872

Longmuir, John Bogie, LIDDLE/WW1/POW/041

Rawlings, R, LIDDLE/WW1/GS/1331

Richardson, W, LIDDLE/WW1/GS/1349

Turner, AWL, LIDDLE/WW1/GS/1637

Wallis, SJ, LIDDLE/WW1/RNMN/299

Thackray Museum of Medicine, Leeds:

PEG LEG for AMPUTATION above the KNEE, FITTED with WAIST BAND AND SHOULDER STRAPS, WOODEN, 866.003

Artificial Arm Prosthesis for right above elbow amputation with detachable plain hook; McKay Artificial Limb Co., 1926, 251419

C hook with articulated joint, 2007.0147

Quick grip pliers, 321206

Typing (keyboard) appliance, 2007.0149

Ball pein hammer, 2007.0418

Hugh Steeper Ltd., *Modern Artificial Arms and Appliances,* 1935, CAT1192

J.E. Hanger & Co. Ltd. *In Step Again,* 1957, CAT1774

J.E. Hanger Inc., *Hanger Improved Artificial Limbs: Nature's Rivals,* 1911, CAT1828

The Carnes Arm Puts You on the Payroll, 1922, CAT2043

The National Archives, Kew:

PIN 15:

/35, Inter-Departmental Committee on Employment of Severely Disabled Ex-Servicemen papers

/36, Inter-Departmental Committee on Employment of Severely Disabled Ex-Servicemen papers

/37, Inter-Departmental Committee on Employment of Severely Disabled Ex-Servicemen papers

/38, Disabled ex-servicemen: correspondence and resolutions from outside organisations

/62, Cases of amputation or re-amputation after discharge

/63, Supply of artificial limbs and appliances: appointment of Guedalla Committee

/64, Supply of artificial limbs and appliances: appointment of Guedalla Committee

/470, Former war pensions: supply, repair and renewal of artificial limbs and appliances

/836, Royal Warrant 1917: provision for loss of use of a limb

/1569, Final awards: amputation cases

/1835, Amputation cases

/1836, Amputation cases

/1837, Amputation cases

/1839, Damage caused to clothing by artificial limbs or appliances

/1840, Damage caused to clothing by artificial limbs or appliances

/2406, Advisory Committee on Artificial Limbs: Young's specially constructed peg leg

/2587, Treatment allowances: limbless pensioners attending limb-fitting centres

/2617, Issue of more than twelve months' arrears in amputation cases where men were receiving lower rates than those to which they were entitled

/3094, Deputation to the Minister from the British Limbless Ex-Servicemen's Association on 29 May 1946: payment of constant attendance allowance in Syme amputation case

/3277, Compensation for loss of remunerative time: limbless pensioners who are temporarily without a suitable limb

/3314, British Limbless Ex-Servicemen's Association: Correspondence and resolutions relating to unemployment, treatment allowances, welfare etc

/3315, British Limbless Ex-Servicemen's Association: After-effects of amputations

/3380, Arrangements for fitting artificial limbs and appliances (Second World War)

/3381, Assessment and procedure (Second World War)

/3382, Invaliding and discharge procedure in the cases of limbless men

/3383, Invaliding and discharge procedure in the cases of limbless men: duration of 100% rate after amputation

/3650, King's Fund: inauguration of a national voluntary fund for disabled ex-servicemen (part 1)

/3651, King's Fund: inauguration of a national voluntary fund for disabled ex-servicemen (part 2)

/4030, Staffing estimates: medical, lay and technical staff in head-quarters, Ministry hospitals and limb fitting centres

/4258, Experimental workshops: development of Certalmid for use in artificial limbs; claim for payments made by inventor Harold Longmate

PIN 26:

/170, Private Charles HILLIER, Prince Albert's (Somerset Light Infantry)

/1726, Private Percy Harold BOWERMAN, The Durham Light Infantry.

PIN 38:

/304, Hospital accounts and financial queries: contains note of the artificial limb work at Roehampton for the period 1915-1930

/305, Queen Mary's (Roehampton) Hospital: treatment of patients, general notes and memoranda, 1923-1925

/306, Queen Mary's (Roehampton) Hospital: treatment of patients, general notes and memoranda, 1925-1928

/307, Queen Mary's (Roehampton) Hospital: treatment of patients, general notes and memoranda, 1928-1930

/308, Queen Mary's (Roehampton) Hospital: treatment of patients, general notes and memoranda, 1930-1934

/309, Complaints by or on behalf of patients about treatment and other matters

/310, Queen Mary's (Roehampton) Hospital: experimental workshop and requests for equipment

/393, Correspondence with J. E. Hanger and Company Limited, 1914-1918

/394, Correspondence with J. E. Hanger and Company Limited, 1918-1920

/395, Correspondence with J. E. Hanger and Company Limited, 1920-1925

/396, Correspondence with J. E. Hanger and Company Limited, 1925-1931

/397, Hanger J E and Company Limited: general correspondence, 1931-1949

/398, J. E. Hanger and Company Limited: metal legs supplied under maintenance scheme (part 1)

/399, J. E. Hanger and Company Limited: metal legs supplied under maintenance scheme (part 2)

/400, J. E. Hanger and Company Limited: technical reports and correspondence

/401, J. E. Hanger and Company Limited: correspondence regarding metal artificial legs

/404, Conference of limb fitting surgeons

/405, Correspondence related to limb fitting centres

/406, Complaints

/407, Enquiries and resolutions relating to limb fitting centres

/408, Miscellaneous correspondence

/409, Committee of surgeons and engineers appointed by the War Office

/410, Supply, repair and renewal of artificial limbs: War Office Committee on Artificial Limbs

/411, Meetings and reports of the Committee on Artificial Limbs

/412, Responsibility for whole work taken over by Ministry of Pensions in February - May 1917

/413, Need for a second limb: repair workshop scheme: proposal to train disabled men as fitters and repairers

/414, Supply repair and renewal of artificial limbs: policy

/415, Limb makers to undertake repair of any make of limb

/416, Drawing up of correction slip 10 of 1918 and Form A: application form for the attendance of pensioner at fitting hospital

/417, Revision of travelling expenses application and also of Correction Slip 16 of 1919 and Form B for repair and renewal

/418, Ministerial survey of general policy on 7 10 1919

/419, Treasury sanction general policy of Ministry: repair depots, inspectorate instructors Expert Committee etc

/420, Policy

/421, Policy

/422, Supply of second or duplicate limbs

/423, Instructions to limb fitting centres

/424, Supply of second or duplicate limbs

/425, Recommendations by Medical Boards regarding the repair and renewal of artificial limbs

/426, Artificial limbs for use in hot climates

/427, Men who had artificial limbs when enlisted: state's responsibility for repairs

/428, Civilians injured as a result of hostilities, or in the employ of government departments

/431, Experiments on Duralumin light metal legs

/432, Supply of below knee metal legs: limb fitting centres

/433, Supply of below knee metal legs: National Union of Disabled Ex-servicemen

/434, Transfer of arrangements for supply to the Ministry of Supply

/443, Metal Limbs: general correspondence

/444, Metal Limbs: general correspondence

/464, Non-war injury cases

/465, Non-war injury cases

/466, Non-war injury cases

/470, Appointment Instructors

/471, Appointment of Instructors

/472, Appointment of Instructors

/473, Appointment of Instructors

/474, Dr Hort's brochure and Eltringham Exercises

/475, Professor Amar's system

/476, Complaints of defective instruction in the use of artificial legs at limb fitting centres

/477, General discussion of scheme

/478, General discussion of scheme

/481, Artificial limbs: appointment of inspectors

/482, Artificial limbs: appointment of inspectors

/483, Appointment of Technical Officers: general correspondence

Other:

Invention of, or suggestions for:- Artificial limbs, MUN 7/282

Invention of, or suggestions for:- Artificial limbs, by E.A. Parish, MUN 7/285

Invention of, or suggestions for:- Improvements in joints for artificial arms, MUN 7/301

Investigations by Artificial Limbs Section, M.I.D., into arms and hands movements while using hand-tools, MUN 7/331

Investigation [by Artificial Limbs Section, M.I.D.] into forces controlling leg in walking, MUN 7/334

Training Department: Correspondence with Thomas Kelly concerning an application for grants for trainees undergoing twelve-month training courses in boot repairing at the Erskine workshops under the Industrial Training Scheme, LAB 2/1195/TDS2884/1919

University of Glasgow Archive Services:

Records of Erskine Hospital Ltd, veteran's charity, Renfrewshire, Scotland, GB 248 UGC 225

**Secondary Sources:**

Books:

Acton, Carol and Jane Potter, *Working in a World of Hurt: Trauma and Resilience in the Narratives of Medical Personnel in Warzones* (Manchester University Press, 2015)

Almond-Brown, Gemma, *Spectacles and the Victorians: Measuring, Defining and Shaping Visual Capacity* (Manchester University Press, 2023)

Alper, Helen, *A History of Queen Mary's University Hospital Roehampton* (Richmond Twickenham and Roehampton Healthcare NHS Trust, 1996)

Anderson, Julie, *War, Disability and Rehabilitation in Britain: 'Soul of a Nation'* (Manchester University Press, 2011)

Bamji, Andrew, *Faces from the Front: Harold Gillies, the Queen's Hospital, Sidcup and the Origins of Modern Plastic Surgery* (Helion & Company Limited, 2017)

Bourke, Joanna, *Dismembering the Male: Men's Bodies, Britain and the Great War* (Reaktion Books Ltd, 1999)

Calder, John, *The Vanishing Willows: The Story of Erskine Hospital* (The Princess Louise Scottish Hospital (Erskine Hospital) 1982)

Carden-Coyne, Ana*, The Politics of Wounds: Military Patients and Medical Power in the First World War* (Oxford University Press, 2014)

Cohen, Deborah, *The War Come Home: Disabled Veterans in Britain and Germany, 1914-1939* (University of California Press, 2001)

Cooter, Roger, *Surgery and Society in Peace and War: Orthopaedics and the Organization of Modern Medicine, 1880-1948* (The Macmillan Press Ltd, 1993)

Diamond, Harry, *Do You Sleep with That Leg On? The Story of Erskine Hospital* (Erskine Hospital, 2001)

Gosling, George Campbell, *Payment and Philanthropy in British Healthcare, 1918-48* (Manchester University Press, 2017)

Hallett, Christine E., *Containing Trauma: Nursing Work in the First World War* (Manchester University Press, 2011)

Handley-Cousins, Sarah, *Bodies in Blue: Disability in the Civil War North* (University of Georgia Press, 2019)

Harrison, Mark, *The Medical War: British Military Medicine in the First World War* (Oxford University Press, 2010)

- , *Medicine and Victory: British Military Medicine in the Second World War* (Oxford: Oxford University Press, 2009)

Hendrie, W.F. and D.A.D. Macleod, *The Bangour Story: A History of Bangour Village and General Hospitals* (Aberdeen University Press, 1991)

Hickman, Clare, *Therapeutic Landscapes: A History of English Hospital Gardens Since 1800* (Manchester University Press, 2013)

Houghton, Frances, *The Veterans' Tale: British Military Memoirs of the Second World War* (Manchester University Press, 2019)

Johnstone, Anne, Jennifer Cunningham, and Russell Leadbetter, *A Century of Care: Erskine 1916-2016* (Erskine, 2016)

Jones, Claire L., *The Medical Trade Catalogue in Britain, 1870-1914* (Pickering and Chatto, 2013)

Kinder, John M., *Paying with Their Bodies: American War and the Problem of the Disabled Veteran* (The University of Chicago Press, 2015)

Larsson, Marina, *Shattered Anzacs: Living with the Scars of War* (University of New South Wales Press Ltd., 2009)

Leese, Peter, *Shell Shock: Traumatic Neurosis and the British Soldiers of the First World War* (Palgrave MacMillan, 2002)

Linker, Beth, *War's Waste: Rehabilitation in World War I America* (The University of Chicago Press, 2011)

Macewen, Hugh Allan, M.D., *The Man in The White Coat – An Account of The Forebears and Early Life of Sir William Macewen, Surgeon, to which is added Personal Reminiscences Concerning Sir William's Career* (John Smith & Son (Glasgow) Ltd., 1974)

Massey, Doreen, *Space, Place and Gender* (Polity Press, 2013)

Mayhew, Emily, *A Heavy Reckoning: War, Medicine and Survival in Afghanistan and Beyond* (Wellcome, 2017)

McGuire, Coreen, *Measuring Difference, Numbering Normal: Setting the Standards for Disability in the Interwar Period* (Manchester University Press, 2020)

Meyer, Jessica, *An Equal Burden: The Men of the Royal Army Medical Corps in the First World War* (Oxford University Press, 2019)

-, *Men of War: Masculinity and the First World War in Britain* (Palgrave Macmillan, 2011)

Newlands, Emma, *Civilians into Soldiers: War, the Body and British Army Recruits, 1939-45* (Manchester University Press, 2014)

Parker, Harry, *Hybrid Humans: Dispatches from the Frontiers of Man and Machine* (Wellcome Collection, 2022)

Perry, Heather, *Recycling the Disabled: Army, Medicine, and Modernity in WW1 Germany* (Manchester University Press, 2014)

Phillips, Gordon, *Best Foot Forward: Chas A. Blatchford and Sons Ltd. (Artificial Limb Specialists) 1890-1990* (Granta Editions, 1990)

Powell, Julie M., *Bodies of Work: The First World War and the Transnational Making of Rehabilitation* (Cambridge University Press, 2022)

Reid, Fiona, *Medicine in First World War Europe: Soldiers, Medics, Pacifists* (Bloomsbury, 2017)

Reid, John, *The Princess Louise Scottish Hospital for Limbless Sailors, and Soldiers at Erskine House* (printed for Private Circulation, James Maclehose and Sons, Publishers to The University, 1917)

Reznick, Jeffrey S., *Healing the Nation: Soldiers and the Culture of Caregiving in Britain During the Great War* (Manchester University Press, 2004)

- , *John Galsworthy and Disabled Soldiers of the Great War* (Manchester University Press, 2014)

Robinson, Michael, *Shell-Shocked British Army Veterans in Ireland, 1918-1939* (Manchester University Press, 2020)

Roper, Michael, *Afterlives of War: A Descendants' History* (Manchester University Press, 2023)

- , *The Secret Battle: Emotional Survival in the Great War* (Manchester University Press, 2009)

Todman, Daniel, *Britain's War: Into Battle, 1937-1941* (Penguin, 2017)

- , *Britain's War: A New World, 1942-1947* (Penguin, 2021)

Wallis, Jennifer *Investigating the Body in the Victorian Asylum: Doctors, Patients, and Practices* (Palgrave, 2017)

Winter, Jay, *The Great War and the British People* (MacMillan, 1986)

Chapters and Edited Collections:

Anderson, Julie, "Separating the Surgical and Commercial: Space, Prosthetics and the First World War," Claire L. Jones (ed.) *Rethinking Modern Prostheses in Anglo-American Commodity Cultures, 1820-1939* (Manchester University Press, 2017) pp.158-78

Boyd, Douglas A. "'I Just Want to Click on it to Listen' Oral History Archives, Orality and Usability," Robert Perks and Alistair Thomson (eds.) *The Oral History Reader* (Routledge, 2015) pp.117-34

Cooter, Roger, Mark Harrison, and Steve Sturdy, (eds.) *Medicine and Modern Warfare* (Editions Rodopi B.V., 1999)

Daen, Laurel, "'A Hand for the One-handed': Prosthesis User-Inventors and the Market for Assistive Technologies in Early Nineteenth-Century Britain" Claire L. Jones (ed.) *Rethinking Modern Prostheses in Anglo-American Commodity Cultures, 1820-1939* (Manchester University Press, 2017) pp.93-113

Gerber, David A. (ed.) *Disabled Veterans in History* (University of Michigan Press, 2000)

Gooday, Graeme, “Ethnicity, Expertise and Authority: The Cases of Lewis Howard Latimer, William Preece and John Tyndall,” Joris Vandendriessche, Evert Peeters and Kaat Wils (eds.) *Scientists’ Expertise as Performance: Between State and Society, 1860-1960* (Pickering & Chatto, 2015) pp.15-30

Hickman, Clare, “The Importance of “Open Air” for Health: Environmental and Medical Intersections,” in Tatiana Konrad, Chantelle Mitchell and Savannah Schaufler (eds.) *Imagining Air: Cultural Axiology and the Politics of Invisibility* (University of Exeter Press, 2023) pp.180-99

Jessee, Erin, “The Limits of Oral History Ethics and Methodology Amid Highly Politicized Research Settings,” Robert Perks and Alistair Thomson (eds.) *The Oral History Reader* (Routledge, 2015) pp.674-88

Kurzman, Steven, “There’s No Language for This: Communication and Alignment in Contemporary Prosthetics,” Katherine Ott, David Serlin, and Stephen Mihm (eds.) *Artificial Parts, Artificial Lives: Modern Histories of Prosthetics* (New York University Press, 2002) pp.227-48

Lieffers, Caroline, “Itinerant Manipulators and Public Health Benefactors: Artificial Limb Patents, Medical Professionalism and the Moral Economy in Antebellum America,” Claire L. Jones (ed.) *Rethinking Modern Prostheses in Anglo-American Commodity Cultures, 1820-1939* (Manchester University Press, 2017) pp.137-57

Meyer, Jessica, “Wounded in a Mentionable Place: The (In)Visibility of the Disabled Ex-Serviceman in Interwar Britain,” David Swift and Oliver Wilkinson (eds.) *Veterans of the First World War: Ex-Servicemen and Ex-Servicewomen in Post-war Britain and Ireland* (Routledge, 2019) pp.158-71

Meyer, Jessica and Alexia Moncrieff, “Family Not to be Informed? The Ethical Use of Historical Medical Documentation,” in Anne Hanley and Jessica Meyer (ed.) *Patient Voices in Britain, 1840-1948* (Manchester University Press, 2021) pp.61-90

Newlands, Emma, “’Man, Lunatic or Corpse’: Fear, Wounding and Death in the British Army, 1939-45,” L. Robb and J. Pattinson (eds.) *Men, Masculinities and Male Culture in the Second World War* (Palgrave Macmillan, 2018) pp.47-70

Ott, Katherine, David Serlin and Stephen Mihm (eds*.) Artificial Parts, Practical Lives: Modern Histories of Prosthetics* (New York University Press, 2002)

- , “Disability Things: Material Culture and American Disability History, 1700-2010” Susan Burch and Michael Rembis (eds.) *Disability Histories* (University of Illinois Press, 2014) pp.118-35

Rabier, Christelle, “Expertise in Historical Perspectives,” Christelle Rabier (ed.) *Fields of Expertise: A Comparative History of Expert Procedures in Paris and London, 1600 to Present* (Cambridge Scholars Publishing, 2007) pp.1-34

Scotland, Thomas and Steven Heys (eds.) *War Surgery 1914-18* (Helion & Company Limited, 2013)

Serlin, David, “Engineering Masculinity: Veterans and Prosthetics after World War Two,” Katherine Ott, David Serlin and Stephen Mihm (eds.) *Artificial Parts, Practical Lives: Modern Histories of Prosthetics* (New York University Press, 2002) pp.45-74

Sweet, Ryan, "'Get the Best Article in the Market': Prostheses for Women in Nineteenth-Century Literature and Commerce," Claire L. Jones (ed.) *Rethinking Modern Prostheses in Anglo-American Commodity Cultures, 1820-1939* (Manchester University Press, 2017) pp.114-136

Virdi, Jaipreet, "Between Cure and Prosthesis: 'Good Fit' in Artificial Eardrums," Claire L. Jones (ed.) *Rethinking Modern Prostheses in Anglo-American Commodity Cultures, 1820-1939* (Manchester University Press, 2017) pp.48-69

Williamson, Bess and Elizabeth Guffey (eds.) *Making Disability Modern: Design Histories* (Bloomsbury Visual Arts, 2020)

Winslow, Michelle and Graham Smith, "Ethical Challenges in the Oral History of Medicine," Donald A. Ritchie (ed.) *The Oxford Handbook of Oral History* (Oxford University Press, 2012) pp.372-92

Worboys, Michael, "The Non-Patient's View," Anne Hanley and Jessica Meyer (eds.) *Patient Voices in Britain, 1840-1948,* (Manchester University Press, 2021) pp.33-60

Journal Articles:

Allitt, Marie, Agnes Arnold-Forster, Harriet Barratt, Victoria Bates, Rebecka Fleetwood-Smith and Clare Hickman, "Senses and Spaces of Modern Health/care: Special Issue Editorial," *The Senses and Society,* vol.19, no.3, 2024 pp.275-284, doi.org/10.1080/17458927.2024.2404720

Anderson, Julie, "'Jumpy Stump': Amputation and Trauma in the First World War," *First World War Studies,* vol. 6, issue 1, Commemorating the Disabled Soldier (2015) pp.9-19 doi.org/10.1080/19475020.2015.1016581

- , "British Women, Disability and the Second World War," *Contemporary British History,* 20:1, pp.37-53, doi.org/10.1080/13619460500444957

Anderson, Julie and Neil Pemberton, "Walking Alone: Aiding the War and Civilian Blind in the Inter-war Period," *European Review of History*, 14:4, pp.459-479, doi.org/10.1080/13507480701752128

Bartlett, Emily, "Reassembling Disabled Identities: Employment, Ex-Servicemen and the Poppy Factory," *Journal of Social History*, volume 54, issue 1 (Fall 2020) pp.210-236, doi.org/10.1093/jsh/shz111

Bates, Rachel, "Exposing Wounds: Joseph Cundall and Robert Howlett's Royal Assignment," *Critical Military Studies*, 6:2 (2020) pp.118-139, doi.org/10.1080/23337486.2019.1631727

Bates, Victoria, "'Humanizing' Healthcare Environments: Architecture, Art and Design in Modern Hospitals," *Design for Health,* 2:1, 2018, pp.5-19, doi: 10.1080/24735132.2018.1436304

Biernoff, Suzannah, "The Rhetoric of Disfigurement in First World War Britain," *Social History of Medicine*, volume 24, issue 3 (December 2011) pp.666-685, doi.org/10.1093/shm/hkq095

Cooter, Roger, "Medicine and the Goodness of War," *Canadian Bulletin of Medical History*, vol. 7 (1990) pp.147-159

Evans, Joan, "Men Nurses: A Historical and Feminist Perspective," *Journal of Advanced Nursing,* 47 (3) 2004, pp.321-328

Feo, Katherine, "Invisibility: Memory, Masks and Masculinities in the Great War," *Journal of Design History,* volume 20, issue 1 (Spring 2007) pp.17-27, doi.org/10.1093/jdh/epl039

Gagen, Wendy, "Remastering the Body, Renegotiating Gender: Physical Disability and Masculinity during the First World War, the Case of J.B. Middlebrook," *European Review of History*, volume 14, issue 4 (2007) pp.525-541, doi.org/10.1080/13507480701752169

Grant, S.-M., "'*Mortal* in this *Season*': Union Surgeons and the Narrative of Medical Modernisation in the American Civil War," *Social History of Medicine,* vol.27, no.4, pp.689-707, doi.org/10.1093/shm/hku010

-, "The Kindness of Strangers: Soldiers, Surgeons, Civilians, and Conflict Intimacies in the American Civil War," *Critical Military Studies*, 6:2 (2020) pp.140-159, doi.org/10.1080/23337486.2019.1613085

Guyatt, Mary, "Better Legs: Artificial Limbs for British Veterans of the First World War," *Journal of Design History*, Vol.14. No.4. Technology and the Body (2001) pp.307-325, doi.org/10.1093/jdh/14.4.307

Harrison, Mark, "The Medicalization of War – The Militarization of Medicine," *Social History of Medicine,* vol. 9 (1996) pp.267-276, doi.org/10.1093/shm/9.2.267

Howell, Joel D., "Soldier's Heart: The Redefinition of Heart Disease and Speciality Formation in Twentieth-Century Great Britain," *Medical History,* supplement no.5, 1985, pp.34-52

Huddie, Paul, "Legacies of a Broken United Kingdom: British Military Charities, the State and the Courts in Ireland, 1923–29*," Irish Economic and Social History,* 45(1), 2018, pp.3-22, doi.org/10.1177/0332489318791867

Huddie, Paul and Amy Carney, "Military Welfare History: What is it and why should it be considered?" *War and Society,* vol 42 (4) 2023 pp.305-316, doi.org/10.1080/07292473.2023.2245252

Koven, Seth, "Remembering and Dismemberment: Crippled Children, Wounded Soldiers, and the Great War in Great Britain," *The American Historical Review*, vol.99 no.4 (October 1994) pp.1167-1202, doi.org/10.2307/2168773

Kowalsky, Meaghan, "'This Honourable Obligation': The King's National Roll Scheme for Disabled Ex-Servicemen 1915-1944," *European Review of History*, volume 14, issue 4 (2007) pp.567-584, doi.org/10.1080/13507480701752201

Loughran, Tracey, "A crisis of masculinity? Re-writing the history of shell-shock and gender in First World War Britain," *History Compass,* 11 (9) 2013, pp.727-738, doi.org/10.1111/hic3.12082

Loughran, Tracey, "Shell-shock, trauma and the First World War: The making of a diagnosis and its histories," *Journal of the History of Medicine and Allied Sciences,* 67 (1) 2012, pp.94-119, doi.org/10.1093/jhmas/jrq052

McBrinn, Joseph, "The Work of Masculine Fingers: The Disabled Soldiers' Embroidery Industry, 1918-1955," *Journal of Design History*, volume 31, issue 1 (February 2018) pp.1-23, doi.org/10.1093/jdh/epw043

McGuire, Coreen, "The Categorisation of Hearing Loss Through Telephony in Inter-war Britain," *History and Technology*, 35:2 (2019) pp.138-155, doi.org/10.1080/07341512.2019.1652435

McGuire, Coreen Anne, "What is Disability History the History of?" *History Compass,* vol.22 issue 6, 2024, doi.org/10.1111/hic3.12813

Nair, Aparna, "These Curly-Bearded, Olive-Skinned Warriors: Medicine, Prosthetics, Rehabilitation and the Disabled Sepoy in the First World War, 1914-1920," *Social History of Medicine*, volume 33, issue 13 (August 2020) pp.798-818, doi.org/10.1093/shm/hkz002

Porter, Roy, "The Patient's View: Doing Medical History from Below," *Theory and Society*, 14 (March 1985) pp.175-198, doi.org/10.1007/BF00157532

Shaw, Philip, Holly Furneaux and Joanna Wilson-Scott, "War, Wounding and Intimacies," *Critical Military Studies*, 6:2 (2020) pp.115-117, doi.org/10.1080/23337486.2020.1759315

Smith, Sarah Dixon, David Henson, George Hay, and Andrew S.C. Rice, "Chronic post-amputation pain and blast injury: An analysis of British First World War Veterans' pension records, 1914-85" *Journal of Military, Veteran and Family Health,* volume 7, issue S2, November 2021, pp.64-73, doi.org/10.3138/jmvfh-2021-0044

Virdi, Jaipreet and Coreen McGuire, "Phyllis M. Tookey Kerridge and the Science of Audiometric Standardization in Britain," *British Journal for the History of Science*, 51(1) (March 2018) pp.123-146, doi:10.1017/S0007087417000929

Unpublished Sources:

Bettinson, Helen, *'Lost Souls in the House of Restoration?': British Ex-Servicemen and War Disability Pensions, 1914-1930* (unpublished doctoral thesis, University of East Anglia, 2002)

Boyle, Eilis Heather Louise, *'Do You Not Think I'm Entitled?' Visibility, Agency and Care Amongst Facially and Psychologically Wounded Veterans in Interwar Britain* (unpublished doctoral thesis, University of Leeds, 2020)

Davies, Jack, *'A Very Haven of Peace': The Role of the Stately Home Hospital in First World War Britain* (unpublished doctoral thesis, University of Kent, 2017)

Ketley, Paul, *Homes of Healing: The Medical Utilisation of British Country Houses in the Second World War. A Spatial History of Alternative Spaces* (unpublished doctoral thesis, University of Kent, 2019)

McGuire, Coreen Anne, *The 'Deaf Subscriber' and the Shaping of the British Post Office's Amplified Telephones 1911-1939* (unpublished doctoral thesis, University of Leeds, 2016)

Websites:

BLESMA, The Limbless Veterans Charity, "Our History" <https://blesma.org/about-us/our-history/> (accessed 23/05/2022)

Disability Visibility Project, "Q&A with Jaipreet Virdi," <https://disabilityvisibilityproject.com/2020/08/10/qa-with-jaipreet-virdi/> (accessed 06/02/2024)

Sensing Spaces of Healthcare, <https://hospitalsenses.co.uk/> (accessed 25/03/2025)

Waiting Times: A multi-stranded research project on the temporalities of healthcare, <https://waitingtimes.exeter.ac.uk/> (accessed 12/12/2023)