

The Socio-Economic Impact of the English Leather Glove Industry from the 17th Century to Its Recent Decline

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Abstract—Gloves are significant physical objects, being one of the oldest forms of dress. Glove culture is part of every facet of life; its extraordinary history encompasses practicality, and symbolism reflecting a wide range of social practices. The survival of not only the gloves but associated articles enables the possibility to analyse real lives, however so far this area has been largely neglected. Limited information is available to students, researchers, or those involved with the design and making of gloves. There are several museums and independent collectors in England that hold collections of gloves (some from as early as 16th century), machinery, tools, designs and patterns, marketing materials and significant archives which demonstrate the rich heritage of English glove design and manufacturing, being of national significance and worthy of international interest. Through a research glove network which now exists thanks to research grant funding, there is potential for the holders of glove collections to make connections and explore links between these resources to promote a stronger understanding of the significance, breadth and heritage of the English glove industry. The network takes an interdisciplinary approach to bring together interested parties from academia, museums and manufacturing, with expert knowledge of the production, collections, conservation and display of English leather gloves. Academics from diverse arts and humanities disciplines benefit from the opportunities to share research and discuss ideas with network members from non-academic contexts including museums and heritage organisations, industry, and contemporary designers. The fragmented collections when considered in entirety provide an overview of English glove making since earliest times and those who wore them. This paper makes connections and explores links between these resources to promote a stronger understanding of the significance, breadth and heritage of the English Glove industry. The following areas are explored: current content and status of the individual museum collections, potential links, sharing of information histories, social and cultural and relationship to history of fashion design, manufacturing and materials, approaches to maintenance and conservation, access to the collections and strategies for future understanding of their national significance. The facilitation of knowledge exchange and exploration of the collections through the network informs organisations' future strategies for the maintenance, access and conservation of their collections. By involving industry in the network, it is possible to ensure a contemporary perspective on glove-making in addition to the input from heritage partners. The slow fashion movement and awareness of artisan craft and how these can be preserved and adopted for glove and accessory design is addressed. Artisan leather glove making was a skilled and significant industry in England that has now declined to the point where there is little production remaining utilising the specialist skills that have hardly changed since earliest times. This heritage will be identified and preserved for

future generations of the rich cultural history of gloves may be lost.

Keywords—Artisan glove making skills, English leather gloves, glove culture, glove network.

I. INTRODUCTION

THE Glove Network is a research project with an interdisciplinary approach that has brought together experts in the subject of English made leather gloves, and includes participants from academia, museums and manufacturing [1]. The project has been designed to bring together interested parties from academia, museums, and manufacturing, with expert knowledge of leather gloves in relation to specific areas of interest: the production of leather and gloves, collections of leather gloves, associated artefacts and archives, conservation, display, accessibility. These are vital in exploring the best approach to preserving the cultural legacy, social history and appreciation of hand-crafted leather glove making and its associated areas. Participants in the Glove Network [1] have welcomed the opportunity to expand the understanding of the importance and decline of the leather glove industry leading to further research and development of partnerships. This has come at an opportune time for both heritage organisations and for ongoing industry today with individual and collective input to ensure that the legacy of English made leather gloves can be preserved and used to create awareness of collections and current artisan make. It was intended that meetings would be in person, but due to the recent pandemic restrictions they have mostly taken place online. This has not restricted the flow of information via presentations and discussions, and much of the findings in this paper have resulted from the virtual meetings.

To date, limited information has been available to students, researchers or those with an interest in the design and making of English leather gloves, the associated industries, or concerning the social context of such a widely worn item. Little has been published, with subject specific publications being limited to two compact books: *Gloves and Glove-Making* [2], and *The Leather Glove Industry of Worcester in the Nineteenth Century* [3].

The history of gloves encompasses design, leather manufacture (tanneries), glove making, trade, consumption and taste. Glove culture has been part of every facet of English life since the 13th century; its extraordinary history encompasses communities of makers, socio-economics, design for both practicality and symbolism, reflecting a wide range of

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social practices, and etiquette. The approach will enable the diverse glove collections to be considered at the same time as the production process of the leather and manufacture of the gloves. The overview will be of those people who produced the leather, made the gloves, marketed the gloves, wore the gloves, and finally those who conserve and display glove collections. It will also look at the current day tanneries and leather glove manufacturers still producing in England. It is intended that the findings can provide insight into an almost entirely lost culture of the glove making communities, and its economic impact, as well as explore the social situations in which gloves have needed to be worn for either social reasons or for protection. It will also promote the remaining glove companies employing artisan skills, and the more advanced technology of tanneries that exist in England today; addressing the sustainability of these industries is part of this project.

Gloves can be linked to the livelihoods of tanners, glove makers, embroiderers, designers and those in different areas of society who wore them. The research project objectives as defined by the Glove Network “will open up the possibility for future valuable research across the academic community, third sector (museums and heritage), the commercial private sector (leather and glove industry), the education sector (students of design and cultural heritage)” [4], with dissemination of the findings through this article and other future articles. The project is ongoing until mid to late 2021 and therefore further research will continue on this topic. Artisan leather glove making was, and still is, a highly skilled industry in England that had been economically significant particularly over the last 450 years or so but has now declined to the point where there is very little glove production, and this has had a large impact upon remaining communities.

The Glove Network key participants have begun to explore the following key topics and resources to promote a stronger understanding of the significance, breadth and heritage of the English glove industry and its relative importance as an industry today:

1. Current content and status of the individual collections, potential links.
2. Histories, social, cultural and economic.
3. Materials, manufacturing and design.
4. Maintenance and conservations of collections.
5. Accessibility to all collections and strategies for appreciating their national significance.
6. The current English artisan leather glove industry.

Each topic will be briefly considered in turn. The work of the project is ongoing and so this paper will refer only to some introductory points already addressed by the Glove Network.

II. CURRENT CONTENT AND STATUS OF THE INDIVIDUAL COLLECTIONS AND THE IDENTIFICATION OF POTENTIAL LINKS

The English leather glove making industry is in sharp decline and in some areas has ceased to exist entirely. Therefore, much of what can be learned about the leather glove industry comes from collections of gloves and tools that still exist today. A handful of organisations hold collections of English produced gloves (dating from the 16th century

onwards), glove making equipment, tools, designs and patterns, product development research, marketing and archive materials such as letters, photographs and purchase orders. Each, independently of each other, holds collections of gloves from different time periods (ranging from the 16th Century through to the 20th Century) and range from decorative dress gloves, to everyday gloves or those for specialist protective uses such as early motoring. Some also hold collections of associated items from manufacture such as tools, machinery and marketing. The manners in which each of the collections began and have developed over time are also unique. Some of the collections overlap, such as the Robert Spence Collection, being divided across the Worshipful Company of Glovers (Glove Collection Trust), and National Leather Collection (Museum of Leathercraft). The network is an opportunity for participants to compare their own collections to those held by other museums or collections and to identify gaps within their own collections and to share information. These fragmented collections when considered in entirety can provide an overview of the English glove making communities (notably Worcestershire, Somerset, and Dorset) and link to the lifestyles and stories of those who wore the gloves. It is an opportunity to look at the objects associated with the glove making industry as well as the gloves and archives, facilitating a better understanding of the intersection of these important diverse collections. This will enable foundations to be laid for future management and sustainability of the collections and their associated knowledge, for further research and conservation. The heritage of the gloving industry, including the story of those whose livelihood depended upon the industry and, the gloves themselves, is in danger of being lost without individual and collective responsibility to bring this diverse range of information together.

Several museums and collectors of English leather gloves are participating in the Arts and Humanities research funded Glove Network: Museums Worcestershire, The Victoria and Albert Museum, The National Leather Collection, Birmingham Museum and The Worshipful Company of Glovers of London (Glove Collection Trust), The National Motor Museum, Beaulieu.

Gloves held in collection usually represent the best of workmanship and are often not fully representative of all that has been produced, so a great deal can be missing from the perspective of a social or fashion historian. For example, gloves used for protective wear by industrial workers or agricultural workers do not tend to survive. Historically, emphasis has often been put on collecting gloves that are aesthetically pleasing and or have belonged to famous people or to royalty. Gloves retained a significance as gifts between lovers or between people in powerful positions. Foster notes that: “Many were presented as gifts to mark special occasions such as weddings, New Year or St Valentine’s day, and these gloves were usually perfumed and lavishly embroidered” [5]. Since gloves were very often given as gifts, this makes it all the more likely that we believe that surviving objects may have been given to a loving subject by a royal personage and then passed down the family line.

The collections of gloves, artefacts, documents and other archival material associated with the production of gloves allows research to consider set of artefacts (gloves, documents, tools and machinery) in conjunction with archival documentation (seasonal leather shade cards, orders, letters, brochures showing glove range and other marketing materials such as advertising) to endeavour to understand and make sense of the complexity of the particular chronologies and geographies. It allows the opportunity to reconsider and obtain an overview of the cultural and socio-economic impact of the glove industry in England, whereby a better understanding of the intersection of the different collections, and the current state concerning conservation, management, and accessibility, can be used for future research and management strategies. The physical appearance and design of the gloves will be considered in conjunction with the context of their existence, whilst being at the centre of a significant industry as a hub of employment and social interaction as well as bringing financial benefit to those regions.

This paper is selecting a few snapshots of interest (in no particular order) from several of the collections to give the reader some indication of not only the huge variety and range but the differing stages in which they currently exist. Understandably, cataloguing, conservation and expanding collections are ongoing concerns by those managing them, and the availability of budget has a significant influence on the ability of individual organisations to acquire gloves to develop collections in which they may have identified gaps. Some collections have been under researched and under conserved or collecting strategies have been undefined as yet. The Glove Network is providing a focus for museums to look closely at their collections to address some of these challenges.

A significant collection of gloves is held by "the National Leather Collection, which was originally founded in 1946 in London, as the Museum of Leathercraft" [6]. Today it is based in Northampton in premises next to the Leather Conservation Centre, which reflects their close working relationship. The museum holds within its permanent collection around 500 gloves, dating from the 16th century to the late 20th century, in addition to glovers' tools. Redwood comments that "This is significant for those interested in the extensive collection of gloves held in the National Leather Collection which, in both quality and volume, counts as one of the most significant anywhere" [7]. The collection contains examples of fashion gloves as well as unique items such as gloves that belonged to Donald Campbell (a British speed record breaker who broke eight absolute world speed records on water and on land in the 1950s and 1960s) which were donated to the museum and have an accompanying letter to verify their provenance.

Within the library resource of the National Leather Collection Library are books on the topic of glove making; including recipe books concerned with the dying and processes for leather production, and documents containing detailed instructions for glove makers. It is the intention to develop their collection to represent a fuller timeline of glove making and to acquire further objects to support this goal. Their collection has examples of gloves produced by Dents,

who commenced production in Worcester in the 18th century, as well as gloves from the Robert Spence Collection. Northampton, where the collection is based, is at the heart of the UK's leather industry, and the manufacture of leather and leather goods forms a large part of the heritage and pride of the local area. Curator, Victoria Green notes that: "Though the industry is declining in the region, we are passionate about encouraging future generations to engage with, and learn about, leather" [8].

Museums Worcestershire possesses a very significant collection of gloves and glove making tools and archives, predominantly from the 20th century. The Curator of Social History, David Nash, commented that "the collection contains more than 2,000 pairs of gloves made by Worcester factories as well as tools and equipment used in their production. In 2001, Worcester City was given the collection of Mr. Robert Ring, a lifetime collector and the last managing director of Milore' Gloves in Worcester. In 2011, his family donated his archive of gloving ephemera and his research writing and in 2019 Museums Worcestershire secured funding for a 3-year project to preserve the memory of glove making in Worcestershire and share that memory with its residents" [9]. Milore' glove factory operated from 1946 to 1981, being a much later addition to the Worcester Glove manufacturing industry. During the 1970s, they commissioned up and coming designers to develop stylish designs to create a favourable advantage in a highly competitive market. Glove patterns, unworn gloves still in their wrappers ready to dispatch to customers, photographs, marketing material, letters and many other archival items remain in evidence of this period of fashion accessories and manufacturing.

Museums Worcestershire has recently commenced work on the Milore' archive to ascertain exactly what the collection consists of and to provide an initial overview of its contents. The project will ultimately preserve the legacy and heritage of glove making in Worcestershire and ensure that the education and pride in a significant and historically important industry will be safeguarded for future generations. The Milore' archive consists of single samples of 3,000 gloves along with glove making tools and other memorabilia and documentation with, amongst other things, Mr. Ring's own desk stamp, leather sample books from the factory floor, and correspondence. It is a time capsule of his office whilst Director at Milore' and it will be an important resource in telling the story of the glove industry in Worcester at its peak through to its decline. The brand of Milore' was conceived to capture the continental market, with a suitably sounding name, perhaps competitively branding itself with the high quality of artisan gloves produced in the area of Millau, South West France.

The clothing items within the Birmingham Museum Trusts collection were originally collected as items of Decorative Arts rather than items of Social History. Their collection of over 100 pairs of gloves covers the time period of the 17th century up to the 20th century. The 19th and 20th century gloves are representative of day and evening styles, mostly women's, with only 20 pairs of male gloves. A large part of the

collection is formed by gloves donated the museum by James Birkmyre Rowan, a Master of the Worshipful Company of Glovers 1966-1967 [10]. For example, gloves have not always been regarded by museums as important items worthy of being conserved or collected and Research Assistant, Rebecca Unsworth notes that: "Objects have multiple stories to tell; it is up to us to decide which we choose to prioritise in different circumstances and why. The association of many extant gloves with famous hands can potentially tell us a lot about prior (and sometimes current) collecting practices and preoccupations in relation to provenance. But focus too much on the wearer and we risk forgetting the object. Focus too much on the material object, and it's possible that the actual historical humans behind them can get lost" [11]. This approach, the essential combination of researching the gloves (materials, make and design) as well as the social context of the times in which they were owned, are the main focus of the Glove Network.

Leather gloves, being an item of dress or clothing were not regarded (by most museums, until relatively recently), to be items of art history (such as Textiles) worthy of collecting. For example, for the first 50 years of the Victoria and Albert museum, items of dress were not collected, and it was not until the acquisition of the Isham collection in 1900, one of the museum's earliest and most important acquisitions of 17th century dress, that also contained several gloves, that clothing and accessories were recognized as a worthy medium of culture, fashion and history. Often, glove collections have resulted from items being gifted and have not resulted from specific strategies to purchase items to expand a collection. Susan North, Fashion Curator notes that "gloves have been passively collected over the last 150 years, accepted as gifts and as examples of interesting textiles or decorative techniques, or as part of wardrobes associated with known wearers such as the Thomas Coutts collection and the Heather Firbank collection" [12]. The glove collection is catalogued and spans 1600 to late 20th century. The majority of gloves in the collection being from 1600-1700, when often it is not clear if they are indeed Men's or Women's gloves. Gloves from 1900-1949 are focused on designers, couture, fashion and Saville Row, forming an important part of an entire outfit. Between 1950 and 1959 gloves were an essential part of any ensemble and their collection include gloves from designers such as Caroline Charles, Dior, Vivien Westwood, and Hartnell. Design houses often contracted out glove designs to specialist English glove manufacturers. They also possess within the collection, one leather mitten from archaeological finds possibly 1500-1599 and very few gloves at all from the 21st century. Examples of English made Dior gloves are also to be found within the Museums Worcestershire collection, having been produced in Worcester.

The National Motor Museum, Beaulieu introduced the Glove Network to the niche but significant area of leather driving gloves. The gloves represent a relatively small part of their overall collection which is designated as a collection of national and international significance, having the largest motoring library in Europe containing 1.2 million photographic images and a video collection. The glove

collection, as part of the clothing collection focuses on the earlier motoring period, from the late 19th century onwards, when gloves (and protective clothing) were necessary items to shield both the driver and passengers from the elements, due to the open-air design of the earliest cars. Gloves and gauntlets are represented in the collection with condition being quite variable, both ladies and men's styles can be found, but the majority are men's. There is an emphasis on function and safety in some examples, including a driving glove with a battery operated right and left indicator light (with metal box within the glove for control) and gauntlets fitted with reflector panels. The heritage of the earliest motor cars, which necessitated a particular type of protective of clothing, is reflected in the glove collection.

The Worshipful Company of Glovers of London collection is owned and curated by a separate charitable body that began in 1993, The Glove Collection Trust; the aim was to advance public education in historic gloves. A key element of the collection is a grouping of over 100 single gloves and pairs of decorative gloves covering the late 16th century up to the 19th century (mainly 17th century gloves). The artist Robert Spence (who had trained at the Slade School of Art and collected historical gloves to inform his own artwork), had "accumulated a number of gloves: evolving into a specialised, if not unique gathering of some of the finest examples in existence" [13]. Spence bequeathed his collection to the Glovers in 1955. The Glove general collection (of the Glove Collection Trust) includes gloves that belonged to Queen Victoria (purchased from an auction in Philadelphia), up to recent times, currently stored at National Trust owned property, Waddesdon Manor, but by 2023 the entire collection should be housed by the Fashion Museum, Bath. The Glove Collection Trust receives requests to loan gloves to museums for specific exhibitions on a temporary basis, with a large part of their collection being on permanent loan to the Fashion Museum. They are selectively and actively growing the collection whilst maintaining a programme of restoration.

Even from this brief snapshot of the museums participating in the Glove Network, we can see that the glove collections are all individual and unique, representing examples of particular periods in time, types of activities and cultural practices, including fashion and practicality. Many have been collected over many years passively, or without a specific strategy in mind. The recognition that gloves have significance as items of relevance for research, particularly as the glove industry has all but gone in some areas, has highlighted the need for more proactive approaches to the collecting and appreciation of these items.

III. THE SOCIAL, CULTURAL AND ECONOMIC HISTORY

Glove makers existed in England from earliest times, it is thought from about the 13th Century. Hundreds of glove makers across England were centred in the towns and villages of Worcestershire, Somerset, Dorset, and West Wiltshire. By the 17th century we know that in Worcester alone, 30,000 people were involved in this industry. As noted in the book, *Gloves and Glove Making*; "we have evidence from

Worcester, where glove-making replaced the textile industry that had given the city its wealth, that the supply of ladies to sew the gloves could not be met. What became defined as 'colonies of glovernesses' began to form in the surrounding villages, and this 'outworking' has continued into the twenty-first century" [14].

Employment frequently involved the entire family, whereby all were working in a factory or making gloves at home. Men, women and in earliest times, even children were associated with the industry. Chester Jefferies, leather glove-maker, based in Dorset since 1963, originally operated with adult outworkers spread across the three counties of Dorset, Wiltshire and Somerset, working in their own homes. The normal glove-making apprenticeship was 7 years, and upon completion led to the position of Master Cutter and still today the term 'Master Glovemaker' is used to denote high standards of craftsmanship.

According to research undertaken by Museums Worcestershire, since the last glove maker, Alwyn Gloves closed in 2015 this was the first time that there had been no glove makers located in Worcester itself or in Worcestershire for approximately 800 years. "The death of Les Winfield, who has died just two days short of his 96th birthday, is more than just the passing of one of Worcester's great master craftsmen. It also marks the death of an industry" [15]. Les Winfield, who had started in the glove industry straight from school, was one of the two remaining workers at Worcestershire's last French Seam glove factory. His own father had also been a glover, and he himself had set up the Alwyn factory during the 1960s when the glove industry was thriving and had employed 50 people. It was often a lifetime involvement in this highly skilled industry.

Buildings in Worcestershire, in which glove manufacturers were situated, have now either been demolished or have been repurposed. Evidence of the gloving past exists only within local landmarks and Museums Worcestershire has images of some of these earlier buildings and those that remain today. David Nash comments that: "The communities of Worcestershire have begun to lose any connection they had with this important part of their heritage and there is urgent need to preserve this history" [16]. What had been integral to Worcester's history since the 13th century had finally gone forever: "Because Mr Winfield was the last man standing in the city's glove trade, which at one time totalled more than 150 manufacturers.... In the end it all came down to Mr Winfield, his one employee Brian Fincher, and his company, Alwyn Gloves, operating from the ramshackle surroundings of the old village school at Crown East. Long gone are the huge factories, the rows of workers and the racks of finest leather hides" [17].

The now defunct Glove industry (in Worcestershire) and declining industry elsewhere has had many negative effects, not only on the companies themselves, but on the social aspects and lost revenue to the regions. Loss of jobs, resulting in loss of family income, loss of the social lives associated with being part of a company and manufacturing centre, have led to a lack of pride in the local community. Museums

Worcestershire have noted that at every glove sale held in Worcester, there are stories of local people being extremely proud to own a pair of locally made gloves.

The trades of glove-makers and tanners were closely linked and when Dents and Fownes (both significant glove producers) were based in Worcester, each built their own tannery. Not only have the glove makers gone from Worcester but so too have many of the tanneries. Only a few remain today.

Yeoville in the south west of England also accommodated a very large glove industry, with over 100 companies, and as with Worcester, sadly they have closed.

Pittards tannery in Somerset, of global renown, has been producing glove leather since at least 1826. They continue to work closely with the international glove industry and a variety of high-profile brands, developing performance leathers, and this will be addressed in more detail further on in this paper.

Gloves have and continue to be the subject of interest particularly in relation to questions about the lifecycle of the glove and its role in understanding its significance in a range of areas, including identity and gendered interpretation. The production, consumption and wearing of gloves can provide information that can assist with how we read an early modern glove by answering questions relating to the entire lifecycle of the leather glove: the lives of the producers and makers, the consumption, the purchase and uses of gloves is part of the everyday, albeit at times symbols of power and influence, and is a trace of what someone has left behind. Gloves are a way of shaping and asserting identity and ultimately providing an insight into the understanding of culture, however, it requires a multi-faceted approach to consider glove heritage and its legacy as it is not always easy to identify the age of the gloves or indeed if they are men's or lady's gloves. For example, lace was incorporated in the embellishment of gloves worn by both genders during the 16th, 17th and 18th centuries. It is not always easily apparent as to the precise materials from which the gloves have been made, or as to the region in which the gloves have been produced and this can be challenging when identifying their provenance. The Glove Network activities can address the still under-researched question of the contribution and social context of the communities engaged in manufacturing processes and the associated changing technologies.

There are many challenges to be faced by fashion and social historians when looking at and researching the background to the making of a pair of leather gloves and then linking this to the transmission of information by gloves which continues even when they form part of a private archive or museum collection, where they begin a new stage of their life, post-production, post-gifting and post-wear.

In addition to the gloves, some collections include material associated with the manufacturing story and to the social context. These include a range of items that will be the subject of further research, including:

- Design materials providing insight into working practices and processes including design drawings, some by

reputed fashion designers such as Manolo Blahnik, paper patterns for cutting leather, swatch cards of seasonal colours and leather samples and instruction manuals detailing sewing and finishing techniques.

- Marketing material such as advertisements from magazines giving insight into particular fashions and styles and point of sale material for retail environments.
- Memorabilia and miscellaneous material including photographs of factory workers and outworkers, internal company correspondence and orders.

IV. MATERIALS, MANUFACTURING AND DESIGN

The collections provide insight into the history of glove culture, design and make, being both produced by, and worn by, people from a diverse social spectrum. These include 'luxury' gloves produced for royalty, the aristocracy and celebrities; gloves for ceremonial occasions, everyday gloves, functional or protective designs for various sporting applications such as golf, cycling, equestrianism, motoring, and gloves for military or industrial use.

Examples of decorative gloves are often kept because of their importance for the history of design, aesthetic and cultural significance. For example, gauntlet gloves, popular in royal circles in the 17th century, show remarkably elaborate decorative detail incorporating handmade lace and hand embroidery, using the finest materials such as metallic and silk threads, motifs of flora and fauna, precious stones, and beading. The glovers themselves realised the high quality of craftsmanship, which they endeavoured to protect: "In the late 16th and 17th centuries there was a flowering of their skills and craftsmanship. They were producing gloves richly embroidered with multi-coloured silks and seed pearls, trimmed with metallic lace and decorated with ribbons. In 1637 they petitioned the Crown for a separate charter, modestly declaring that ...'the gloves and glovers of England exceed all those of any other Nation whatsoever.'" [18]. Stunning examples of these can be seen in the collection of the Worshipful Company of Glovers (The Glove Collection Trust), Museums Birmingham, The National Leather Collection and The Victoria and Albert Museum.

The essential material from which leather gloves are made is closely linked to the tanneries who produced the leather. This has always and continues to be a close working relationship with specialist leathers coming from a range of tanneries and even countries of origin. The importance of the leather and its place in relation to the quality of glove making has been addressed by Liza Foley who has focussed upon "the significance of leather quality in eighteenth-century glove making by bringing into focus the position of leather as a former animal skin and highlighting the various manufacturing challenges it presented to contemporary leather dressers and glovers" [19]. The challenge of procuring good quality skins has always existed in relation to glove making and still exist today in terms of sourcing those with the most appropriate attributes appropriate to the style and use of glove as well as the necessary qualities required from the skin to meet its end use, such as deerskin for hard wearing qualities. "Her research

is primarily focused on the interrelationship between humans, animals and materials, with a particular emphasis on leather and leather related artefacts" [20]. Access to the records of Timothy Bevington (1778-1785), a prominent leather dresser and glover now in the Worcestershire records office, has been informative as has been access to parliamentary records concerning disputes concerning the quality of leather received from tanners. This issue clearly had an impact on the final quality of gloves that could be produced from the skins. Areas of the skin could be unusable making the skin less valuable by reducing its consumption, or the leather would need to be made into a lower, second quality of gloves. There are records of complaints that mention quality issues with the skins received by the glovers: damage from grubs, cracked skins, skins that were too small. Evidence shows that oftentimes, the leather was refused, or a lower price was negotiated. The materiality of leather is of great importance when considering gloves produced from this natural product.

Today there are relatively few tanneries still in existence in England, compared with the height of the leather glove industry when many glove companies built their own tanneries to proactively control the quality of leather skins to which they had access. Today, one of the key English suppliers of gloving leather is Pittards who sell their gloving leather all over the world: "Pittards was established by Charles Pittard in Yeovil, Somerset, in 1826 as a leather dressing business supplying the many glove makers in the local area. During the early twentieth century, the company developed skills in dyeing leathers and imparting technical qualities such as waterproof and washable leathers – a major breakthrough that drove sales of dress gloves, as well as establishing partnerships with the military for better performing gloves for soldiers and pilots" [21].

As an internationally recognised brand, Pittards have long been associated with innovation and technological advances in tanning leathers for the glove industry resulting from their commitment to research and design. This includes the development of washable leathers, whilst at the same time ensuring that it maintains other important qualities such as breathability, softness and appearance. This has led to further evolution for sporting gloves such as golf, whereby specialist tanning incorporates technology that prevents perspiration from hardening the leather. The recent pandemic has seen an increase in the sales of gloves worldwide for golf, cycling the military and police therefore being at the forefront of leather innovation has been important for this brand's success in international trade. Recent developments in technical properties that can be incorporated into the leather via the tanning process are extensive and include benefits such as chemical resistance, abrasion resistance, water resistance and grip technology plus chemical and acid-resistant leather suitable for the military, services sectors and industrial sectors amongst others.

In addition to those who purchased and wore the gloves, they provide insight into the lives and communities of those who made them. In the 16th and 17th centuries, Glovers worked closely with Skinners to obtain leather and by the 19th century,

most manufacturers built their own tanneries to ensure a regular supply of the required quality. Worcester had the most enduring and concentrated glove making due to its location, proximity to key resources and tanneries. The glove industry in Worcester began as far back as medieval times. D.C. Lye's comments in his seminal book 'The Leather Glove Industry of Worcester in the Nineteenth Century' that "references to glovers appear in Worcester Cathedral records as early as the thirteenth century" [22].

Between 1790 and 1820 gloving was the dominant trade in the Worcestershire area with 60% of people in Worcester engaged in glove manufacturing and the industry was booming, as many as 150 glove manufacturers were producing seven and a half million pairs a year. By the 1980's, after a slow decline in the fashion glove industry post war, all large glove factories closed their Worcester premises. The very last manufacturer of gloves in Worcester closed in 2015. The few remaining contemporary manufacturers in the West Country produce somewhat limited numbers of artisan, handmade gloves, and those who produce volume ranges, tend to have those produced overseas. This is due to the frequently cited reasons of both lower labour and production costs and other factors contributing to the demise such as the inability to attract people to learn the skills or participate in apprenticeships, increased foreign competition and a diminishing supply of local raw materials.

V. MAINTENANCE AND CONSERVATION OF COLLECTIONS

Very little has been published to date on the conservation of English made leather gloves, or it is not known what percentage of gloves have been conserved.

It is imperative that leather gloves are conserved to protect their longevity or otherwise they will be lost forever and can never be replaced. They can be damaged during their use and lifetime, and past damage can cause issues relating to structural integrity. The protection of gloves is paramount and often they have been damaged during their life of wear, often having been heavily worn, and once within a collection it is necessary to prevent them being 'tried on' when further damage can occur. Temperature has little effect upon leather, but other factors may affect them such as incorrect methods of storage during their life of wear. Further damage to gloves can occur when in a museum collection, and this can be minimized by the correct mounting to minimize handling, or in a sealed acid free boxed whereby the item is visible but not accessible.

Leather is an organic material, hence gloves that are of historical and cultural importance may require preventative conservation and in some cases restoration. There are ethics involved in the decision-making processes regarding the appropriate choice of conservation; preventative conservation or interventive conservation. Many of the gloves in the various collections are made wholly or partly of leather and combinations of other materials. Linings may be of silk or wool, and embroidery threads may be of silk, linen or metal (often with a silk core), with the dyes used to colour the embroidery threads an additional component. Levels of pH can therefore range within one pair of gloves depending upon

the different elements and materials contained within it. Being able to identify the exact kind of leather and the specific tanning method that was originally used is also vital in this process.

The Leather Conservation Centre in Northampton (LCC) was set up in 1978 to keep leather items safe for the future. There had originally been a tannery in Northampton, and when this closed the LCC, who are an internationally renowned organisation offering a conservation service, regularly undertake projects for private clients and museums, historic houses and institutions. In addition, they work very closely with the National Leather Collection, who has a significant collection of leather gloves.

The life profile of the gloves can be indicated by a range of factors including soiling and dirt both on the exterior gloves or interior of the gloves can be informative when analysing them and often provide important information about the life and use of the glove, as well as its afterlife. There are many stages to the life of a pair of gloves: the production of the leather in the tannery, the production of the threads, silks or other embellishment's and materials, the manufacture of the gloves themselves (threads, processes and other factors), the life during wear and private storage, and finally as part of a private or museum collection. Storage and aftercare are also very important in providing information about the life profile of the gloves.

When conserving leather gloves, preserving stability is regarded as being more important than appearance; the conservator is concerned with the original intentions of the makers involved in the entire process. The wrong choice of approach by the conservator can be irreversible and so careful fibre analysis, species analysis and so careful scientific investigation into the tanning and other processes is an essential requirement. For example, the LCC conducted a joint 2-year research project in association with the University of Northampton into the mechanism of decay and deterioration due to Red Rot [23]. This is a form of deterioration frequently found in vegetable tanned leathers manufactured from the 19th century onwards which is a result of the collagen fibres breaking down. The outcome of the project was the multi stage treatment that chemically stabilizes and consolidates the leather, raising its PH and hydrothermal stability, whilst reducing the potential for any further loss of material, and has proven to be a very significant treatment in terms of conservation, and therefore is something that they regularly carry out in their studio.

When gloves are coming apart due to the deterioration of materials, it can often be useful to look inside the gloves. Signs of construction or materials used within can be informative, for example, sometimes thin cardboard has been used to stiffen 17th century gauntlet gloves, or stiffening materials have been included as a base for applique and or embroidery, these stiffeners can sometimes be parts of a manuscript or other paper materials, that under normal circumstances being enclosed within the outer leather of the glove, would not normally be in contact with the rain or water. A huge amount of information can be derived from items

secreted within the glove including labels and manufacturing stamps identifying the company or brand name.

Very little has been published on the subject of leather glove conservation and or it has not been addressed until recently in terms of the education of future conservers. Therefore, the Leather Conservation Centre are interested in developing further links working with academics and museums to develop this knowledge base and The Glove Network is a perfect group in which to do this. They work on conservation projects with museum collections and were recently working on gloves and gauntlets from the National Motor Museum. Early motor cars were open air, so the condition of motoring gloves, having been exposed to the elements, is quite variable.

There is no question that the recent pandemic and closure of museums has adversely impacted upon the leather glove collections according to curators participating in The Glove Network. Lack of access by curators (in some cases for several weeks), has led to problems within the collections such as mould, dust, dirt, and temperature effects, resulting from storage conditions that may not always be ideal, such as storage in unsuitable boxes that have no lid or are overfilled, boxes that are not made of acid free materials, and lack of access during closures has highlighted the importance of these considerations as well as the identification of more vulnerable items.

VI. ACCESSIBILITY TO ALL COLLECTIONS AND STRATEGIES FOR APPRECIATING THEIR NATIONAL SIGNIFICANCE

Not only is it important for museums to have better researched and more accessible collections but they need to be representative and relevant to communities. With these factors in mind, Museums Worcestershire have commenced "A Glove Affair", a project with aims that include "gathering archival material and the stories for people in their own words", to "improve the lives of Worcester People", to bring about "a lasting legacy for the Worcester gloving industry" and to find "new ways of working for the County's Museums" according to David Nash, Curator [24]. The project, funded by the Esmée Fairbairn Collections Fund, run by The Museums Association, addresses the importance of engagement with local people: "Volunteers at Home - access not isolation! To explore safe and risk assessed ways for current volunteers that are isolated by the pandemic to continue to work with museum collections and then offer this experience to those that are permanently isolated" [25].

It is possible that there is no one in Worcester today who has the detailed knowledge or skills in order to produce leather gloves using traditional skills. There may be the opportunity for skills to be learned from glove makers in other areas, to enable people of Worcester to engage with, and learn more about this process, which is a key element of their local heritage.

When considering and talking with museum curators and those who own collections of gloves of importance such there is no consistency between the collections in terms of accessibility. This can be attributed to a range of factors but

notably to budget availability due to individual museum or collections circumstances. The recent COVID-19 pandemic has highlighted the need for all glove collections to be photographed and digitized to allow access by researchers and those who have an interest in this area. Accessibility, as a theme has become considerably more important than ever before, as highlighted by the recent temporary enforced closures of museums.

The Glove Collection Trust is an example of how effective it can be to digitize access to collections, with 11,000 images of the collection being searchable and catalogued which ultimately is a unification of the entire historic and more modern collection. They have recently developed a new website, and this will further enhance accessibility.

The work of the Victoria and Albert Museum, like others, is ongoing in this area, with some gloves requiring cataloguing particularly those not out on display; described in publications; or on loan. Some await this process, however, according to Susan North, "Thanks to an ongoing photography project for the whole collection, there should be a photograph of every pair on the V&A's website – Search the Collections- by the end of 2020" [26].

The National Leather Collection has found their visitor attraction room to be extremely popular, which is an open storeroom that visitors can walk through to see something of the 'behind the scenes' workings of a museum. In addition, the pandemic has highlighted the need for a good digital provision and potentially they hope to be able to put their entire collection online and address the idea of virtual tours of the storeroom. As with all other museums, how best to engage the public with collections is under consideration at all times, as is access by researchers. The result of this is that the collection of gloves within the National Leather Collection has been identified as being of top priority for further work, such as cataloguing, clarification by age and where the gloves originally came from, storage, and the identification of gaps in the collection.

Some people may not even aware of the collection of gloves or indeed of dress or textiles that are held by Birmingham Museum, since they do not currently have an online digital catalogue, and currently there are no firm plans to do so, due to the normal resource constraints frequently faced by many museums. They have successfully produced a virtual tour of the museum and this has been very popular with the public and has enabled some access during the pandemic related closure, although the glove collection is not currently accessible to the public, however, they plan to open up the collections via themed study days.

A high quality and resolution of image is needed to produce online catalogues, and often a huge backlog of suitable photographs is required, and this can be challenging. Some museums have in-house resources to photograph the collections, or at times they need to employ freelance photographers to carry out this necessary work. Curators do take photographs themselves to record items coming into collections, but these are often of low resolution and not suitable to be downloaded or suitable for online catalogues.

Many museums find that demand to see collections in person is driven by the online images, so it is beneficial to museums to develop the online catalogues to market themselves effectively.

Collections that are vulnerable can be adversely impacted when it comes to cataloguing, and the current circumstances have added to this ongoing challenge. Lack of resources (both funds and human resources) within museums is often the cause of less efficient cataloguing of collections, and so too is the lack of a specialist curator for dress, textiles and gloves.

All of the museums in the Glove Network have identified the time of closure or quiet times associated with the COVID-19 pandemic as being beneficial to curators to have time working on the collections, including cataloguing and arranging for more appropriate storage in acid free wrappings and boxes. Museum closures due to the pandemic, from the end of March 2020 onwards, has meant that some curators were unable to access or work on collections during these times and this has led to increased risk to the preservation of collections from dust, dirt, temperature and storage conditions, that have at times, been less than ideal.

Museums have traditionally relied on exhibitions (in some cases blockbuster exhibitions in the case of London based museums), but in all cases footfall to exhibitions is vital to ensure their financial long-term sustainability. A huge loss of income to museums has resulted from the recent closures due to the pandemic, with up to 60% of their income coming from entry ticket sales. Museums are consequently facing challenging decisions, with perhaps job cuts and redundancies, as well as budget cuts. Much of the recent time has been spent planning strategies to get museums back to work post pandemic closures and planning how to move collections forward and identify what needs to be done.

Museums today need and want to be more than simply a museum, carefully preserving and displaying object and facts. They need to be havens for everyone who want to explore fashion and practical clothing and accessories, including leather gloves, in all aspects; not simply about their appearance but what they represent, how they came to life, and how their past, present and future affect us all.

The digitization of collections is of prime importance, not just the gloves themselves, but all other related materials including photographs of the gloves and those who made and wore them, journals, historical slides of leather samples, marketing materials, catalogues, invoices and letters. Considering how best to present the gloves, alongside all other related items and reflect the true relationship between them, is vital in representing the full story of the life of the gloves. Several museums commented that the display of gloves is somewhat challenging, and that laying gloves flat is not the best method of exhibiting them effectively.

Volunteers play a huge role in supporting museums with much of their work and their very significant contribution to the success of museums has been adversely impacted during recent closures.

VII. CURRENT ENGLISH ARTISAN LEATHER GLOVE INDUSTRY

Remaining leather glove manufacturers who produce their products in England are represented by only a handful of specialist makers, such as Chester Jefferies in Dorset (producing their entire glove output in England), and Dents in Somerset (producing in both England and internationally). Both produce leather gloves for an international market, frequently using the artisan traditional skills of earlier times such as hand cutting, hand sewing and as in this example described here: 'With modern table-cut gloves the main portion of the leather – the 'trank' – is still pulled down the table so that the line from the wrist to the fingers is extended and then shaped to fit the pattern before the leather is cut' [27].

Chester Jefferies uses a blend of traditional artisan skills and rigorous approach to quality control to produce fine English leather gloves at their 4th generation family business in Gillingham, Dorset. The name of Jefferies was first recorded during the 1820's and Chester Jefferies was a descendent of this earlier English glove. They have made gloves under their own label as well as for private label customers since 1936, selling both in the UK and internationally to wholesale customers and directly to the consumer. "It is this careful preparation and the traditional making methods used by the company's craftsmen/women which ensures the perfect fit and excellent wearing characteristics of our fine English gloves" [28]. They offer a bespoke service sourcing the best quality of leather skins from Pittards nearby, and from international tanneries from Italy, France, Germany and North America. Each country and tanner can supply specific items, for example a certain tannery in Italy can supply a wide range of coloured Nappa leathers in small quantities and this suits the bespoke service offered by Chester Jefferies, whereby one pair of gloves can be ordered in a specifically chosen colour and type of leather. In essence, the customer can design their own pair of gloves by choosing the colour, leather, glove style and choice of lining. The range of leathers they use to make gloves include: Nappa, Deerskin, Peccary, Carpincho, and full suede leather, which they source from the most appropriate supplier.

The leather is selected in mind of the type of glove being made (for example equestrian use, shooting, or for men's or ladies' gloves), and this is done in the way it has historically been carried out, by both handle and visually, to assess the quality and weight of the skin, so that every individual skin is carefully checked for flaws such as scars or bruising, that would look unsightly on a glove. The necessary stretching of the leather skin is also still carried out by hand, so that the hand can be accommodated by the glove stretching widthways, but not lengthwise into the fingers where it is not required. This is a skill that is learnt over many years and often people in the business have started straight from school. This really is artisan craftsmanship at its best, however, it is difficult to find people today, of any age, prepared to work in a glove factory and willing to learn the necessary skills required to make gloves.

In their heyday, Chester Jefferies employed 100 people in their workshops, today it is down to a highly skilled workforce

of 10 who are able to move between the different hand operated machines such as applying perforated holes for driving gloves, use of the singer sewing machines, prick seaming, in-seam stitching. The choice of having a concealed seam within the glove or alternatively a seam on the outside of the glove are offered, although in seam stitching is currently the most popular since it gives a cleaner line and is sleeker in appearance. The specialist skill of hand sewing gloves (for a few selected styles) is carried out by only one or two highly skilled people. The hand sewing is understandably labour intensive and results in a more expensive product highly valued for its artisan approach, and this is very popular in luxury goods markets including Germany and Japan, amongst others.

During a recent visit it was pointed out that much of the machinery used by Chester Jefferies is approximately 100 years old and was itself made in England, with several key pieces of machinery having been made by the engineering company, W. H. Hallett & Son in Yeovil. When any of the specialist sewing machines or hydraulic presses break down (which is a surprisingly infrequent occurrence), engineers must be called in to take the machinery apart, service or even make up a new part, since there are no replacement parts to be found, or any of the original companies or makers of the machinery still exist today.

VIII. CONCLUSION

The Glove Network has successfully brought together expertise and knowledge from academia, industry, heritage organisations and researchers to address a topic that has been side-lined for too long. Leather gloves and their significant history and current day relevance have been addressed in depth by The Glove Network participants which has opened up new discussions and ways of sharing good practice, concerns and awareness of the contents of key collections. The far reaching social impact upon communities due to the decline of the industry is an ongoing challenge, whose impact due to loss of jobs and at the heart of a community is not something that can easily be overcome, particularly when there are no other industries to replace it. However, the leather tanning industry and its technological developments imparting valuable properties to the leather is providing opportunities for the growth of both international trade and leather gloves in sports and protective related activities.

The general consensus is that the last few months have been tough for museums and museum collections, due to the pandemic and necessary closures, which has hindered but at the same time provided opportunities. Glove collections as with all other collections have not been accessible by staff or by researchers, with museums potentially facing budget cuts which could have an impact on conservation, digitization and long terms goals for glove collections.

Museums are in a time of flux, and even crisis, concerned with being relevant and representative of everybody, whilst addressing their place in, and contribution to local communities. The recent pandemic has forced organisations to address how to adapt and address these important questions.

The Glove Network has been opportune in providing a forum to address some of these issues and it is apparent that there is a necessity for individual and collective input to the museum collections to ensure the long-term conservation of the leather glove collections and improve their accessibility by addressing digitization and the creation of new ways to engage interested parties by introducing virtual access.

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