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**GLOVES AND
THE GLOVE TRADE**

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VIEW OF A GLOVE FACTORY SEWING ROOM.

Messrs Dowl, Allcroft & Co., Ltd.



PITMAN'S COMMON COMMODITIES

AND INDUSTRIES

GLOVES AND THE GLOVE TRADE

BY

B. ELDRED ELLIS



LONDON

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OTHERS IN PREPARATION

PREFACE

THE primary object of this short handbook is to furnish in popular form an account of an industry which, although of comparatively minor importance in point of value and extent, by reason of its antiquity and the conditions under which it is carried on, presents many features of exceptional interest. It has been planned to meet the needs of that large class of drapery buyers and assistants who are concerned with the buying and selling of gloves for and to the public ; but it is hoped that it may also find favour with a wider circle of readers from the ranks of those who are curious to learn something of the conditions under which articles in every-day use are produced. For that reason technical language and terms have been avoided, or where used are carefully explained.

A brief sketch is given of the history of the glove, and chapters are devoted to the various processes involved in the making of both leather and fabric gloves.

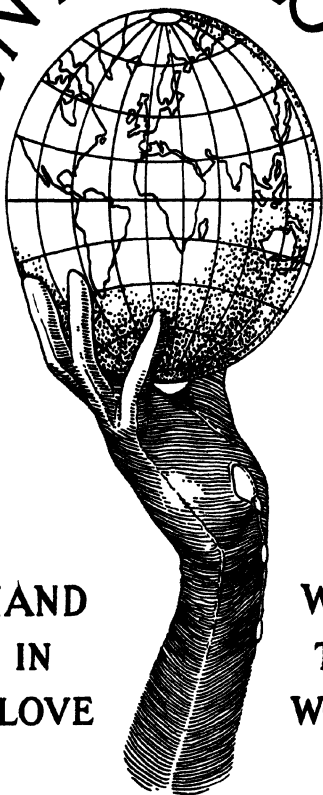
It is the author's earnest hope, above all things, that this little work, slight as it is, may kindle a deeper interest in the British branches of the trade, the activities of which deserve to be more widely known and appreciated than they seem to be at the present time.

In conclusion, I must express my hearty appreciation of the advice, suggestions and help extended to me by several friends in the trade, and especially to Messrs. Dent, Allcroft & Co., Ltd., F. Blake & Co., Thos. Adams, Ltd., and Messrs. Beardsley, for their kind courtesy and co-operation.

B. E. E.

London, December, 1920.

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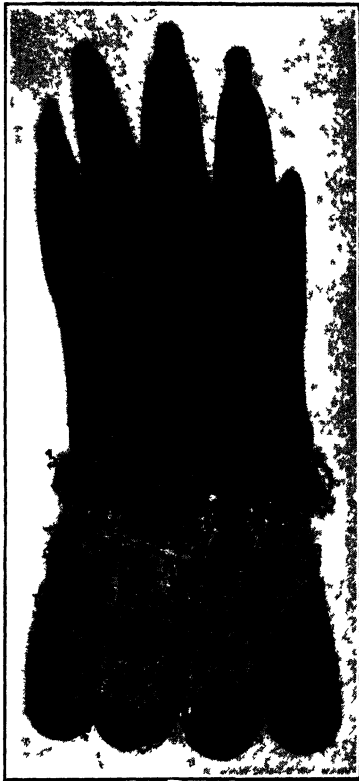
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1777



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VIEW OF A GLOVE FACTORY SEWING-ROOM *Frontispiece*

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GLOVES AND THE GLOVE TRADE

CHAPTER I

THE ANTIQUITY OF THE GLOVE

It is impossible to fix, with any certainty, when the glove as we know it to-day first originated. However, there seems little reason to doubt that the practice of protecting the hands with some sort of covering reaches back to the very remotest days of man's history. Indeed, one eminent anthropologist, no less an authority than Dr. Boyd Dawkins, has suggested that the pre-historic Cave-men, whose existence dates from before the Glacial period, adopted some form of protection for their hands which bore a close affinity to the glove of modern times. If this theory is to be accepted, the antiquity of hand-wear is apparent, for the Glacial period is generally regarded by geologists as having commenced some 240,000 years ago.

This contention, of course, is quite speculative ; but, looking at the matter from a human point of view, it seems perfectly reasonable to assume that the need of protecting the hands, both against cold and against rough usage in passing through thickets, etc., must have been experienced at a very early stage of human development. This possibly brought about the adoption of some kind of rough coverings, rudely fashioned from the skins of beasts of the chase, and it is probably in some such manner that the first rudimentary gloves came to

be invented by our pre-historic ancestors. Support for this view of the origin of the glove is provided by the fact that crude, fingerless coverings for the hand were observed to be in use among the primitive peoples of northern latitudes by the earliest Arctic explorers.

However that may be, coming to the times of which it is possible to speak with more certitude, ample evidence of the use of hand coverings at an early period of man's history is forthcoming from ancient literature. There is little doubt that gloves of some kind or another were used by the ancient Persians and Greeks. Xenophon ridiculed the Persians because they used them in cold weather ; while in the "Odyssey," Laertes, the farmer king, is described as wearing some form of covering to protect his hands from thorns. Whether the glove was commonly adopted by the Romans is at least open to question, but it is known that they were worn to some extent, and are referred to in classical writings variously as "*digitalia*" and "*chirothecae*." Pliny the Younger also refers to their use by the *amanuensis* of the elder Pliny, his uncle. Possibly, however, they were regarded with contempt by the somewhat austere Romans as articles of effeminate luxury.

In warfare and the realm of sport some form of mailed glove or gauntlet seems to have been in use from the earliest times of which we have any record. The "*Cestus*" or "*Caestus*" is mentioned in the account of the Trojan games, a thousand years before the Christian Era, in Virgil's *Æneid*, Book V. They were used not only as weapons of offence, but also as tokens of defiance. It took several forms, but generally consisted of thongs of leather wound or plaited round the hands and weighted with metal. Some were particularly formidable, and a single blow from one was often sufficient to cause death.

When the glove, as we wear it, came to be introduced to these islands is a matter of controversy. Planché, the author of *The Cyclopædia of British Costume*, declares that "Gloves do not appear to have been used by either sex before the eleventh century." Yet it seems certain that gloves were known in Britain at a much earlier period. Whilst we have no evidence that they were worn by the Ancient Britons, it is within the region of possibility that they were brought here by the Romans. They were certainly worn in Anglo-Saxon times, though not to any very great extent. Some authorities assert that gloves were already being worn by the clergy and military in England and France by A.D. 712. In the life of St. Columbanus, written by Jonas, Abbot of Bobbio (Italy), in the seventh century, gloves are spoken of as being used among the monks to protect the hands in manual labour. That they were in fairly general use among the French nobility is certain from the fact that the Emperor Charlemagne in A.D. 790 granted legal permission to the abbot and monks of Sithin for the hunting of deer in order that the skins might be available (among other things) for glove-making. The Great Council at Aix (A.D. 809) seems to have turned aside from its consideration of weighty doctrinal disputes in order to prohibit monks from wearing any gloves but those made from sheepskin, deerskin gloves being reserved for bishops. This regulation was made in order to arrest the growing passion for ostentation and display among the religious brotherhoods. The rule, however, proved ineffective, and, finding it impossible to stop such exhibitions of ecclesiastical luxury, another council, held later at Poitiers, confined the use of gloves, sandals and rings to bishops.

Positive evidence that the glove was in use in England

prior to the eleventh century is provided by a law of Ethelred (A.D. 978-1016) whereby merchants from the Low Countries coming in their ships to Blyngesgate (our modern Billingsgate) were directed to pay as toll at Easter and Christmas "two grey cloths, and one brown one, ten pounds of pepper, two vessels of vinegar and *five pairs of gloves*" (vide *Howell's History of the World*). But, although gloves were in use, it is questionable if glove-making as an industry was carried on in England to any extent at that period. The art of leather-dressing was certainly practised in many of the monasteries, and possibly glove-making may have also furnished an occupation for the monks here and there throughout the country, but the earliest references to gloving as a craft in England do not occur until much later. On the Continent, however, by the tenth century, glove-making had become a recognised industry in several centres, and the Norman conquest seems to have brought in its train the gradual adoption of the glove by the nobility and clergy of this country.

The gloves of this period were almost certainly always made of either deer or sheep skins, or linen or silk, and were frequently of the gauntlet type. Long years elapsed ere they passed into common usage, even among the classes to whom they were first introduced—the clergy, military and nobility. After the reign of Henry I, however, the custom of wearing them gradually came to be firmly established. Possibly it was the scope which the glove offered for ornamentation that gave the first impetus to its general adoption, for there are indications that thus early in its history it began to develop claims to be regarded as an article of fashion as well as of utility. For instance, embroidered gloves, and gloves with bejewelled backs are mentioned by Planché as having been in vogue in the twelfth century.

In any case the foppery of the young Norman nobles came in for contemporary condemnation, for we find one writer of the period declaring with some acerbity that they covered their hands with gloves "too long and too wide for doing anything useful."

We have already stated that glove-making had become recognised as an industry in several centres on the Continent by the tenth century. France has always been famous for its gloves, and the French glove industry without doubt ante-dated that of this country. In A.D. 1190 the first Corporation of Glovers of which we have any knowledge was established by Philippe II. This corporation was established at Paris and its objects were (1) the regulation of the manufacture and sale of gloves, (2) the supervision and adjustment of the various interests of masters, journeymen and apprentices, and (3) the tendering of assistance to aged and necessitous members of the fraternity. The first Glovers' Guild in Britain was established at Perth. It is said that the Perth glovers received a charter in A.D. 1165, from William the Lion ; but the evidence on this point is not conclusive. Their records can be traced back to A.D. 1390, and a charter was granted them in 1406 by Robert III. The Glovers' Guild of Perth is still a wealthy and influential corporation, although the craft has long since ceased to characterise the town. By 1464, we read that the London glovers were granted arms by Edward IV, but the glovers of the metropolis had to wait until 1638 before they received their charter of Incorporation from Charles I.

By the middle of the fifteenth century the English glove industry must have already been regarded as having attained a position of some importance, for in 1463, the importation of foreign gloves was prohibited by an edict of Edward IV in order to afford protection

to the growing trade of his "loyal and peaceful citizens, the glovers." Incidentally, this prohibition was renewed in the following century (A.D. 1564) and also by Charles II, and remained in force until 1825, when the importation of gloves was again permitted, subject to a small *ad valorem* duty. This duty was repealed in 1860, and subsequently the English glove industry was severely hit by competition from abroad, particularly in the lower grades of gloves.

Worcester, which is now the chief centre of the English glove trade, was one of the earliest seats of the industry. The Worcester glovers were incorporated in 1661, and they early gained a very high reputation for Venetian gloves, made in imitation of those imported from Venice.

It may be interesting here to record that the charter granted to the London Glovers in 1638 was ostensibly given with a view to correcting certain abuses which had crept into the craft, concerning which the glovers themselves had petitioned the Crown. The preamble is worth quoting even at this distance of time. We have, of course, modernised the language to render it more intelligible :

We have been informed that their families (the glovers') are about 400 in number, and upon them depending above 3,000 of our subjects who are much decayed and impoverished by reason of the great confluence of persons of the same art trade or mystery into our cities of London and Westminster from all parts of our Kingdom of England and dominion of Wales that, for the most part, have scarcely served any time thereunto, working of gloves in chambers and corners, and taking apprentices under them, many in number, as well women as men, that become burdensome in the parishes wherein they inhabit, and are a disordered multitude, living without proper government, and making naughty and deceitful gloves.

The charter goes on to state that the reputation of English glovers had been much damaged by the activities of these strangers to the City. Therefore,

the London Company was endowed with extremely wide powers, and authorised to search for and destroy bad or defective skins, leather, or gloves. In these days, when traders or manufacturers most strongly resent any interference with their liberties, and to whom the mere suggestion of control or regulation of trade is anathema, it seems strange to read of a body of manufacturers seeking to have their businesses subject to supervision in this way. Such, however, was the spirit of olden times. In those days infinite reliance was placed on protection, and these ancient guilds were endowed with the very widest powers and for a long time even fixed the wages which artisans were entitled to receive and the prices at which commodities were to be sold. The wheel appears to be coming full circle again; for wages are now controlled by industrial councils and Trade Boards, while there is a very clamant demand abroad for the limitation of prices and profits.

To conclude this brief historical sketch, it is perhaps necessary to remark that the use of gloves seems at first to have been confined to men. Originally, as we have already indicated, they were restricted to the ranks of the clergy and military, and their use outside of the church or the army was according to at least one authority (Mr. S. William Beck) interdicted by law. Indeed, ladies no not appear to have worn gloves until the period of the Reformation, but during the sixteenth century the fashion began to set strongly in their favour, and since those days, the custom of wearing them has gradually extended among all classes.

CHAPTER II

THE GLOVE AS A SYMBOL

MANY explanations of the origin of the word "glove" have been advanced from time to time, and one of the most generally accepted theories is that the word is derived from the Saxon "glofe" to hide or to cover. This root again, according to etymologists, is a modification of the verb "geloben" or "geloven," to vow or to have faith. Whether that derivation is to be trusted or not, it is at least significant that the glove seems to have been used from time immemorial as a symbol of good faith or trust. We find it appearing as a legal symbol in connection with the transfer of property in the East from very early times, the handing over of the seller's glove to the purchaser being the recognised form of investing the new owner with his rights. It is said that this form of investiture applied particularly to the disposal of land. Biblical testimony is sometimes advanced in support of this theory, some scholars contending that the Hebrew word translated "shoe" in the fourth chapter of the Book of Ruth (v. 7 and 8) would be more properly translated "glove." (*Hull's History of the Glove Trade.*) To confirm the contract there mentioned, a "shoe" was handed by the kinsman to Boaz, which "was the manner in former time in Israel concerning the redeeming, and concerning changing for to confirm all things." In any case, even in much more recent times, the exchange of gloves was customary among the Jews to ratify bargains and confirm contracts.

Isaac D'Israeli, the author of *Curiosities of Literature*, and the father of Lord Beaconsfield, disinterred

many interesting details concerning the symbolism of the glove from obscure literary sources, where they lay buried.

According to old Germanic law, the hand was the great symbol of power, and no doubt the glove derived some of its significance from that fact. Unquestionably in the Middle Ages the glove enjoyed great importance as a sign or title of investiture. The Earl of Flanders in A.D. 1294 delivered up the towns of Bruges and Ghent to King Phillip the Fair, by handing him a pair of gloves. Du Cange quotes a Charter of the thirteenth century, wherein the re-investiture or restitution of land is also symbolised by depositing a glove upon the earth. At one time no town of Saxony could establish a free market without Imperial sanction, and in token of his permission the Emperor was wont to send his right hand glove. Similarly, no new township could be established without the same permission, which was accompanied by a like symbol of authority. The issue of coins was also conditional upon the same curious formality, and in some instances the recipients would return a left-hand glove stocked with money in acknowledgment.

In this country also it was at one time customary to establish fairs and markets by virtue of the King's glove, and it was for a long period usual to display a glove prominently upon a pole in the centre of the fair as a symbol of the King's indulgence. Here again we have a typical instance of the use of the glove as a token of protection : for in many cases its presence conferred the extraordinary privilege that during the fair, criminals and debtors enjoyed immunity from arrest.

The use of the glove as a token of loyalty or championship will be familiar to most people. In the days of chivalry, for a knight to cast down his glove or gauntlet

was tantamount to a challenge to combat, and the usual mode of acceptance was for the challenger to take up the glove, at the same time casting down his own. A striking instance of this custom was the Royal championship, which survived until the nineteenth century. At the coronation of a king or queen of England at Westminster the hereditary champion flung down his gauntlet, whilst the herald proclaimed the challenge. This part of the ceremony was first dispensed with at the coronation of Queen Victoria.

Steevens, in his *Notes on Shakespeare*, observes that it was "anciently the custom to wear gloves in the hat on three distinct occasions, viz., as the favour of a mistress, the memorial of a friend, and as a mark to be challenged by an enemy." Every reader of Shakespeare will remember the incident in *Henry V*, where the King, the night before Agincourt, walking in the lines, takes a glove as a gage from one of his men-at-arms.

A quaint old rhyme of the sixteenth century, *A Vision of Piers Plowman* contains the following curious reference to the glove :

Yea, I have lent lords, that loved me never after
And hath made mani a knight, both mercer and draper,
That paid not for his prentishod one pair of gloves.

This led the late Mr. S. William Beck, in his *Drapers' Dictionary*, to suggest that the glove entered into the ancient compact of apprenticeship in some manner. It is impossible to confirm this, and a more plausible explanation of the rhyme might be that the knightly "mercers and drapers" referred to were apprenticed free, that is, not even paying the nominal value of a pair of gloves as premium.

Another instance of the symbolism bound up with the glove survives to the present day. This is the ancient

custom of presenting the judge with a pair of white gloves at a maiden assize (*i.e.*, when no cases appear in the list to be heard). It is not at all certain how the practice originated, or when. Undoubtedly it is of great antiquity. It has been suggested that it sprang from the practice of prisoners, who, pardoned after condemnation, were wont to present their judges with a pair of gloves. This latter custom is referred to in an old seventeenth-century rhyme, *The Recantation of an Ill-Led Life*—

Those pardoned men who took their princes' loves
(As married to new life) do give you gloves.

From the foregoing it will be seen the glove has long figured as a token of trust and of honour, and also as a symbol of defiance. To-day, it is esteemed the wide-world over as a pledge of friendship and an emblem of confidence.

CHAPTER III

THE GLOVE IN THE REALM OF FASHION

BEFORE gloves came into common use, other expedients were adopted to protect the hand against the inclemency of the weather. At one period the sleeves of ladies' robes and cloaks were made long enough to be drawn down over the hand. Neither did men disdain to protect themselves from the cold by similar means. Mr. J. R. Planché, in his *Cyclopaedia of Costume*, instances examples from the dress of Anglo-Saxon times, where the tunics worn by the men of that period were furnished with a long wide sleeve, which in mild weather was wrinkled up at the wrist and secured by a strap or bracelet of leather, but which could be drawn down over the hand in severe weather to afford the protection now obtained from the glove. Muffs were also used for the same purpose. Gradually, however, the advantage to be derived from gloves came to be recognised, and they have steadily grown in popular favour. From records still extant it would appear safe to assume that most early gloves were of the fingerless type, having a separate stall for the thumb only. The glove fitted with separate fingers developed later. In the first place they were worn for the warmth or protection they afforded their wearers, but from mere articles of utility they ultimately came to be regarded both as a badge of rank and as a means of ostentation and display. It is impossible at this distance of time to trace the gradual evolution of their development in these respects, but, according to both William Hull and S. William Beck, by the thirteenth century we find them figuring in the

investiture of kings and among the symbolical vestments of the clergy. The gloves of the early monarchs were frequently adorned with precious stones and richly decorated with gold or silver embroidery. In the case of episcopal gloves, a pair worn by William of Wykeham are still preserved at New College, Oxford (which he founded in 1379), and these convey to us an idea of the ecclesiastical gloves of those days. They were made of red silk, the backs being embellished with a gold embroidered circle surrounding the sacred monogram "I.H.S." The thumbs and fingers are also decorated with gold embroidery, whilst a curious embroidery appears upon the gauntlets. As with all the specimens of early gloves in existence, these are somewhat crude in shape and appear to have been extremely loose in the palm and remarkably short in the finger.

From these and similar examples to be found in museums scattered throughout the country one is able to form some impression of the character of the gloves worn in mediaeval ages. No matter whether they were made of leather, silk or linen, these early specimens were almost without exception crude and inelegant in shape and loosely fitting, but their lack of attractiveness in this respect was more than compensated by the richness and beauty of their decoration. In this country gloves first came into fairly general use among the Norman nobility, and immediately began to play their part in the realm of fashion. For a long period, their use seems to have been confined to men, but the costume of the sterner sex in those days was far less sober than now, and the gloves of the period were in keeping with the rest of male attire. From the pages of William Hull, J. R. Planché, and S. W. Beck, we learn what art and skill were lavished upon these mediaeval gloves to make them attractive. Rich embroideries, often executed

with gold or silver thread, fringes and tassels, and even jewels and precious stones, were employed for their



From Beck's "Gloves, Their Annals and Associations"

GLOVES OF HENRY VI

embellishment, and many of the gloves worn in those days must have been of great beauty and value.

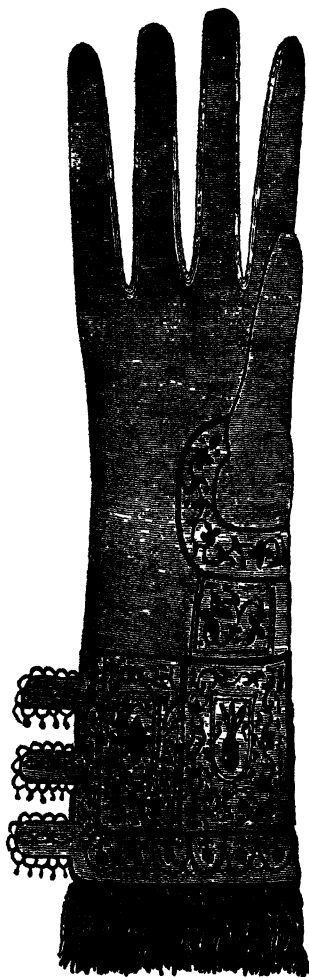
Beck, in his *Gloves, their Annals and Associations*, gives a description of a glove once in the possession of Henry VI. This appears to have been a rather plain and homely article, and, we are informed, was made of tanned leather, lined with deerskin, dressed with the

hair still on. In shape it exhibits all the lack of elegance and shapeliness characteristic of mediaeval gloves. In style it is of the gauntlet type, with the top of the gauntlet rolling back on to the wrist. The thumb is of a peculiar shape, resembling somewhat a heart that has been elongated towards its apex. The dimensions, which are also given, are rather interesting. From the end of the middle finger to the commencement of the gauntlet measures 8 ins., and the gauntlet 5 ins., giving a total length of 13 ins. At the thumb this glove measures 4 ins. across, whilst the gauntlet is rather more than 5 ins. in width.

Mr. Beck, to whose work reference has already been made, has probably contributed more to the history of gloves than any other writer. His book is stored with a wealth of detail which testifies to the admirable zeal and painstaking industry with which he conducted his researches after glove lore, and it is largely to him that we are indebted for our knowledge of the character of mediaeval gloves. Among the famous gloves he describes and illustrates are specimens which are reported to have been in the possession of prominent personalities in English history, notably those of Henry VIII, Queen Elizabeth, Mary Queen of Scots, James I, and Shakespeare.

Those of Henry VIII are hawking gloves, and in their heavy, bluff outline present an appearance strangely in keeping with the popular conception of the character of that monarch. Somewhat broad in the hand, and rather short and broad in the fingers, they are of the usual gauntlet type, and the only attempt at decorative effect is furnished by a rather crude and clumsily executed circular embroidery on the gauntlet.

In striking contrast to these are the gloves of Queen Elizabeth, the ill-fated Mary Queen of Scots, and those



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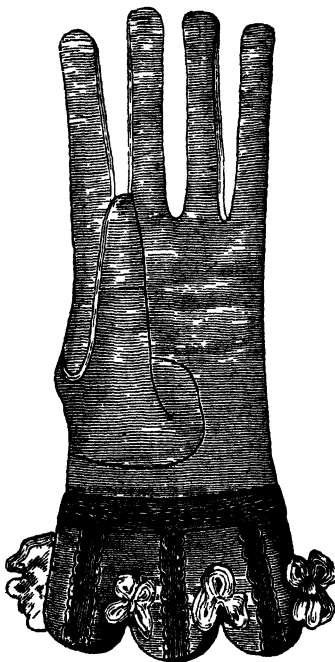
GLOVES OF QUEEN ELIZABETH

of James I. Those of Elizabeth may still be seen in the Bodleian Library at Oxford. They are reported to have been worn by her on the occasion of her visit to the University in 1566. These are close upon 16 ins. long, and are finished at the gauntlet with a 2 in. fringe of gold thread. The gloves themselves are of exceedingly fine white leather, beautifully embroidered with a scroll-work of gold thread which covers the gauntlet and is continued round the base of the thumb. The size of these gloves is remarkable, the middle finger being close upon 5 ins. long, the thumb quite 5 ins. and the width at the palm $3\frac{1}{2}$ ins.

Beautiful as these gloves are, they are easily excelled by those of Mary Queen of Scots, which are (or were until recent years) still preserved in the Saffron-Walden Museum. These are elegant in shape, and beautifully made of buff coloured leather. The elaborate embroidery upon the gauntlet, executed in silver wire and various coloured silks is a remarkable example of sixteenth-century work. The design includes roses carried out in two shades of blue and crimson silk and foliage of green silk, with a bird in flight. The gauntlet is lined with crimson satin, and finished with a fringe of gold lace, decorated with steel or silver spangles. The opening of the gauntlet is connected by two bands of crimson silk decorated with silver lace.

Yet another glove reported to have belonged to the same unfortunate lady is preserved in the Ashmolean Museum. These are of a plainer type, being neither so beautiful nor so ornate as the Saffron-Walden specimens. They are also less shapely, but the workmanship is particularly neat. They are fitted with a short gauntlet, which is embellished with decorative stitching and rosettes of ribbons. These gloves, also, are rather on the large side, from which one is inclined to conclude

that the gloves of those days were purposely made on roomy lines, rather than that gloves of such size were necessitated by the proportions of their owners.



By permission of the Keeper of the Ashmolean Museum

GLOVES OF MARY QUEEN OF SCOTS

Other examples of beautiful sixteenth-century glove wear are illustrated in Beck's pages. If these owe nothing in point of interest to their identification with illustrious owners, they are entitled to notice by reason of their sheer beauty. One such pair of sixteenth-century gloves is described by Beck in the following passage—

The magnificent embroidery on the cuff of the glove, of which both back and front are given, can hardly be done justice to in description, or even in colourless print. Every flower, the columbine and pink in particular, the butterflies, and even a little goldfinch in the middle of the cuff, are rendered in natural colours with an exquisite fidelity, and with such skill as to make them veritable needle-paintings, in which, too, the needle well holds its own against the brush. The work is done in fine silk, and the shading is eloquent of the skill of early dyers, for the range of colours admitting of such undefinable graduations must have been very extensive. The colours are, of course, somewhat faded, but, considering their age, are wonderfully well-preserved. The raised gold work and stitching with gold thread are also in excellent condition, though the work has in some places worn out the white satin on which, with such excellent skill, it was first grounded. The glove is nearly 13 inches in total length. The whole cuff, $4\frac{1}{2}$ inches in depth, is lined with crimson silk, and the side bands of cloth of gold ribbon, edged with gold fringe, were probably attached to the gloves to confine the wide leeves, and allow the ornamentation of the gauntlets unhindered admiration.

Exceptional interest attaches to a pair of gloves illustrated and described in the same volume. These, it is believed, belonged at one time to Shakespeare. They are said to have been presented to Garrick by the Mayor and Corporation of Stratford-on-Avon in 1769, and ultimately passed into the possession of the Benson family. They are made of stout leather, and are ornamented with red and gold scroll work at the knuckles. A fringed yellow ribbon borders the cuff, which is formed of a double layer of leather, in the upper surface of which is a pinked pattern.

In passing, it is worthy of mention that there is some ground for assuming that William Shakespeare's father may have been identified with glove manufacture. Aubrey, the old chronicler, says he was a butcher, but more modern opinion seems to incline to the belief that he was a wool dealer and glover. It may well have been that he was all three, for the callings of grazier, wool stapler, and leather dresser not infrequently went

together. In any case, an examination of the poet's works discloses numerous allusions to the glover's craft, and such knowledge in itself affords strong presumptive evidence that at some time or another Shakespeare had ample opportunity to familiarise himself with the tools and processes of the glover's calling.

To return to the part which the glove has played in the realm of fashion, the advent of the Puritans to power ushered in an era of severity in costume, and the glove suffered in the general eclipse. The wonderfully decorated gloves which had been pre-eminent during the Tudor and Stuart periods found no place in England under the Commonwealth, but with the Restoration, all the old tendencies towards lavish ornamentation and luxurious decorations reasserted themselves with renewed vigour. Embossing and embroidery work in gold and silver thread, rich silk and satin linings, fringes and tassels and exquisite laces were all employed to adorn and beautify gloves. Fringed gloves, in particular, were very popular with the fashionable set in the days of Charles II and James II, and the feeling for them continued throughout the first half of the eighteenth century, silver and gold fringes being specially favoured. It is worthy of note in passing that the dandies of London in the days of Beau Brummel were so enamoured of fringed gloves, that they formed a "Club of the Fringed Glove," though beyond the fact of its formation we know nothing further of it. A curious sidelight is thrown upon the importance with which the glove was regarded by the gentlemen of fashion in the early nineteenth century, by the following rules which, it is said, were laid down by the famous Count d'Orsay: "An English gentleman," he said, "ought to use six pairs of gloves a day. In the morning to drive a britzska to the hunt, gloves of reindeer. At the hunt,

to follow a fox, gloves of shammy leather. To return to London in a Tilbury, after a drive at Richmond in the morning, gloves of beaver. To go later for a walk in Hyde Park, or to conduct a lady to pay her visits, coloured kid gloves, braided. To go to a dinner party, yellow dog's-skin gloves. And in the evening, for a ball or rout, gloves of white lamb-skin, embroidered with silk." We have, happily perhaps, travelled far from so slavish a regard for fashion's decrees as these rules would seem to imply, but the glove is still almost universally regarded as a badge of gentility. So far as dress gloves are concerned, however, a few years ago no gentleman would appear at a dinner or dance without a pair ; to-day they are rarely used except at court or state functions.

Latterly, with the demand expanding in an ever widening circle, the bulk of the trade to-day is naturally concerned with gloves of fairly stereotyped character. Still, style changes do take place from generation to generation and from season to season, even in the most work-a-day sections of the trade. Thus, where a few years ago the ordinary glacé kid glove represented the principal type called for, to-day it would be difficult to ascribe pre-eminent popularity to any single class of glove. Certainly there would seem to be almost as great a demand for chamois, wash-leather, degrains, suèdes, and fabrics, as for those of the glacé variety.

Naturally, being an auxiliary article of attire, the glove is inevitably influenced by the changing moods of fashion in costume. This applies more particularly, of course, in the ladies' section of the trade. To-day it needs, perhaps, to be emphasised that this tendency of the glove to reflect the variations of fashion is becoming somewhat more marked in the cheaper branches of the trade than was wont to be the case formerly. Women,

even working class women, are much more discriminating than they used to be. Witness the tremendous demand for fringed gloves in recent years following a vogue for fringe. A craze for stiff gauntlets of a military type during the war furnishes another instance of the same kind. Again, coloured gloves to match the tones and shades popularly adopted from season to season are also sought after. Nevertheless, it remains true that the various styles of ordinary wrist-length glove, in tan glacé, slate or sable suède or degrain will always find a sale to-day, no matter what strange and fantastic whims are abroad.

So far as the fashion end of the trade is concerned, however, a visit to any of the large wholesale glove houses, or to any of the great drapery emporiums of London, Paris or New York, would be sufficient to disabuse the minds of those who imagine that the making of gloves of superlative elegance is a lost art. In some respects, notably in originality of conception, variety of design, and beauty of workmanship, the modern gloves of fashion excel those of earlier periods. While they lack the over-elaborate ornamentation of the Tudor, Stuart and Restoration periods, their superior cut and finish and the tasteful beauty of decoration compel our admiration. Many large manufacturers make a speciality of this branch of the trade, and every season now brings its quota of new styles and innovations. Highly skilled designers, thoroughly familiar with the processes of the industry (and fully conversant, be it said, with the limitations as well as the possibilities of the glover's art) are retained by the makers, and the combination of their art with the skill and craft of the operative glover results in the production of the fine gloves which adorn the hands of the leaders of fashion in the world's capitals

CHAPTER IV

LEATHER GLOVES : SKINS AND THEIR ORIGIN

IN the preceding chapters we have dwelt briefly upon the glove as an article of fashion : we will now devote our attention to its position in the world of commerce.

Broadly speaking, there are three distinct classes of gloves, *i.e.*, (1) Leather Gloves, (2) Fabric Gloves, (3) Knitted Gloves. Leather gloves and knitted gloves without doubt are of great age. What is now usually termed the fabric glove is of comparatively modern development, although gloves of silk, linen and other fabrics are referred to in old documents. In recent years the manufacture of this latter type has made striking progress, and many people in the trade believe it has an even still greater future before it. Nevertheless, leather gloves still take pride of place, and represent the largest and most important branch of the industry, fabric gloves coming next in order of importance, and knitted gloves last. Taking them in this order we will deal with leather gloves first.

In the early days of the glove industry, leather gloves were almost always made of either deer skin (buck skin) or sheep skin. Nowadays, however, gloves are made from a wide variety of skins. Those chiefly used are kid, goat, sheep, lamb, reindeer, antelope, gazelle, calf and colt. Kid and goat skins, and lamb and sheep skins supply the greatest part of the leathers used for gloving, whilst reindeer, antelope and gazelle are used largely—when available. We mention calf and colt, for although they are rarely used to-day for glove-making they were employed formerly to a limited extent. Colt skins are still used in America for workmen's gloves.

The French undoubtedly were the first to discover that kid skins possessed special qualities which rendered them eminently suitable for glove-making, and to that fact, coupled with the development of exceptional skill in skin-dressing, France owes the pre-eminent position she has so long enjoyed for the production of fine-quality gloves. So long as the British glovers were immune from the effects of foreign competition they were content to rely mainly upon home supplies of raw material, chiefly sheep, lamb and deer skins. After the removal of the prohibition against the importation of foreign gloves into England (1825), however, in order to meet competition from France, British glove makers commenced to import kid-skins in much larger quantities and to dress them in the continental manner. For a long time, the British trade suffered severely owing to keen competition from across the Channel (French manufacturers holding the advantage of having ample supplies of skins near at hand and abundant supplies of cheap labour). Steadily, however, the English industry found its feet, and, largely owing to the enterprise and far-sightedness of a few eminent firms, who concentrated upon the production of sound, reliable articles, British gloves have won a special reputation in the world's markets by virtue of their outstanding merits. Latterly the industry has extended its efforts, and to-day the home trade is probably in a stronger position than ever in its history.

Without doubt, kid skins furnish the finest and thinnest of all leathers, and from them the majority of the lightest and best quality gloves are made. Practically all the supplies of these skins are drawn from Europe, France being the principal centre, with Switzerland, Germany, Austria, Northern Italy, Belgium and Ireland providing smaller quantities. Ireland, by the way, was

at one time famous for supplying particularly fine skins for a special type of glove known as "Limericks." It is said that these were taken from kids born prematurely. Large quantities of kid skins come also from South America. The flocks of kids whose skins are destined for the glove industry are raised mainly in mountainous districts. In France, the kids are specially bred and reared, and special attention is paid to their nurture so as to avoid any blemish in their skins which would be likely to detract from the value of the finished leather. Milk-fed kids furnish the finest skins, for so soon as the animal begins to eat herbage its skin thickens and coarsens. Sometimes, however, the kids are allowed to grow to their full stature, and when they are full-grown they are known as "chevrettes" (the French designation for goats). As such, their skins yield a particularly clear and strong leather, remarkable for the perfection of its grain. Many of the so-called "kid" gloves sold to-day are made from lamb skins, owing to the shortage of suitable kid skins.

Sheep and lamb skins fall next in order of importance. The chief centres of supply are Russia, South Africa, Italy, Spain and the South-Eastern countries of Europe (The Balkans), South America again contributing a smaller quota.

South African sheep produce an excellent heavy-weight skin, of a particularly large spread, but tight fine grain. Formerly supplies were almost exclusively drawn from the Cape and Port Elizabeth districts—hence the origin of the "Cape" glove. So-called "Cape" gloves of the present day are no longer made exclusively from South African skins, which are largely used for heavy-weight gloves, such as motor and military gauntlets.

Some of the very best types of lamb skins come from

Russia. These are known in the trade as "Kasans." At present (1920) owing to the troubles in Russia these are hard to obtain.

Excellent lamb skins are also obtained from Spain.

The "Mocha" or Arabian Hair Sheep furnishes another skin very widely used for leather gloves. The Arabian Hair Sheep according to some authorities is a distinct type; others contend that they have been developed by the inter-breeding of Mocha goats and a species of sheep. Their pelts are known variously to skin-buyers as "blackheads," "redheads," and "whiteheads," according to the colour of the hair on the poll or head of the animal. Gloves made from these skins are often confused with "suède" and so-called "doe" and "chamois" gloves. Arabian sheep skins, however, are not "suèded," but "degrained," or "frized" which is quite a different process.

The district between Cairo and Khartoum supplies another special type of sheep skin known as "Soudans," whilst Indian sheep skins are also used to a certain extent.

Returning to lamb skins, these are procured from all over Europe and from parts of South America. The finest grade of all lamb skins, known as "Tuscany skins," come from Southern Italy and are used for the very highest class of lamb skin gloves. At one time the home supplies of lamb and sheep skins entered very largely into glove-making. To-day they are nothing like so extensively used for "grain" leathers, being of a rather coarse grain and lacking durability. They still enter largely into the making of "doe" and "chamois" leathers. During the war, however, many thousand pairs of trench and motor-transport gloves were manufactured from them. These were made from sheep and heavy lamb skins dressed with the wool on, the glove

being made with the wool inside for warmth. Similar gloves are also made for farming use and rough driving wear. Fine short wool lamb skins from the Pyrenees and China are also dressed with the wool on and utilised largely for lining ordinary leather gloves.

It is a peculiar fact that those sheep yielding the best wool do not generally furnish the best skins for glove making. Normally, the more hairy and wiry the wool the better the skin from the glover's point of view. One reason suggested is that the more wiry the wool the finer and closer the grain of the leather—an important point in gloving.

The German and Austrian glove-makers used to buy very large quantities of lamb skins from the Balkans.

Gazelle skins are still used to a fairly large extent in the glove trade. They are obtained from the hinterland of Aden, and Africa, and are sometimes known as the African small deer.

Reindeer skins, which furnish one of the finest leathers for gloving are obtained from Alaska, Russia and North Western Europe.

The foregoing will introduce the reader to the principal skins used in the leather glove trade. Before proceeding to describe the various processes through which they must pass ere they reach the hands of the glove-maker, it is necessary to refer to a few popular terms which are frequently subject to misconception.

In the first place, considerable confusion exists as to the terms "dressed kid" and "undressed kid." All skins, of course, must be dressed before they become leather, but some are dressed and finished on the hair-side (known in the trade as the "grain" side) of the skin, and some upon the flesh side. "Dressed" kid is the designation of the former, which gives a grain or glacé

finish, whilst the latter are known as "undressed" kid. Sometimes, however, the hair or grain surface of the skin is removed, when the skins are known as "degrains," "chamois" or "doe," but are sometimes classed as "undressed" kid.

Glove trade nomenclature is often very misleading. Some terms which had at one time a certain well-defined meaning and were applied strictly to specific articles, in the course of time have taken on a much wider significance; the field of their application has become enlarged. "Cape" gloves furnish a case in point. Originally applied to gloves made from skins procured from Cape Colony, the name is now used for gloves made from the skins of sheep, lambs, and even goats obtained from many other lands than South Africa, which have been finished by the method known as "Nappa" dipping or "Staining."

Similarly, the term "Mocha" is sometimes wrongly applied to gloves made by the "suèding" process. Suède leather is dressed on the flesh side of the skin, but the leather for "Mocha" gloves is "friezed" or "frized" and not "suèded," and the finished or wearing surface is on the hair or grain side of the skin, the grain being removed to take the finish. "Chamois" is another term which deserves a word or two of explanation. To the laymen, the chamois (a species of mountain goat peculiar to Switzerland) furnishes the raw material for all leather and gloves known as "chamois." The genuine chamois, is practically extinct so far as glove-making is concerned. Here again, the name is preserved and applied to a special manner of treating the leather. The "genuine" chamois of to-day is usually nothing more nor less than sheep or lamb skin, specially dressed with oil, or maybe chromed. Gloves so made possess admirable washing qualities—a fact which is largely due to the

absence of acids or dyes, which otherwise would tend to harden the leather in washing.

Sheep skins, particularly the heavier varieties, are often split from edge to edge, yielding two thinner skins. That portion bearing the grain surface is known as a "skiver," while the flesh side, or lower portion, is termed a "flesher." It is from these latter that the leathers known throughout the trade as "chamois" and "doe skins" are often produced.

Before concluding this cursory survey of the various skins used in the leather glove trade, it will not be out of place to interpolate a few words as to the prospects for supplies during the next few years. The late war, which convulsed the world with devastation, has had a very serious effect on the trade. In the first place tremendous inroads were made upon the stocks of all sorts of leathers which were required for many different articles of military equipment. In addition to this, the serious shortage of food experienced all over Europe during the war led to the slaughter of all edible animals on a wholesale scale, and the flocks of kids, sheep and lambs whose skins were normally utilized for glove making suffered with the rest. In the combatant countries, many of the shepherds and goat-herds were withdrawn from their avocations and sent away on active service; their flocks, in consequence, went frequently neglected and untended. The result of all this was visible soon after the Armistice (11th November, 1918) when the glove manufacturers began to devote their energies to the revival of trading under peace conditions. The herds of goats and kids and sheep and lambs were then found to be seriously depleted in numbers, but, what was more disconcerting, very many of the animals remaining were in poor condition. Early in 1919, it was estimated that the quantity of skins

in sight for that year was only just short of one-fourth of the normal pre-war annual supply. Obviously, then, the shortage cannot be regarded as of a temporary character, and it is evident that years must elapse before the herds can be restored to their pre-war strength and condition.

Meanwhile the demand for leather gloves continues unabated, and in fact tends to expand. Further, it has to be remembered that practically all the skins suitable for glove-making are also in demand by other industries—ladies' shoes and fancy leather goods particularly. In addition, Fashion, with the strange caprice that sometimes seems to sway her moods, has recently decreed in favour of the use of soft leather for millinery and dress trimmings. All this has naturally intensified the competition for the very skins glovers need for their industry. Thus we come face to face with one of the main factors which have contributed to force up the price of all kinds of leather gloves to levels undreamt of in pre-war years.

In addition to this increase in the cost of the principle raw material, the costs of making the gloves have also advanced enormously. This applies, of course, to every one of the very numerous operations which enter into the making of the glove. The prices of all materials used in skin-dressing have increased considerably as compared with pre-war levels, so too have the silk and cotton threads used in sewing; whilst finally much enhanced wages are now being paid to all workers throughout the industry. Thus it will be understood that cheap leather gloves—as "cheapness" was understood before the war came to shatter our notions of value—can no longer be obtained,

CHAPTER V

SKIN-DRESSING AND TREATMENT

SKIN-DRESSING for the glove trade is a specialised industry, and involves a long series of complicated processes. The various stages occupy anything from 6 to 8 weeks, the time varying according to the kind of skins being treated, the character of the dressing or tannage, the locality where dressing takes place, and the season of the year. Glove leather-dressing is now carried on at almost every centre where glove factories are to be found, both at home and abroad. Spain was at one time famous for dressing glove leathers, if an old adage is to be believed, for it used to be said : " For a glove to be good three realms must have contributed to it, Spain to prepare the skin, France to cut it, and England to sew it." Times have changed, and Spain to-day supplies few dressed skins for the glove trade. France is one of the principal countries for such, supplying many parcels to this country as well as to the French glovers. The chief French centres are Annonay, Grenoble, Millau and St. Junien. Annonay since the fourteenth century has been pre-eminent for dressed skins, and its reputation in this respect is referred to in Mrs. Henry Wood's well-known glove trade novel, *Mrs. Halliburton's Troubles*. Ottignies, near Brussels, Naples in Italy, Munich in Bavaria, and Prague in Bohemia, are also well-known dressing centres. In England, many thousands of skins are dressed annually in the Yeovil district, at Abingdon in Berkshire and at Worcester.

There is no doubt that the character of the water of various localities has considerable bearing upon leather-dressing, although some of the extravagant claims

advanced in favour of certain districts can be largely discounted. That there is a great deal of truth in the theory is evident from the fact that some localities seem to yield better results than others even when there is little or nothing to choose between the skill and experience of the dressers concerned. The softer the water the better, whilst the presence of certain bacteria is also an advantage.

In the previous chapter the various skins now used for gloving were described in detail. They are purchased in their raw state in the different centres where the animals are reared. They are then in the "pelt" stage, that is, with the hair or wool still upon them. Before they can be transported or stored they have to be cured or treated to prevent decomposition and damage by worms. There are several methods of effecting this. Some skins are merely sun-dried, others are salted and dried. Small skins are frequently dried and sprayed with naphthalene. Others are wet salted and packed in barrels, a method which many leather-dressers would like to see more generally adopted, although it adds considerably to the cost of packing and shipment. Again, large skins are sometimes treated with both salt and lime. Notwithstanding all these precautions, great care has to be exercised while the skins are stored prior to dressing in order to prevent damage by maggots or worms. Constant changes of position and frequent spraying with naphthalene are the most effective safeguards against deterioration. Subsequently the skins are sorted, being graded according to size, weight and condition, and baled for transhipment.

On arrival at the dressing yards the skins are very dirty and greasy, and the preliminary treatment they undergo is a cleansing process, known as soaking, which clears away all foreign matter and impurities. To



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VIEW OF A LEATHER DRESSING YARD

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effect this, the skins with hair or wool still on are placed in tanks or pits of clear, soft water. There they are left to lie for some time. Salted hides require a longer soaking than those which have been merely dried or treated with naphthalene, whilst a longer soaking is usually necessary in winter, when the water is less soft, than during the summer. After being thoroughly soaked, the skins are sometimes passed through a rolling machine, resembling in principle the ordinary household mangle, but the rollers of which have a rubber surface. This operation squeezes a good deal of water from the wool or hair of the skins and with it much of the dirt and impurities adhering to the wool.

The next operation is that of depilation, or the removal of the wool or hair. There are several means of dehairing or unhairing, as it is more commonly called. Formerly the use of a solution of ordinary lime was the only method adopted, but latterly pastes made of sulphide of sodium or red arsenic in combination with lime furnish more expeditious means of loosening the hair. Every dresser makes his own paste and the strength of the solution naturally varies between one yard and another. Usually the proportions of the solution vary from six to eight parts of lime to one of sulphate of sodium or red arsenic. Powdered lime is preferable, and it must be well mixed with the other ingredient in water. Some time is allowed for the lime to slake off and the paste is then thickly painted over the flesh sides of the skins, care being taken to see that the solution does not touch the wool, which would otherwise be damaged. The skins are then folded, wool side outwards, and left to stand for hours, by which time the hair-sheaths or cells are loosened and the wool or hair can be easily removed. The sulphide of soda solution is most generally used for sheep and lamb skins, and the red arsenic for goat and kid

skins, and their use is thought to improve the grain. Before the adoption of such depilants, after being loosened with lime the hair or wool was removed from the skins by the "beaming" process. The "beam" is a sloping convex-shaped balk supported by a trestle, and the "beaming knife" a blunt convex-shaped knife with two handles. The skins are laid over the "beam" and the loosened wool or hair scraped off with the knife. Now, by the use of modern depilants it is possible to pull the wool or hair off by hand. At Grenoble, and often elsewhere, fine kid skins are still unhaired by the lime and beaming methods.

Sometimes, of course, the skins are dressed with the hair and wool still on, and used for gloves with the natural covering of the animal for lining. Small lamb and antelope skins are frequently treated in this way.

After unhairing the skins are thoroughly washed in rotary paddle washing machines, and then placed to soak in lime pits for some weeks. The lime pits are rectangular in shape, the fronts of which are preferably constructed so as to slope back to the pit in order to facilitate the draining of the skins. The lime used is carefully slaked, all lumps being eliminated or reduced to paste in the process, for unslaked lime would burn the skins, doing irreparable damage. The well-known purifying and cleansing properties of lime have the effect of loosening all small hairs, hair cells, and particles of flesh preparatory to fleshing. The skins remain in the lime pits from a fortnight to a month or more, and they are frequently taken out of the pits, "hailed out" or left to drain a short time, and then returned to the same pit or another pit containing a fresher solution of lime. After liming the skins are first subjected to another course of washing in a paddle washing machine, and then passed on to the fleshing department.

The fleshing operation, as the name implies, has for its object the removal of all the loose particles of flesh from the flesh side of the skin. Formerly done entirely by hand by means of a special knife, the work is now largely done in a fleshing machine. The hand operation calls for exceptional dexterity. The fleshing knife is shaped much like the beaming knife, but has two edges, the inner of which is keen and sharp and the outer blunt and dull. The dull edge is used to scrape away the particles of flesh loosened in the liming process, whilst the keen edge is used to shave off the remainder. Great skill and care are necessary to avoid cutting into the skin itself. Fleshing machines, which are now rapidly superseding the hand process, are nearly all constructed on the same principle. Spiral knives are mounted upon a cylindrical roller, half the blades converging to the left and half to the right. The skins are fed into the machine grain side downwards and passed under the knife cylinder which rotates at high speed and cuts away all superfluous flesh.

Fleshing, by the way, occasionally reveals defects in a skin which render it absolutely unsuitable for glove leather. All wool and hair-bearing animals are fond of scratching themselves by rubbing against bushes or by rolling in grass stubble. It sometimes happens that in so doing their coats get covered with minute thorns or pieces of sharp spear grass. These have a trick of penetrating right through the hide of the animals, where they often pass unnoticed until the operation of "fleshing" burrs them up and causes them to form small holes in the skin itself. The writer has seen a lamb skin so damaged that after fleshing it appeared to be as full of holes as a strainer.

Deliming follows, in which the skins are washed in warm or soft water in rotary paddle washing machines.

The next step, "puering," is one of very great importance. Hitherto the skins have retained their harsh and rather gristly character and the object of the puering process is to render them more soft and supple. Puering also saponifies the lime and facilitates its removal. Formerly dog-manure was used universally for puering glove leather, but in recent years the substitution of artificial puers has become general. One of the best known chemical puers is "Pancreol" which is composed of pancreatic extracts in combination with ammonium salts and sawdust. The pancreatic extract is obtained from the intestines of pigs and other small animals. Animal galls and enzymes are also used to good effect. Many leather-dressers, however, still contend that the dog-manure yielded better results, but the drawbacks associated with securing suitable supplies, and the difficulty of standardising the strength of the mixture are causing it to be discarded. There is no doubt that the use of chemical puers is attended with many advantages, and on hygienic grounds alone their substitution for dog puer is to be commended. Puering, again, is a wet process, the puer being put into solution with warm water and the skins soaked in the mixture until reduced to the necessary degree of softness.

After puering the skins are again thoroughly washed and subsequently drenched. Drenching is a fermentation process, in which the skins are placed overnight in a vat or tub containing an infusion of warm water and either wheaten flour, pea meal, or bran. Fermentation takes place and by the following day the skins are found to be floating on the surface of the water in a very swollen and puffed-up condition. Some dressers regard a single "rising" of the skins as sufficient, but others force the skins under water and allow the "rising" to be repeated several times. French dressers, in particular,

attach great importance to repeated "risings." By this process the last vestiges of lime are removed from the skin, which is by now reduced to a soft, pulpy, gelatinous substance, in which condition it will readily absorb the "tawing" or "tanning" ingredients necessary to convert it into leather. Drenching is followed by "scudding," which is the last of the cleansing steps preparatory to "tanning" or "tawing." First the skins are rinsed in warm or tepid water and then the "scud," consisting of particles of lime deposit, short hairs and scum, is gently scraped off the grain with a scudding tool which though shaped something like a beaming knife is fitted with a blade of slate or vulcanite.

Up to this point most skins, no matter their origin and no matter the finish to be imparted to them, have undergone much the same treatment. They are now in the stage known throughout the trade as "in the white." All the operations hitherto described, however, are preparatory to the process of leather-dressing proper.

There are several methods of dressing glove leather, but that adopted for by far the greatest portion is the process of tanning known as "tawing" in which the skins are treated with a mixture of alum, salt, egg-yolk, flour, and sometimes a vegetable oil. Bark-tanning is adopted for tanning particularly strong glove leathers, such as are used for driving gloves, etc., whilst there are distinct tannages for "chamois," washable and Mocha leathers, and "suèdes" also are often subjected to a special process.

The white tannage—the tawing process—is generally used for kid, lamb, and light sheep skins. Leather for white dress gloves and for the "nappa" and coloured gloves, which have, of course, to be subsequently dyed, are so produced. Every dressing yard follows its own recipe for the tawing mixture, but a comparison of the

several mixtures would probably not reveal a great measure of variation. An average tawing mixture contains 5 parts of flour, 4 of alum, 2 of salt, and 1 of egg-yolk. A usual method of mixing the tannage is to dilute the yolk in warm water, the flour is then added and mixed into a paste, after which the salt and alum are dissolved in water and stirred into the mixture. About 12 lbs. of this tannage suffice to dress 100 lbs. of skins. Alum is one of the oldest of known tanning agents, and this in conjunction with the salt furnishes the real preserving or leather-making ingredient, the flour (or meal which is sometimes substituted) and egg yolk stuff or feed and lubricate the skin, helping to render it soft and flexible. The dressing is applied by means of a machine called a drum-tumbler. This is usually a cube-shaped receptacle which is slowly revolved on its own axis. The inner side of the drum is fitted with pegs or staves. A certain quantity of water—about 2 gallons to each 100 lbs. of skins being treated—is poured into the drum, the tawing mixture is added, and the whole is then mixed together by rotating the drum for a minute or two. The skins are then placed in the drum, which is again set in motion and allowed to rotate slowly for some hours. In this manner the tawing mixture is thoroughly kneaded into the pores of the skin. From one to three hours suffice to “taw” the lighter and thinner skins, but somewhat longer periods are usual for larger and heavier pelts. Frequently, however, after the drums are stopped, the skins are allowed to remain standing in the drum for some hours, after which they are withdrawn and piled in baskets during the night to consolidate the effects of the tannage upon the fibres of the skins.

After tawing, the skins are dried or “stoved” in large specially constructed chambers heated by means of steam pipes. Sometimes revolving fans are installed in



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STAKING THE SKINS

The old hand method is still used for the lighter and thinner skins.

the drying-rooms to keep the skins in motion in order to secure even drying.

The skins are now in what is termed the "crust" stage, and as much unlike the beautifully smooth and flexible glove leather as it is possible to imagine. In appearance they resemble a piece of wash leather that has been soaked and left to dry in the sun. The method by which the stiff, unsightly "crust" skins are broken out and transformed into a soft, pliable leather is called "staking." Formerly this was done entirely by hand, but now most staking is done by machine, though the lighter and more delicate skins are still dealt with by hand-stakers.

For hand-staking, the stake is a short post fixed rigidly into the floor and rising about 3 ft. from the ground. At the head of the post or stake is a blunt knife, half-circular in shape. The skins are first softened by damping in wet sawdust, and then drawn smartly (flesh side downwards) over the edge of the knife until all the harshness is broken out of them.

The staking machine, which has so largely superseded hand-staking, is a wonderfully simple contrivance. Two arms, mounted with small rollers, are actuated by shafting gear so as to move in a forward direction, and at the same time closing together much like a pair of jaws. The jaws or arms of the machine meet in a grip in a gap between two tables, and while still retaining the gripping position are drawn swiftly backwards by the rotary movement of the actuating gear. The operator stretches the skin, flesh surface upwards over the gap between the two tables, and the jaws with their rollers, move forward and close on the skin, and are drawn rapidly backwards over its surface. These movements are rapidly repeated, the operator gradually moving the skin between each forward movement of the jaws until



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THE MACHINE METHOD OF STAKING

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the whole has been broken out. The upper jaw or arm of the machine is fitted with a roughened roller which impinges on the flesh surface of the skin, and really does the work of the stake in the hand operation.

Staking is always done on the flesh side of the skin, otherwise the grain surface would be scratched to pieces, rendering a glacé finish impossible.

This concludes the preliminary operation of leather-dressing, and the skins are now ready for the dyeing and finishing processes which are usually carried out in the glove factory itself.

"Tawing," however, is not the only tannage for glove leather. There is a bark tanning process, in which, after puering and drenching, the skins are steeped in tanning extracts made from oak, chestnut, gambier, sumach or other barks. By this method a strong durable leather is produced coloured with the natural tones of the bark used. As a rule only heavy-weight skins are selected for this process, the leather for driving gloves and similar articles being so produced.

The so-called "chamois" (often spelled "shammy") and "doeskin" leathers are produced by a special tanning process. Sheep and lamb skins are commonly used. Sheep skins are frequently split edgewise, the upper or grain portion being termed a "skiver," while the lower half is called a "flesher" or "lining." Skivers are largely used for the boot trade, but the fleshers or linings furnish the skins for making chamois leathers. The flesh surface of these fleshers is frized or friezed by means of a keen-edged knife, resembling a fleshing knife, much as other skins are fleshed by the hand method except that the frizing knife bites rather deeper into the surface of the skin. Lamb skins which are to be "shamoyed" are frized to remove the grain. After frizing the skins are delimed, either by being washed in

weak lactic acids or by drenching with bran, wheaten flour, or pea meal in the manner already described for tawed skins. They are then washed, and the important operation of kneading follows. This is a lengthy process often carried out in a "stocking machine" in which the wet skins are severely pummelled preparatory to being dressed with oil. The "samming" process follows, the skins being hung up and allowed to dry partially. An oil dressing or tanning is then applied to the skins, cod oil being usually used though other fish oils are suitable. This oil dressing is applied in a very drastic manner, and the method adopted is totally different to any other system of tannage. The skins or fleshers are first steeped in oil, the oil being poured over the skins as they are placed in the vats. After an hour or so, the oiled skins are taken out and pummelled again in the stocking machine, and these alternate processes are repeated for a number of times until the oil has permeated through each individual skin. Subsequently the skins are stove-dried and in order to complete the tannage the oil-dressed skins are heaped together so as to generate spontaneous heat which causes the oil to oxidise and fixes the tannage. During this process, they have to be carefully watched and frequently moved to avoid overheating. When oxidization is completed, it is found that there is a certain amount of free oil in the skins which is not absorbed into the body of the leather. This is usually removed by pressing the skins in a hydraulic press after they have first been immersed in hot water. Finally an alkaloid wash is applied and the leather is ready for staking and finishing. The skins are bleached either by being spread in the sun or by chemical bleachers, the former method being much more preferable.

Yet another process is used for making the choice

white washable leather which has captured popular favour to a remarkable extent in recent years. The great drawback of ordinary "tawed" skins is that gloves made from them cannot readily be washed or cleansed without damage. Latterly, some dressers have endeavoured to neutralise this drawback by applying combination tannages or by applying a light chrome dressing after tawing, which is said to render the leather more impervious to water. This method, however, is not very generally adopted, and, the real washable leather is found to give better results. In making this the skins are soaked, dehaired, limed, puered and drenched in the same way as for tawed skins, but the tannage applied is a mixture of sodium carbonate and formaldehyde. This is applied by the drum method, and occupies rather less time than "tawing". An average solution is composed of 8 parts sodium carbonate and 3 parts formaldehyde. Subsequently a light dressing with a weak solution of sulphate of ammonia is applied, after which the skins are stuffed and lubricated in order to feed and soften the leather. For this purpose special patent preparations are frequently used, but some dressers prefer their own nourishing mixtures. An emollient of egg yolk and neatsfoot oil is very popular for this purpose, while olive oil in conjunction with soft or curd soap also gives excellent results.

Good Mocha is rather more difficult to produce than any other gloving leather. After soaking and softening, the skins are steeped for some time in lime liquors preparatory to unhairing. The drastic depilants (sulphide of soda and red arsenic) are not used, the skins being soaked in the lime pits until the hair is sufficiently loosened. The grain is then removed by the "frizing" knife, and the skins are put back into weak lime liquors for two or three days. Washing in warm water follows

and the skins are then drummed in a 5 per cent. solution of lactic acid in water at about blood-heat. After this, they are rinsed, stuffed and dressed with alum, salt, egg-yolk and flour, and subsequently dried or staked, and ground upon a fine emery wheel. Another dressing of yolk follows, and the skins are then ground again upon a still finer wheel.

Processes for treating fleshier sheep skins and other skins to produce a simulated Mocha finish have been patented. One method is as follows: After removal of the outer grain, the skin is soaked in a solution of potassium carbonate, and subsequently the inner grain is removed. The skins are tawed in the usual manner, but a small percentage of grape sugar is added to the mixture to increase the body. Rice starch, glycerine or tannic acid may also be added.

Imitation Mochas are produced in many ways. One method is to dye and coat the skin with coloured powders. The skins are ground on the flesh side, which is afterwards coated with a mixture of linseed oil, manganese borate, benzine and colouring matter, and finally sprinkled with starch, talc or other powder dyed the same colour as the skin. This is beaten into the skins, which are finally dried in stoves and finished in the usual way.

Yet another process has been invented in connection with the production of so-called Mocha leather. Instead of "frizing" to remove the grain, a solution of caustic soda and potash is applied which corrodes the grain, and the surface is then ground off by means of an emery wheel. Diluted vitriol and other acids are sometimes used first, to disturb the grains.

Such methods as these latter, however, are not resorted to by reputable firms.

In glove leather-dressing there is of course ample scope

for varying the different processes. In the course of time every establishment develops special lines of practice which are believed to yield improved results. Thus every dressing-yard has its own characteristics, and the leathers produced therein often exhibit a distinctive character, which though apparent to the expert could not be easily detected by the uninitiated.

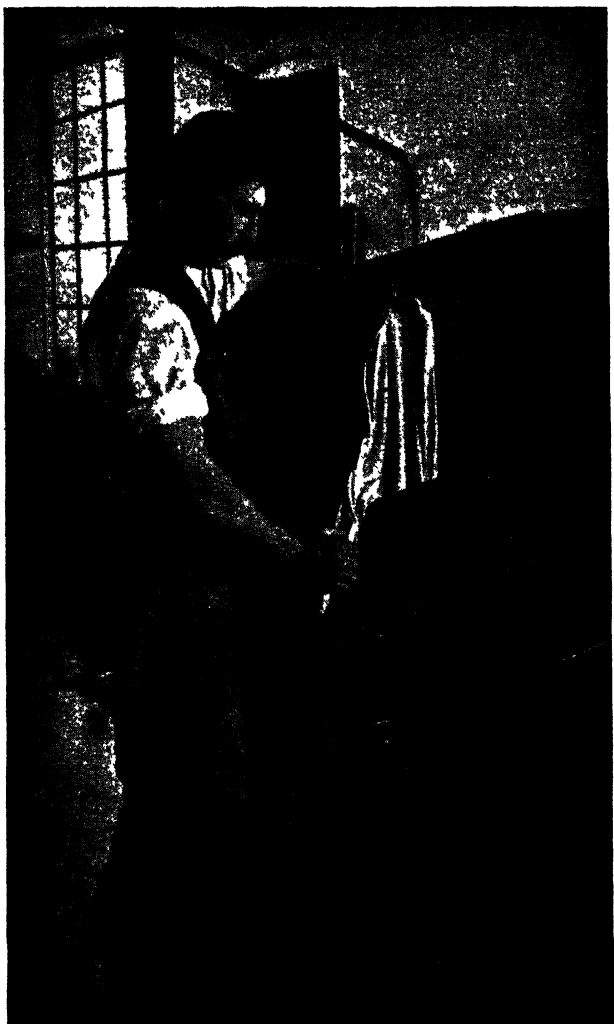
In recent years considerable developments have taken place in the industry, mechanical methods superseding more cumbersome hand operations, whilst the ingredients used for dressing have been much improved and standardised. Further developments along these lines are anticipated, whilst the possibility of the invention of much improved tannages must not be ruled out.

CHAPTER VI

DYEING AND FINISHING THE LEATHER

GLOVE leather as it leaves the hands of the dressers is either white or tan colour, according to whether it has been subjected to the white dressing (the "tawing" process) or the bark tanning. For certain kinds of gloves, such as white dress gloves or tan driving gloves, the leather in this state can be graded and polished and handed straight on to the cutting-room, but the majority of leathers have yet to pass through several more processes ere they are ready for the cutters. As a rule, all glove leather on receipt at the factory is put into store and allowed to ripen for some time after its arrival. Long experience has taught that it is best to allow the skins to mature slowly after dressing. This ripening consolidates the effects of dressing and enriches the appearance and "feel" of the leather.

On emerging from the store, the skins are immediately dealt with by skilled sorters. Skin-sorting in the glove trade is a responsible calling. It demands great experience and considerable judgment. As a rule the sorters are drawn from the ranks of the older cutters, and include probably some of the most expert and experienced men in the factory. They have not only to grade the leathers, but to decide the class of glove a particular skin is best suited to make, and they often decide the colours it can be most profitably dyed, and the kind of finish the skin will take best. The knowledge a sorter must possess to exercise judgment in such matters can only be acquired in the factory through actual experience of the practical working of skins. A good sorter can discriminate almost instinctively between good and bad skins, and between those



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WASHING THE SKINS PREPARATORY TO DYEING

suitable for different purposes. In sorting he will select a batch of skins of approximately the same character and grain, and these will be bundled together for the subsequent processes and sometimes accompanied on their journey through the different departments with a docket indicating the number of skins in the bundle, the class of gloves to be made, the finish, and even the number of pairs of gloves the parcel of skins is expected to yield.

After sorting, the leather is passed on to the washing room to be prepared for dyeing or staining. The skins are there washed in revolving drums of tepid or warm water, by which they are cleansed from any dust or impurities which may have accumulated upon them whilst in store. Washing, at the same time, renders the skins more soft and workable. One result of this cleansing is that a certain proportion of the tanning and stuffing ingredients is lost, and this necessitates redressing or re-egging either before or after dyeing. Some glovers believe it best to re-dress before dyeing, but others hold that if the re-dressing follows dyeing the colours are rendered more permanent.

The dyeing process itself is one of great interest. Actually there are two methods, one, the more common, by immersion, which stains the skins throughout from grain to flesh surface, and the other brush-dyeing, by which the dye or stain is brushed on to the grain or wearing surface of the leather only. The latter process is the older, but it is now fast falling into disfavour, so far as heavy, hard-wearing gloves are concerned, though it is still used for the lighter classes of ladies' gloves.

Whichever method is adopted, wood and bark dyes furnish the bulk of the colours, though sometimes a top dressing of aniline or coal-tar dye is added to obtain a higher degree of brilliance. The dyes used include a

wide selection of barks and woods, fustic, saffron, logwood, gambier, sappan wood, ebony, gold tan, mangrove, and oak bark, and redwood being among the most favoured. Many glovers prepare their own dyes from the dye-woods or barks, but the practice of utilizing paste or dry extracts is increasing. In the first instance the dye-woods yield practically only the three primary colours, red, yellow, and blue, but by careful mixing and dilution almost any shade can be obtained.

In dyeing, the skins are first washed in a solution of ammoniacal salts which serve as a mordant. If the brush method is to be adopted, the salts are merely brushed on the grain. In the "drum" or "dipping" process the skins are placed in revolving drums containing the dyeing mixture, the drums being rotated until the dye is worked thoroughly into the skins.

For brush-dyeing, a much more tedious and difficult process, the skins have to be treated singly. Each is taken separately and "slicked" or stretched out upon a leaden slab or table, and the dye is painted or brushed on to the required depth or fullness. The reasons why "brush staining" as it is called, is falling into disuse in this country are that not only does it involve more work, but it is less satisfactory in its results than the "dipping" process. Only the surface of the glove being coloured, the tendency is for the dyed surface to wear off those portions of the glove which have to bear the hardest usage, the finger tips and palms, for instance, rendering the glove patchy and unsightly.

"Strikers" are afterwards applied to fix the colours. For this purpose a wide variety of metallic salts is available; iron, copper and zinc sulphates, titanium salts, bichromate of potash, and nitrate of iron are all used. One striker specially favoured is a patent

preparation sold as "Corichrome." This is composed of titanium lactate, and is specially valuable as it can be used without any fear of the leather being damaged.

Before or after dyeing, the leather is re-egged and re-dressed. In many factories, a similar dressing is applied as in tawing, *i.e.*, a mixture of alum, salt, egg-yolk and flour ; other glove-makers deem it sufficient to apply a dressing of egg-yolk and olive oil. This re-dressing is performed in the manner described in the previous chapter.

Here a word may be offered in explanation of the use of egg-dressing for preparing glove leather. Only the yolk of eggs is used, and millions of egg-yolks are annually imported for the purpose, largely from China. The skins themselves before the tannage is applied are thin and empty, and for this reason they have to be stuffed or nourished. Just as alum and salt furnish the preserving tanning ingredients, the egg-yolk and flour or meal enter into the pores of the skin giving it body and nourishment. The physical explanation of the virtue of the egg-yolk dressing is that the yolk is composed of exceedingly minute globules, and these it seems are capable of being kneaded right into the pores and membranes of the skin. There they act as lubricating agents and impart to the leather that smooth, soft "feel" which is its peculiar characteristic. Some of the finer oils would probably serve the same purpose equally well but for the fact that they are liable to stain the leather and render it greasy. Egg-yolk, however, furnishes an ideal feeder and lubricant without greasing or staining the leather, and hitherto no effective substitute has been discovered.

Mrs. Henry Wood, in the novel we have already mentioned has left on record a picturesque description of the method in which glove leather was dressed in the early part of last century. "When the skins came in from the

leather-dressers," she writes, "they were first washed in a tub of cold water. The next day warm water, mixed with yolks of eggs, was poured upon them, and a couple of men, barelegged to the knee, got into the tub and danced upon them, skins, eggs and water, for two hours. Then they were spread in a field to dry, till they were as hard as a lantern horn ; then they were "staked," as it is called, a long process, to smooth and soften them. To the stainers next, to be stained black or coloured ; next to the parers, to have loose flesh pared from the inside and to be smoothed again with pumice stone."

From this quotation it will be seen that in principle the process has undergone little change, the kneading now being done in revolving drums, while drying in stoves, supplants the open-air method. As a matter of fact, the alum and yolk tannage is of great age and the real origin of the process is not known. In the Sloane MS., quoted by Planché, directions are given for making cheveral (goat) leather for parchment by means of a solution of alum mixed with the yolk of eggs.

When the leather has been dyed and redressed, it is again dried in similar stoves to those used in the dressing yards. In "stoving" the skins have to be most carefully watched, for if left too long they dry into a brittle state and crumble to pieces. As it is, the skins emerge from the stoves shrivelled and "crusty," and have therefore again to undergo a course of staking. This is performed also in the same manner as in the dressing yards, all except the lightest and thinnest skins being machine-staked. If the original staking after tawing effected a marked change in the character and appearance of the dressed leather, the results of staking the dyed skins is even more remarkable. In the crust stage the dyed skins are if anything more unsightly than



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**PARING THE SKINS WITH THE ROUND OR
MOON-SHAPED KNIFE**

when the leather is in the white, the dye appearing dull, and somewhat streaky and patchy. After being well staked, however, the leather resumes its beautifully soft and pliable character, the colours become richer, more lustrous and intense, while the beauty of the grain is brought out to a fuller extent.

After staking the leather is ready for "paring." This process has a dual object : it is necessary first as a means of removing all roughness from the flesh side of the leather, and secondly in order to reduce the skins to a uniform thickness. The skins of all animals are invariably thicker at the necks and on the backs than at the flanks, but before they can be manufactured into gloves they must be brought to an even thickness all over. Formerly paring was entirely a hand operation, performed by means of the round or moon-shaped glover's knife, familiar to many readers as one of the symbols of the glover's art, and further by reason of Shakespeare's allusion in *The Merry Wives of Windsor*, where Mrs. Quickly, speaking of Slender, asks :

Does he not wear a great round beard,
Like a glover's paring knife.

In hand-paring, the skins are slung over a slender horizontal pole affixed between two uprights, and the razor-keen knife is swiftly but carefully used to pare away the surplus part of the flesh side.

Another method is sometimes adopted for small, thin kid and lamb skins, called "doling." In this process the skins are stretched out over a slab upon a bench, the operator shaving off the unwanted portions by means of a broad keen knife, shaped something like a broad bladed chisel. Both this operation and "paring" call for extreme dexterity, for the slightest slip on the part of the operator would gash the skin and often the operator's own wrist.

Both these operations have now been very largely displaced by the "wheeling" or "fluffing" method. In this process the flesh sides of the skins are applied to a swiftly revolving, wide, emery wheel and ground down to a level degree of thinness. Attached to each wheel is a cowl running down to a shaft into which all the dust and scraps are drawn by suction as they are frayed off by the wheel.

The heat produced by friction in the wheeling process tends to harden the skin, and a slight staking is usually necessary to restore the leather to its former soft and flexible condition.

We now arrive at the final finishing operations which determine the ultimate character of the leather. The two most popular finishes are the ordinary glacé and the suède. Glacé finish, as was pointed out in the chapter dealing with the various skins used for gloving, is the name given to the ordinary grain finish. Leathers with perfect, clear, bright grain are selected for this finish, which is obtained by polishing the surface of the skin with a lamb's-wool pad, glass slicker or revolving felt wheel. Perfect kid, lamb and certain sheep and goat leathers are finished in this manner.

The familiar "suède" leather is not a distinct leather, but is the name of a particular finish. Skins with imperfect grain are usually selected for this finish which is applied to the flesh or "flower" side of the skin. They are tanned in the usual way, and suèded by rubbing up the flesh side on a dry emery wheel. In America the skins are tanned with formaldehyde and the "suèding" is accomplished by rubbing up the flesh surface of the skin into nap by means of a wet emery or carborundum wheel, similar in design to the wheels used for "fluffing." As with suèded leathers the grain or outer side of the skin becomes the inner side of the



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THE PARING WHEEL

glove, it is usual to remove the grain for the greater ease and comfort of the wearer. Cheap suède leathers are inferior to glacé both in appearance and in strength and durability.

"Mocha" glove leather is finished in a similar manner to suède leather (with which it is often confused) with the important difference that the wearing surface is upon the grain side. The grain is first "freized" or "frized" off, this operation being performed by means of a knife similar to the knife used in beaming. As a rule skins with shallow grain, such as those of Mocha or Arabian sheep, the calf reindeer and the gazelle are selected for this finish. "Mocha" finished gloves are notable for their great strength and the beautiful velvety character of their finish. High grade suède gloves are sometimes sold as "Mocha," but if the two are compared closely, the superiority of the "Mocha" is very evident. The Mocha is usually much heavier, and usually much the stronger of the two. In the Mocha finish although the grain is removed to take the finish, much of the strength of the outer epidermis remains; but in suèded leathers not only is the grain side of the leather removed, but the wearing surface is finished upon the weaker side of the skin.

Modern "chamois" or "doeskin" leathers, as explained in the previous chapter are produced by a special tannage. With these again it is usual to remove the grain and finish with the emery wheel.

"Nappa" gloves are made from tawed leathers, stained by the dipping process already described, and completed with a glacé or grain finish.

Real Cape gloves are usually bark-tanned and given a glacé finish, but many gloves sold as "Capes" are tawed and dyed by the dipping process.

"Dogskins" are merely heavy gloves made from tawed sheep skins.

Whatever finish is imparted to the leather, after all the operations of dressing and dyeing are finally completed, the skins are again passed over to the sorters. Each skin is closely examined for flaws and faults, and finally graded for quality. The sorters also decide the number of gloves which can be cut from each skin. Kid, lamb, and gazelle skins are exceedingly small. Kid skins yield on the average from a pair to a pair and a half of gloves. Some skins, however, are so very small, that not even a complete pair of gloves can be cut from them. When this happens the greatest care has to be exercised in selecting and matching the skins for the single pair of gloves. Average lamb skins yield from a pair to two pairs of gloves, and sheep-skins upwards of three pairs. Reindeer skins also yield several pairs; as a rule it takes three gazelle skins to make a pair.

This concludes our survey of the dressing and preparing of glove leather. It is essential to point out, however, that all the operations described involve much time and afford employment for numbers of skilled and experienced workmen. The dressing, dyeing and finishing of the skins is, indeed, something of an art. The workers have to be selected with care and trained with patience. The technical skill necessary cannot readily be taught: it has to be acquired by actual practical experience in the dressing-yards and factories. As in the silk and cotton trades, generations of association with the industry have, so it seems, engendered a certain hereditary expertness among the workers in those localities where the industry is established. Here we light upon one of the probable reasons why gloving is such a localised industry in every country where it is carried on.

CHAPTER VII

GLOVE-CUTTING

GLOVING, as we have seen, enjoys an established claim to rank among the oldest of handicraft industries, and although machinery now enters very largely into all operations which the making of gloves involves, there are yet some processes calling for the exercise of mental intuition in association with manipulative expertness rather than for what one may term mere mechanical dexterity. Such is particularly true of glove-cutting. Formerly, of course, leather gloves were entirely cut and slit by hand. Then the cutters actually cut "trunks" of leather, the shape of a double hand (minus the thumb which had to be cut separately) in outline, trunks afterwards being handed over to the slitters who slit the fingers, and the holes for the thumb and the wrist opening. Nowadays, the "trunk" is merely an oblong piece of leather, bearing no resemblance whatever to a glove, and the whole art and skill of the cutter is applied to pulling and stretching the skins in order to cut these "trunks" of appropriate dimensions for different sizes and classes of gloves. The actual outline of the glove is subsequently stamped out in a cutting press.

As a rule the cutter receives a number of similar skins, which are frequently accompanied by a docket from the sorters or the foreman of the cutting-room indicating the number, character and sizes of the gloves to be made from them, the kind of stitch to be employed in their sewing and the style of "point" with which they are to be adorned. All these factors have an important bearing upon the problem with which the cutter has to



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A GLOVE CUTTER AT WORK

deal. For instance, some stitching takes up more leather in the seam than others, and the same with the different "points" (the "points" are the three lines of decorative stitching or braiding on the back of the glove) and naturally this has to be allowed for in cutting the trunk. Apart from these considerations, every skin presents points of difference from all other skins, and has therefore to be studied by the cutter as a fresh problem. Animals, like human beings, are endowed with certain hereditary and individual characteristics which find physical as well as temperamental expression. Just as it is rare to find two human beings whose appearance, proportions and character are alike, so also with the animals whose skins are utilized in the making of gloves. The difference between say a dozen kids or lambs may appear insignificant to the unobservant, but to those whose calling brings them into close contact with the animals wide variations in size, shape and character are evident. These variations are reflected in the skins and remain through all the stages of dressing until as leather they reach the glove-cutter's hands. Thus it is that all skins exhibit marked differences in grain and texture, shape, size and weight, even within their own class. Incidentally it is worthy of mention that in the case of French kids, which are often specially bred and carefully reared, the disparity between the texture of one skin and another is perhaps less striking than in the case of other animals which live under more natural conditions. The differences in grain, texture and weight of the skins are more the concern of the sorter than of the cutter, but the differentiation in size and shape is of considerable moment to the latter. Some skins are long from head to tail and narrow across the shoulders and flanks, whilst others are short in length but broader across. Between these extremes there is room for a

great degree of variation. So no two skins are identical, and each presents a new problem for the cutter to solve in order that it shall be cut to the best advantage.

Here it may be expedient to interpolate a few words as to the general structure of the skins used in gloving. Actually, every skin is composed of three layers or strata, (1) the epidermis or outer skin known as the "grain," from which the hair or wool of the animal springs, (2) the Hyaline membrane—a fine transparent membrane—which separates the epidermis from (3) the dermis, or main body of the skin. From the head and over the collar and along the spine (the crupper) where it is at its thickest, the skin thins gradually away to the edges of the flanks and the feet.

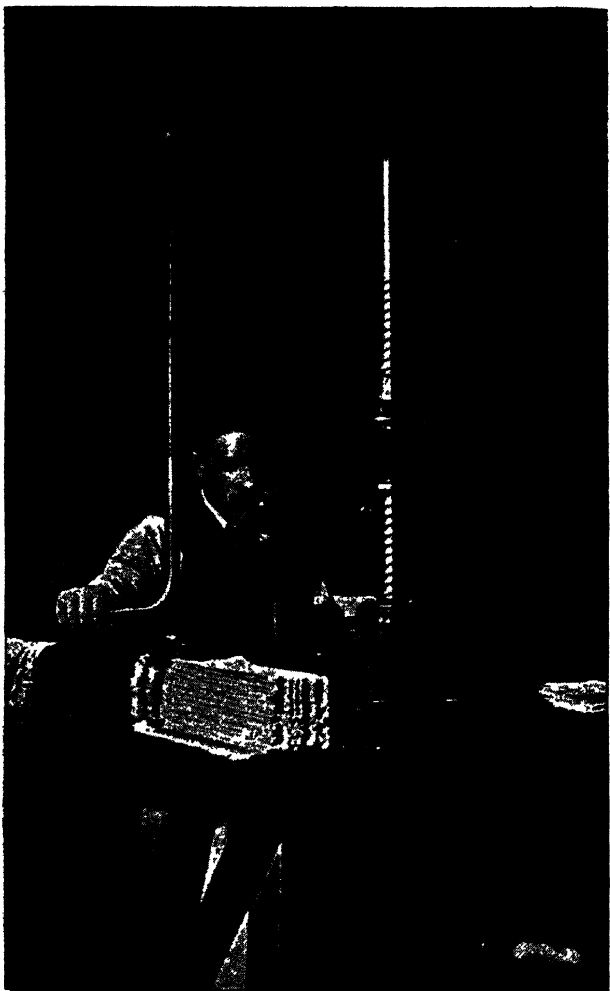
Intuition, born of experience, and skill in manipulating the skins are the cutter's real equipment. The first step is to pull and stretch the skin to ascertain its "spread." A cutter will spend some time in this way on a single skin, pulling it lengthways and sideways, and so working out every inch of material to advantage. Then by the aid of cardboard patterns cut in the shape of the glove in double outline the skin can be measured off and cut into oblong shaped "trunks" ready for the cutting or punching press. Any pieces left over from the skins are utilised as far as is possible for the odd parts of the glove, the thumbs, fourchettes, gussets, etc. Here the work of the skilled cutter ceases, and the "trunks," after being examined are passed on to the punching rooms, where the actual cutting of the glove shapes is done.

On examining a finished glove it will be seen that it consists of several separate parts. The main part, forming the palm and back of the glove and the upper and lower surfaces of the fingers, is in one piece, the thumb is formed of a separate piece; the sides of the

fingers, called variously, "fourchettes," "forgits" or "forks," are formed by additional pieces; and in between the interstices of the fingers, at the juncture of the fourchettes, there are sometimes smaller pieces called "piecettes" or "gussets"; while at the base of the thumb another small piece is sometimes inserted known as a "quirk." Separate strips again are used for "welting" the wrist and for strengthening the sides of the wrist-opening, and often there is a small stay piece, designated a "heart" or "protector" placed under the binding of the palm at the opening. All these are stamped out from the "trunks" of leather or from odd pieces of the skins left over after the "trunks" have been cut. Very little of the skin remains when all these parts have been provided for, and even the remaining small scraps and parings are not wasted, but are collected and sold to the makers of artificial manure, glue, etc.

The process of stamping out the parts of the glove from the trunks of leather is exceedingly simple. As a rule six trunks are cut at one time—sufficient for three pairs of gloves. The number, of course, varies according to the class of glove, and the practice of particular factories. These are placed back to back, so that each alternate piece is suitable for a right-hand and a left-hand glove respectively. A die, or calibre, as it is more commonly called—being really a pattern knife shaped like a double thumbless hand with its keen cutting edge facing upwards—is locked in the base of the cutting machine or press; the "trunks" are then placed upon the "calibre," and a heavy weight is forced down upon them, and the cutting is done.

Cutting presses are actuated by different methods, individual makers holding a preference for various types. Some prefer the old "goose neck" presses



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STAMPING OUT THE PARTS OF THE GLOVE IN A
CUTTING-PRESS

operated by hand, whilst others have adopted electrically operated presses. Many factory managers, however, declare that these latter do not give such good results as the hand cutting presses. Moreover, it is urged that the damage they inflict upon the knife edges of the calibres is too serious to be ignored. Whichever method of operating is preferred, the principle remains the same.

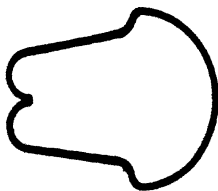
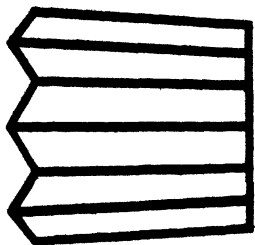
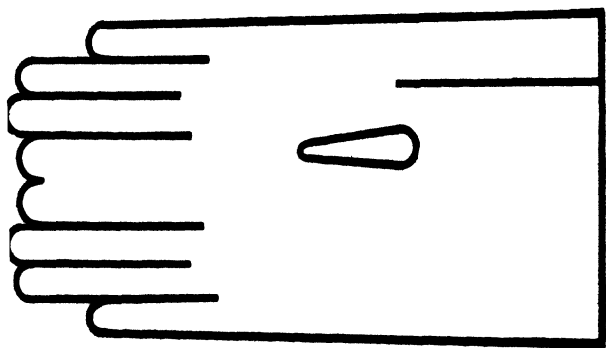
Glove-cutting calibres are not of standard shape, and there are consequently wide variations in the style and cut of gloves made by different factories. Apart from differentiation in the calibres due to the style of glove to be cut, there is also considerable difference in the general shape of the calibres adopted in individual factories. Some manufacturers contend that a better fitting glove can be obtained by dispensing with the gussets at the junction of the base of the fingers and the "fourchettes," whilst others eliminate the "quirks" or "gore" at the base of the thumbs. In the latter case a small section of the main part of the glove or trunk is cut to run down the inner side of the thumb opening. Thumbs so made are termed "Boulton thumbs." Owing to the endless variations in the shape of the human hand, it is impossible to ascribe perfection to any single style of cutting; some hands are better fitted by gloves cut with "quirks" and "gussets," and others are equally well suited by gloves from which either "quirks" or "gussets," or may be both, have been eliminated. Finger lengths also vary a good deal, and here again different calibres are necessary. Some manufacturers only make a standard length of finger to each size of glove, but others turn out two lengths to each size. Again, some calibres are fitted with adjustable knives which permit the cutting of various finger lengths.

The steel punches for stamping out several pairs of gloves at one operation were first invented in 1819 by

a French glove manufacturer, named Vallet d'Artois. It was, however, left to a young medical student of Grenoble, Xavier Jouvin, to develop and perfect the invention of d'Artois so as to effect something of a revolution in the glove trade. Jouvin in the course of his professional work made a thorough study of the human hand, and ultimately classified 320 different sizes and shapes of gloves. At first the inventor reaped little reward for his labours, but in 1839 his system was awarded a bronze medal at the Industrial Exhibition held at Paris, and subsequently was adopted by the trade.

All glove dimensions are calculated from the total width of leather used at the widest part, *i.e.*, at the palm. Sizes also are based upon this measurement, a size 6 glove having 6 French ins. in the double-palm width. About $9\frac{1}{2}$ French ins. are equal to 10 English ins. There is a common error held in relation to glove sizes. In ascertaining one's size, a rough method is to measure the width of the closed hand at the knuckles, and double the measurement ascertained to find the glove fitting. Some people, however, measure round the palm of the hand, and in the result find when ordering gloves based upon this measurement, that the fitting is quite a size too large. An individual who really takes a size $6\frac{3}{4}$ glove, will on measuring round the palm find his or her hand is quite 7 ins. round. It may seem paradoxical, that the glove should really measure less than the hand, but the fact is glove leather stretches readily, while the wrist opening and the gussets, fourchettes and quirks all allow a great deal of play to the skin of the palm and back of the glove.

The average dimensions of the different parts of the glove appended are given merely as an indication of the relative proportions. They must not be regarded as the proportions generally adopted, and are quoted



THUMBPIECE, TRANK AND FORTY-EIGHT

solely in order to give a clue to the average relative dimensions.

If we regard the width as represented by unity, the various proportions for an ordinary glove of wrist length average approximately as follows—

	<i>Times Width.</i>
Length from end of wrist to thumb-hole	·6
" " thumb-hole to tip of second finger	·8
Total length of glove	1·4
Length of thumb	·8
" " forefinger	·5
second and third fingers, slightly over	·5
little fingers, rather less than	·5
Width of thumb piece	·4
" of finger pieces, including fourchettes, average	·32

In the accompanying diagrams the main parts of gloves of the Boulton thumb type and the Round thumb type are shown.

The main portions furnish the backs and palms of the glove and the backs and fronts of the fingers. The curiously shaped slits to the left of the centre of the main parts are the holes for the thumb-pieces, whilst the openings are the slits for the wrist openings, at either side of which are placed the buttons and button-holes or spring-dome fasteners. As a rule the back half of the main piece is slightly wider than that for the palm, the reason being that a certain amount of leather is taken up in the "pointing," the decorative braid or stitching to be found on practically all gloves. On the left hand side of each diagram are the corresponding thumb-pieces, the fourchettes being shown on the right hand side.

To conclude, it may be mentioned that glove-cutting is one of the oldest craft trades, and the system of apprenticeship is still used for recruiting the ranks of

the cutters. Formerly the period of apprenticeship was seven years, but four years is the usual term now. In this branch of the industry, as in many others, father and son have followed the occupation for several generations, and many people claim that such cutters enjoy the advantage of hereditary skill.

CHAPTER VIII

SEWING AND FINISHING LEATHER GLOVES

AFTER the trunks, fourchettes, quirks, thumb pieces and gussets have been cut, they are carefully inspected in order to ensure that all parts are correct in every detail. They are then ready for sewing.

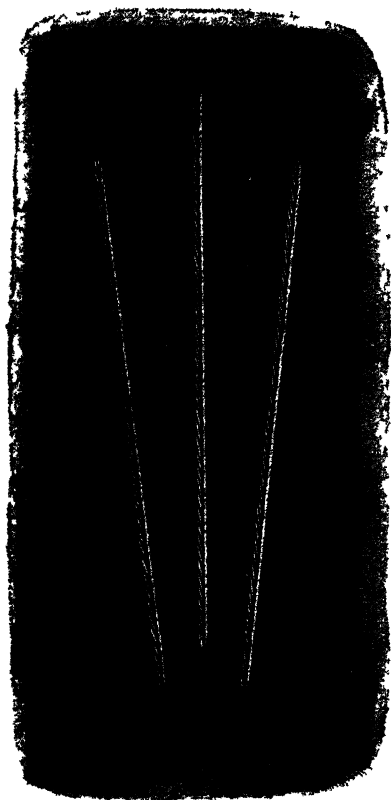
Nearly a hundred years ago, William Hull, the author of *A History of the Glove Trade*, in the course of a remonstrance against the removal of the embargo which, prior to 1826, prevented the entry of foreign gloves into England, wrote, "It is a happy circumstance for the operative glovers that machinery cannot be brought into operation against them." Since then, however, great developments have taken place, and machine sewing has all but superseded hand sewing from the industry. Meanwhile, in one other respect the glove industry still clings to old traditions. For generations now the sewing of gloves has been conducted largely as a cottage industry, and although to-day it is no longer possible to claim that the factory system has no part in the glove trade, a very great proportion of the making-up or sewing of gloves is still executed by the operatives in their own homes. This may seem curious in an age when factory organisation and equipment, permitting rapid and large scale production, have reached a high standard of perfection, but although the factory system in recent years has made very great strides in the garment making trades generally, the bulk of leather gloves are still sewn by women in their own homes in the country districts of gloving centres. All round Worcester and Yeovil, in the County of Somerset, and in

Oxfordshire and parts of Dorsetshire, Gloucester and Wiltshire, thousands of women rely upon glove-making either wholly for their means of subsistence, or in order to augment the common family purse. Many firms, of course, have their own factories where numbers of girls are employed in the sewing operations, but it frequently happens that the young gloveresses employed therein, when they leave the factory to set up households of their own, continue to work at the trade as out-workers in their own homes. In the factories, power machines are used and production is usually more rapid, but the home-workers execute their work with the aid of treadle machines, which are usually supplied by the firms for whom the gloves are being made.

The work of glove-sewing is divided into specialised branches, and as a rule each individual worker has been trained to do a particular part of the work. Thus, "pointing" or the decoration of the back of the glove, stitching in the thumbs, fourchettes and gussets, closing of the glove, making of button-holes, sewing on of buttons, welting and finishing are often done by different operatives and frequently on entirely different classes of machines. Many of the machines used are of foreign manufacture, but the Singer Sewing Machine Manufacturing Company have paid considerable attention to the designing and manufacture of gloving machines and now make a complete range for all sewings. These are meeting with increasing favour from British glove-makers.

The first step in the sewing operations is the process known as "pointing." There are some hundreds of different styles of "points" now adopted, and they vary from simple single lines of stitching to quite elaborate embroideries. In the case of the ultra-fashionable gloves for ladies, there is also a tendency to substitute

for pointing more general and more ornate embroidered designs for the back of the glove, after the style of



THE BROSSER POINT

decorations to be seen in examples of seventeenth-century glove work. Moreover, every individual maker endeavours to create special designs, particularly for

the higher types of gloves, in order to give an individual character to his wares.

One of the most simple points is what is known as the

THE VICTOR POINT

Brosser or Brossier. This is a single thread design, stitched by a machine fitted with a single needle and single or double looper. Sometimes several rows of plain stitching are employed for points, and such work is frequently carried out on a machine of the

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multiple needle type, *i.e.*, one which operates two, three or perhaps four needles simultaneously. Embroidery

EXAMPLE OF RAISED POINT WITH TRIPLE
ROWS OF DOUBLE-NEEDLE STITCHING

is usually simulated by means of combination stitching. In such cases if the decoration is closely examined it will be seen to be composed of a series of separate sewings stitched so closely as to present a composite design.

**RAISED POINT WITH SINGLE ROWS OF DOUBLE
STITCHING**

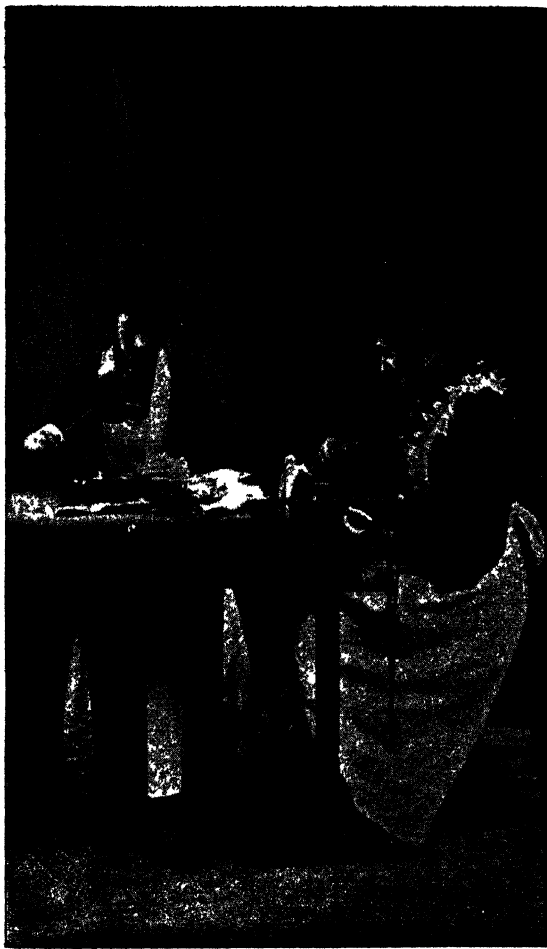
Such decorations may involve separate operations, each being the work of a distinct machine. A centre line of roundseam stitching flanked by two outside

THE PARIS POINT:

AN EXAMPLE OF MACHINE EMBROIDERY

rows of chain-stitching is a simple example of this class of point. The well-known Paris pointing can be produced in a similar manner. Some points again are made with groups of ordinary plain stitching the ends of which are rounded, or may be finished with arrow or spear heads.

Another class of point which is exceedingly popular



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TAMBOURING THE BACK OF THE GLOVE

The work is done by hand in a frame, holes being first perforated
by a stamp or preen

is that known variously as the Ribbed, Raised or Beaded Point. There are single rib, double rib and treble rib points, and these are sewn with multiple needle machines, fitted with a drawstitch mechanism for drawing the leather into ribs or beads.

Corded points are formed by stitching a cord of silk or other material to the backs of the gloves. Practically the only hand-made points now met with are what are known as "Tambour" points, and even these are eliminated by most makers. This is really a crocheted point. In making it, the back of the glove-trank has first to be perforated to furnish a series of holes, this being done by means of a preen or stamp. The trunk is afterwards stretched in a tambour embroidering frame and the point is crocheted through the holes. The reason tamboured points have fallen into ill-favour is two-fold. In the first place the necessity of perforating the trunk is a grave drawback owing to the liability of the glove to split along the line of the holes. Secondly, such work takes a considerable time, even for expert workers, and is thus rather expensive, whereas the effect of a hand crocheted point can be very closely simulated by combinations of machine stitching. Nevertheless there is still some demand for this class of decoration. Silk threads of varying textures are used for making the various points, a great variety of colours being used.

Pointing, owing to the work frequently involving the use of more than one machine, is more often than not a factory operation.

The various sewing operations involved in closing and finishing the glove follow. These again are, for the most part, machine sewings ; although there is still a strong demand for hand-sewn gloves. Many people still seem to be of opinion that hand-sewing is stronger than

machine, yet it is more than doubtful if this is actually the case.

For the general stitching employed in closing leather gloves, that is, round the outer edge, round the fingers, and round the base of the thumb-piece, one of three kinds of stitching is invariably employed. These are known as "Roundseam," "Prixseam" or "Prickseam" (abbreviated in the trade to "P. R. X. M.") and "Piqué" (abbreviated to "P. K."), or "Lapped Seam." Roundseam sewing takes the place of the oldest form of hand-sewing. It is called by the French, "La Surjeteuse," literally, "over the edge," and is usually used for the finest and lightest kid and lamb skin gloves. The two edges of the leather are brought together back to back, and the thread is sewn through and over the edge at each stitch, hence the name. Furs, by the way, are joined by much the same method. In the machine (of the single needle and looper type) the leather is fed by a ratchet wheel, the needle pricking through both thicknesses of leather and the looper doing the over-casting to complete the stitch.

The Prixseam sewing is the type favoured for the heavier classes of gloves, such as driving gloves and gauntlets, real cape, etc., by reason of its great strength. It is not a sewing, however, which makes for elegance. In this sewing, the pieces of leather are brought together back to back, both edges being exposed, and the stitch is sewn through and through parallel to the edges.

Most Roundseam and Prixseam machines sew with the needle in a horizontal plane.

What hand-sewing is still resorted to is usually of the Prixseam variety. It is usually done in a frame, known as a donkey-frame, the vice or head of which somewhat resembles a donkey's head in shape. The edges of the glove are brought together and fixed in the

head of the frame, the top of which is composed of a serrated or toothed edge of metal, so that the seam to be



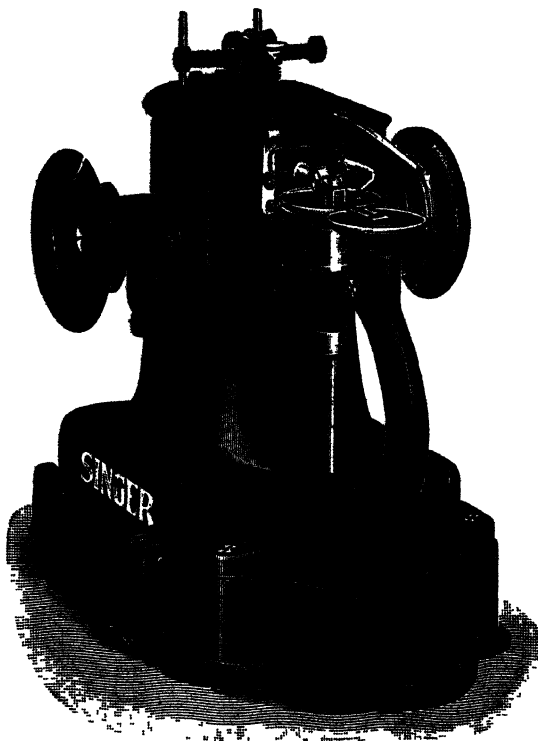
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HAND-SEWING—USING THE "DONKEY FRAME"

sewn runs along the line of the serrations or teeth of the edge. The gloveress using the machine sews with her

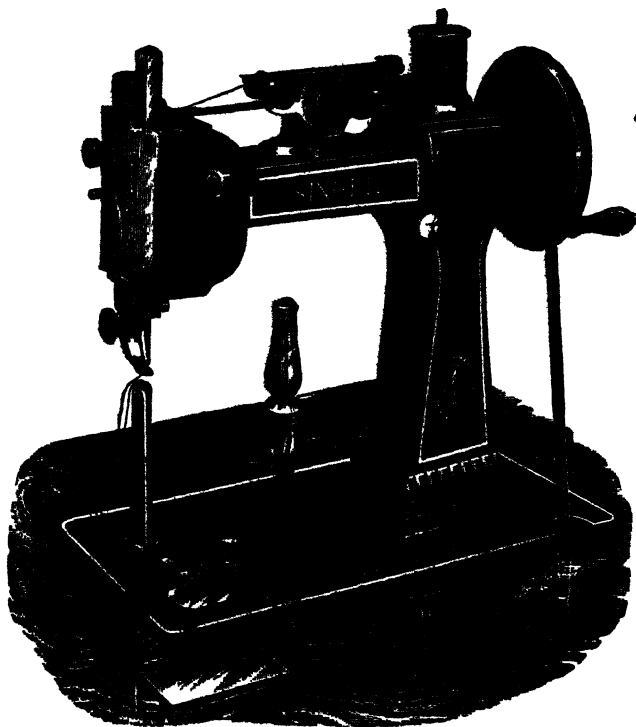
needle through both edges of the exposed leather, using the teeth to guide her stitches so that a neat and regular seam results.



TYPICAL ROUNDSEAM SEWING MACHINE

By far the most common stitch adopted for the majority of gloves for ordinary wear is the Piqué, or Lapped Seam sewing. In this one edge of the leather is lapped over the other, leaving only a single raw edge exposed. It is an extremely neat sewing and is at the

same time strong and durable. Piqué sewing machines are sometimes fitted with a tapered vertical post to facilitate the sewing of the finger ends. Other special

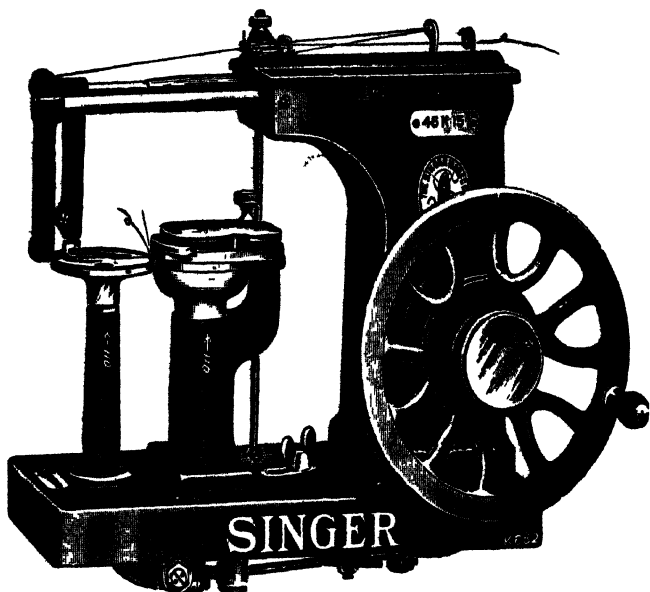


SPECIAL MACHINE WITH TAPERED POST FOR
SEWING FINGERS OF GLOVES

forms of sewing are adopted by individual firms, Dent's "Magpie" stitching, a combination of black and white sewing, being a case in point.

After pointing, the gloves are passed on to the glove-makers proper, whose task it is to sew the various

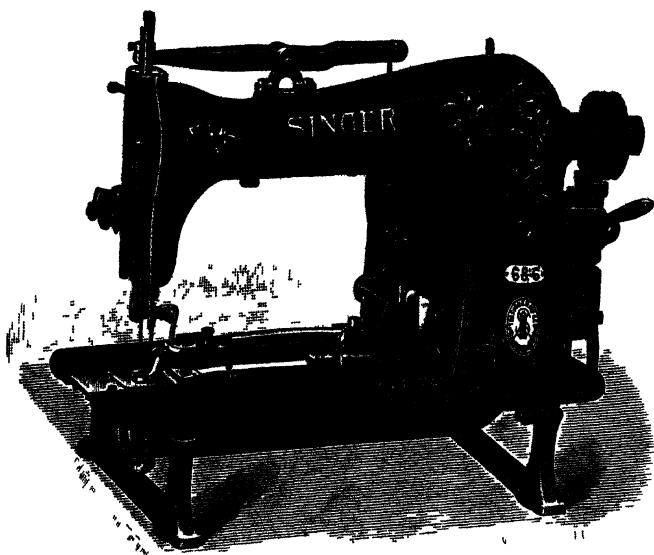
parts together, close the fingers and thumb and the outside seam. This work, as may be imagined, requires considerable dexterity. The sewings involved are short (the longest runs being only of a few inches) and the operative has to concentrate her whole attention



PRIXSEAM MACHINE, SEWING IN HORIZONTAL PLANE

upon the work in hand, twisting and turning the glove about, and continually stopping and restarting the machine as each section of sewing is completed. For this reason, although many glove-sewing machines are capable of running at relatively high speeds, high-speed sewing as it is understood in many branches of garment-making has no place in glove manufacture, where neatness and even regular sewings are of considerable

importance. Nevertheless, it is interesting to watch a skilled glove-maker at work and to notice with what rapidity the sewing can be done in spite of the intricacy and detail involved in the work. Where the sewing is



SPECIAL MACHINE FOR THE PIQUÉ STITCH

done in the factory it is possible to subdivide the work to a greater extent than is usually the case with gloves sewn by home-workers. Some operatives will be sewing the fourchettes, quirks and gussets and thumbs, whilst others will be closing the fingers, the thumbs and the outside seams. In this way even greater speed and expertness are attained than by operatives who perform a number of different operations.

The next operation is the welting and binding of the

wrist, and for this again a variety of special machines is available. With some gloves the wrist edge is merely turned and stitched down by means of a chain stitch, lock stitch or diamond stitch machine to form a welt or binding, whilst in others a separate strip of leather is used to make the welt or binding. Welting also includes the sewing of the reinforcing pieces of material along the wrist opening where the buttons are sewn.

Latterly, the Singer Company have introduced a special triple lock-stitch machine, in which the needle vibrates forwards and backwards so as to lay three lines of thread instead of one in each stitch. This makes an exceedingly strong sewing and is occasionally employed in finishing some of the stronger types of gloves. The strength of seams sewn by this method is trebled, and the use of it avoids the danger of ripping. This stitch can also be employed to form decorative points.

Button-holing and the affixing of buttons follow, and these again are now almost universally accomplished by means of special machines. There are several kinds of button-holing machines on the market, but the principle of all is very similar. They are fitted with knives which cut the holes, before or after stitching. Purl stitching is commonly used for finishing the button-holes. Sometimes the holes are strengthened by overlapping the edges of the material forming the hole itself, another method being to reinforce the hole with small pieces of leather sewn to the under-surface. The button-sewing machines are wonderfully ingenious. These not only sew the buttons but knot and cut the threads. They can be gauged to make a specified number of stitches for each button, and the machine is automatically set so that the operative cannot vary that number of stitches. The knives cut the thread on the last stitch, leaving it the proper length to begin the stitch

for the next button, so that there is absolutely no wastage of thread. Special clamps are sometimes fitted which can be adapted to any required size of button within certain limits. Recently the Singer Company have introduced a machine of the chain-stitch type which sews on buttons with stitching resembling hand-sewing. These work at remarkable speeds, sewing 1,000 stitches a minute. In four-hole buttons the stitches are sewn across diagonally, but the machines can be adjusted by merely pressing a lever to sew two-hole buttons.

Domes or clasps made on the press-stud principle are very frequently used as fasteners in place of buttons and button-holes, although buttons are preferred by most people for the simple reason that they can be readily re-sewn should they become detached, whereas domes or clasps are not so easily attached when they pull through the leather. The two separate sections of the dome are inserted into the glove by machines of much the same type as those used for inserting the brass eyelets for the lace-holes of boots and shoes. The domes themselves are made from a wide variety of materials, although the spring and post must be of metal. Most domes are made entirely of metal, but others are made partly of glass, imitation pearl, horn, pyroxlyn, vegetable ivory, bone or celluloid or some other similar compound.

Alternative means of fastening the glove are adopted for the sac-wrist types, *i.e.*, those gloves which are not slit at right angles to the wrist opening. Sometimes a strip of elastic is gathered into the glove a short distance from the wrist opening itself, whilst the strap or buckle type of fastener is also very popular, particularly for men's gloves.

There are many types of lined gloves for winter wear, varying from the rather expensive antelope or

lamb skin gloves made from leather dressed with the hair or wool still on, and cut and finished so that the coat of the animal forms a natural lining for the glove, to the ordinary wool or fur-lined glove. For wool-lined gloves, knitted woollen hosiery fabric, either plain or fleecy is employed, and this is sewn to the inner side of the glove in the course of making. Rabbit and hare fur are frequently employed in a similar manner.

After the gloves have been finally completed by the sewers, they are handed over to the finishing room. Here they are dressed into shape on metal "hands" which are kept at a uniform heat by steam or electricity and finally ironed out and finished for packing. Paired and banded into half-dozen pairs, they are boxed ready for despatch to the wholesalers.

To those unacquainted with the ramifications of the industry it may seem an exaggeration to claim that an ordinary pair of leather gloves may have required as many as 72 distinct operations before they leave the manufacturer's premises in the form they are offered for sale, yet such is the case. Gloving, indeed, involves throughout all its processes considerable technical skill in association with highly trained and experienced labour. In the initial stages, particularly in the dressing and preparing of the skins, the dyeing and finishing of the leather, and in the cutting operations, the utmost skill and care are essential. A slight miscalculation or error at any of these stages may easily result in reducing valuable skins to a practically worthless condition.

Fur Gloves. The development of motoring and aviation has led to a large demand for fur gloves. These are consequently being produced in increasing numbers. Almost any fur is suitable, but naturally the bulk of the trade in fur gloves runs on the cheaper kinds of

furs—rabbit, hare, etc. These gloves are made in a great variety of styles, from the bag-shaped fingerless variety to those of normal shape, whilst occasionally gloves are made with separate sections for the thumb and first fingers. As a rule fur gloves have only the backs of fur, the palms and under surface of the fingers being of sheep or deer skin. Thus the cutting of the glove is done by rather different methods than for ordinary gloves of leather. The fur for the back and leather for the palm are cut with a knife by means of a cardboard shape, and the parts are afterwards assembled and sewn in the usual manner.

CHAPTER IX

FABRIC GLOVES : ORIGIN OF THE INDUSTRY

THE fabric glove industry, though still regarded by many people as a minor and subsidiary branch of the glove trade is of considerable and growing importance. Although in point of value it still falls far short of the trade in leather gloves, the number of fabric gloves manufactured every year possibly approaches the number of leather gloves. World production already runs into several million dozen pairs annually, and tends to increase. In many respects the fabric glove trade can claim to be regarded as a distinct and separate industry from leather gloving. Although many manufacturers of leather gloves both here and in France have taken up the making of the fabric article, the production of fabric gloves is no longer confined to the well-known gloving centres. Nevertheless, there are many authorities in the trade who claim that the best fabric gloves are made in those centres where glove-making has long been established. Gloving, we will repeat, may be regarded as an industry where hereditary skill—the skill of operatives born, so to speak, into the industry—confers decided advantages; and there are many experienced glove buyers who hold the view that such hereditary skill is of as great advantage in the sewing and finishing of fabric gloves as of leather. Be that as it may, the Germans succeeded in building up a great fabric glove industry in Saxony, where previously gloving was almost, if not entirely unknown; while a number of fabric glove factories have been established in several English centres where previously glove-making had not been carried on. At the same time

it must be conceded that the fabric industry owes much to the leather industry, for practically all the operations of cutting and sewing in the former are based upon and inspired by experience gained in the latter section of the trade.

Looking to the future it is fairly safe to prophecy that the prospects before the fabric trade are exceedingly promising. The limited supplies of skins, and the long and costly processes to which they have to be subjected ere they can be fashioned into gloves, mean that for some years the supplies of leather gloves are likely to be somewhat restricted. At the present time, the production of many English factories is less by from 33 to 50 per cent. as compared with pre-war output, principally owing to the shortage of skins, but partially, of course, as a result of shorter hours in industry and the depletion of the ranks of the operatives caused by the war. These factors are world-wide in their incidence, and therefore it would seem safe to suggest that leather gloves for some years to come will be relatively scarce and dear. On the other hand, more attention is being devoted to the production of fabric gloves not only in this country but in America, France, Japan and Canada. The necessary supplies of cotton and silk, it is true, have been adversely affected by war conditions, but the prospect of a more speedy return to normal conditions in this respect would seem to be more promising than in the case of skins for leather gloves. Again, thanks to the development of rapid knitting machinery, the fabric can be produced in very large quantities. Fabric gloves, therefore, are much more easy to produce and consequently much cheaper than the leather article. Moreover, every year witnesses considerable improvements in the character of glove fabrics, "suèded" leather being simulated

in fabric with remarkable skill. Thus there is a growing tendency of the fabric glove to trench more and more upon what was, until a few years ago, regarded as the exclusive field for leather gloves. This tendency is specially noticeable in the growing production of fabric gloves for men's wear. There may be a limit to the possibilities of development in these respects, but it has certainly not yet been reached.

Like many another industry that ultimately passed into other hands the fabric glove industry originated in the United Kingdom. Not only were the yarns used spun in English mills, but the machines upon which the fabric was knitted were invented in this country. The origin of modern fabric gloving dates from the middle of the nineteenth century, when the first warp knitting machines for glove fabric were invented and perfected at Melbourne, in South Derbyshire. Up to that time textile gloves were either made from woven fabrics, linen and silk largely, or were of the fashion-knitted seamless type. The majority of the latter were hand knitted wool gloves, the fingers and thumbs of which were shaped in the process of knitting. Such are still made in fairly large quantities, although machine knitting has largely displaced hand knitting, but wool yarns are usually used. Attempts have been made to produce fashion-knit cotton gloves, but these have failed to prove altogether satisfactory.

Following the invention and development of warp knitting machines, considerable development was made in this country in the making of gloves from knitted cotton fabrics ; but some ten years later, in 1860, to be precise, the duty on imported gloves was repealed, with serious consequences to English gloving generally and to the making of fabric gloves in particular. Then it was that the German textile industry established in

Saxony, with Chemnitz as its centre, found an opportunity to lay the foundations of a fabric glove-making industry which was eventually to become a great, world-wide monopoly. The steps by which this was achieved furnish an instructive object lesson in the tactics adopted by the Teuton in his commercial development. The initial advantage of the German manufacturer rested solely in the abundance of cheap labour at his command. German operatives, in those days, were content to work much longer hours than the English, and for wages which would have been regarded as a beggarly pittance by British operatives. Moreover, child labour was very largely employed. Beginning by purchasing glove fabric made in England, which they shipped to Saxony, there to be made up into gloves, the Germans deliberately set out to capture the industry for themselves. For many years they made little headway except in the production of exceedingly cheap gloves of inferior workmanship and finish. But as time passed the German industry accumulated an experience of its own, and by the end of the nineteenth century competition had grown so keen that English manufacturers were being undersold both in their own home market and in the export trade. As in the case of other industries the Germans schemed to capture, this proved but a beginning, and a time came when the Germans were no longer buying English fabric, but were buying English-made knitting machines whereon they produced German-made fabrics. Moreover, by specialisation and organisation considerable improvements and developments were made in the character of the fabric itself. The production of glove fabric was studied as a science. The knitting machines were speeded up considerably, and production was intensified by concentrating upon the manufacture of special

types of fabric. Although the first German machines were little more than bare-faced copies of British machines, the Germans must be given credit for effecting considerable improvements. They also made marked progress in the finishing of the fabric, and in the invention of the well-known duplex fabrics and imitation suède and chamois finish effects. These developments accelerated the progress of the German industry at the expense of our own and those of other countries. Moreover, enjoying the support of a Government at all times solicitous for promoting the interests of German trade, the German industry was enabled to market its productions overseas on severely competitive lines. As is now well-known, every German industry before the war was securely protected by tariffs and highly organised. Prices were frequently regulated by a central body, and it was often customary to fix two prices, one for articles sold for home consumption showing a high rate of profit (protected from foreign competition by the tariff duties) and the other, a considerably lower price, for export goods. The large profits made in the home trade compensated for the narrower working profit margin on export business. This practice is known to have been adopted by the German glove industry. Indeed, the fabric glove makers of Saxony are said to have sold gloves for export at from 25 to 30 per cent. under the prices at which the same goods were offered for sale in Germany.

By such methods, English fabric makers and glovers were driven almost entirely out of the business ; though it is said, strangely enough, that even up till 1914, English knitting machine makers were still exporting to Germany machines for the making of fine glove fabrics.

Such in brief outline is the story of the origin and

development of the German fabric glove monopoly. The extent of that monopoly will be appreciated when it is stated that in 1913 out of every 10 pairs of fabric gloves sold in this country 9 pairs were of German origin.

The effects of the German monopoly were seen in the autumn of 1914, when, as the result of the outbreak of hostilities, practically no supplies of fabric gloves were forthcoming, and it became necessary to take steps to re-establish the industry in the United Kingdom. The initial difficulties were appalling ; for the making of glove fabric and fabric gloves were to all intents and purposes lost arts in Britain. It is true that even in 1913 a few British firms were still producing fabric gloves, but the total output of their combined factories was comparatively small, and much of the fabric used was imported from Germany. The truth is, for 20 years prior to the outbreak of war in 1914, Saxony had been the chief centre of the trade, and all the progress and invention that had taken place during that period represented German progress and German invention. Many special methods and processes both in connection with the knitting of the fabric and with its finishing and dyeing were German secrets.

When the German supplies were cut off by the war, it was realised that an opportunity for reviving all branches of the industry in this country had arisen. The big English wholesale firms and glove manufacturers, in co-operation with some of the leading builders of knitting machinery and makers of the finer hosiery fabrics concentrated their attention upon the problem. Some of the commoner fabrics were comparatively easy to manufacture, but special fabrics of the " duplex " type and the popular " suède " finished fabrics were another matter. The machines for making and finishing

these were far from simple in construction and for a long time little progress was made in producing high grade glove fabric. Necessity, however, is one of the finest stimulants for inventive genius, and after much experiment considerable progress has been made during the last three or four years. Machines are now available for turning out large quantities of high grade fabric, the equal of anything that ever emanated from Saxony, and in some respects German productions have even been surpassed. The machinery installed in this country at the present time is sufficient to produce between 5 and 6 million yards of fabric annually, which represents only about 500,000 to 1,000,000 yards short of our normal annual consumption of gloves.

CHAPTER X

THE MAKING OF FABRIC GLOVES

FABRIC gloves, as the name implies, are made of a cloth or fabric ; and just as leather gloving is to be regarded as a branch of the leather trade, so the manufacture of fabric gloves must be grouped as a section of the textile industry. Glove fabric is sometimes spoken of as if it were a woven cloth. It should be pointed out, however, that the fabrics principally used are fine gauge or closely knitted cotton cloths of varying degrees of fineness, those most extensively adopted being known as Atlas cloths, Milanese, Milanese Lisle, Suèded and Duplex cloths, whilst silk, taffeta and lace are also used. Fabric gloves should not, however, be confused with the knitted gloves of the seamless type, which are made as a rule from heavier yarns, usually wool, and by different processes. The latter gloves are knitted on special machines which fashion or shape the glove in the course of knitting. With fabric gloves, the fabric is knitted and finished in the piece, the gloves afterwards being cut from "trunks" of fabric and sewn much as leather gloves are cut and sewn.

By far the greatest proportion of glove fabrics are made from the finest grades of Sea Island and Egyptian cottons. The raw cotton is first spun into particularly fine yarns, the bulk of the spinning being carried on in the Manchester district. It is worthy of note in passing that even when the fabric glove trade was little more than a German monopoly, Lancashire supplied practically all the spun yarns used for making glove fabrics, large quantities being annually exported to Saxony for the

purpose. Nowadays, Lancashire supplies many million pounds of yarn to the mills in the Nottingham, Ilkeston, Melbourne and Leicester districts, where the bulk of English glove fabric is produced.

The most suitable fabrics for glove-making are what are known in textile phraseology as "warp knitted"; that is, cloths knit from warp yarns only, and not from weft yarns. Some of the finer gauges of interlock knitted fabrics are also used for gloves, but to a far less extent.

In order to convey an idea of the distinctive character of the fabric it is expedient to explain briefly the difference between the various kinds of textile piece goods.

Broadly speaking, textile fabrics may be manufactured on four distinct principles, *i.e.*, weaving, knitting, felting, or twisting. Felt fabrics, formed by compressing the actual raw material (usually wool or fur) under the application of heat and moisture, and twisted fabrics, such as laces, embroideries, braids, etc., formed by twisting warp threads or yarns, may be ignored: in point of volume they represent but a small fraction of the textile trade. Woven fabrics, which form the largest group of textiles, consist of two distinct sets of yarns—warp yarns, running lengthwise parallel to the selvedge of the piece of material, and weft yarns which are woven at right angles over and under the warp yarns in the process of weaving. Such woollen cloths as serges, worsteds and chevots, and cotton cloths such as calicoes, zephyrs, etc., are typical examples of woven cloths. Knitted fabrics, which form the only other important group of textiles, are produced by looping either weft yarns or warp yarns into a chain of loops, cohesion into a solid fabric being obtained by interlocking each row or chain of loops to the next row or chain. Hosiery and underwear fabrics, stockings and scarves are typical

examples of knitted fabrics, and glove fabrics may be regarded as falling within the same category. Glove fabric, however, should not be classed as a hosiery fabric. Although both hosiery and glove fabrics are made on the same principle—that is, by means of the looped or knitted stitch—the actual processes involved and the machines on which they are knitted present rather different features. Practically all hosiery garments and fabric are knitted from weft yarns, in which the threads of yarn are knitted across the width of the garment or fabric, the length of the piece being gradually built up by the addition of successive rows of loops or stitches as in hand knitting. In the manufacture of warp-knitted fabrics, such as are used for gloves, however, a large number of warps of yarn are simultaneously knitted longitudinally through the machine, each thread of yarn passing over two or more needles, so that the automatic interlocking of the loops links up each row of stitches with its neighbouring rows and thus builds up the width of the piece. By this process a fine, close and solid fabric is produced, which is strong and sufficiently elastic for the purpose of gloving.

The foregoing gives but a bare outline of the principle involved in warp knitting and the actual making of glove fabric is a highly technical business, and involves a series of extremely delicate and intricate operations.

Before passing on to describe the actual process of knitting the fabric, a few words need to be said about the character of the yarns employed. Yarn, it may be necessary to explain, although in appearance somewhat similar, differs considerably from thread and the two should not be confused. Yarn is more supple and softer than thread, which in the process of twisting, doubling and polishing takes on its harder character.

Every class of yarn, whether of wool, silk, or cotton, varies considerably in texture or fineness, and each class embraces many important divisions. For instance, in the case of the cotton knitting yarns with which we are now dealing there are ordinary fine yarns, mercerised yarns, and lisle thread yarns. Again within these broad classifications there are widely varying degrees of fineness. For the purpose of identification all yarns are numbered and designated by a count. Thus we have 20's, 30's, etc., up to 200's and 300's. These counts are calculated by finding the relation of the weight of the yarn to its length. A simple rule for ascertaining the count of a cotton yarn is to find how many yarns there are to the pound and divide by 840. Thus if the pound weight of yarn contains 16,800 yards, the "count" would be 20 and the yarns would be designated 20's. From this it will be appreciated that the finer the yarn, the higher the "count" will be.

The yarns most suitable for glove fabric are the ordinary fine cotton and Lisle yarns. As we have already indicated, Sea Island and Egyptian, the two finest descriptions of cotton, are used almost exclusively, and some idea of the fineness of glove fabric yarns will be gathered from the fact that the "counts" vary from 70's in the commoner and cheaper descriptions up to as high as 120's in finer fabrics. Even these latter do not yield the finest fabrics, which are made from what are known as Lisle thread yarns. Originally Lisle thread was a specially spun linen thread which had its origin at Lille, the great French textile centre. Now, however, the name is applied to any yarns, whether linen or cotton, produced by doubling two separate strands which have been previously spun in opposite directions. The range of counts of Lisle threads used for glove fabric vary from 180 up to as high as 260. These knit into a

remarkably close, fine fabric which is used for making the very highest quality gloves.

Yarn comes in from the spinners sometimes in the form of hanks and sometimes wound on spools, cops or cones. Considerable attention is paid nowadays to the selection of yarns for glove fabrics, whilst in the early stages of "winding" and "warping" the yarn the utmost care is taken to secure the elimination of imperfections which would be likely to give rise to patchy or uneven places in the finished fabric. Thus, whether yarn has been wound or not before it reaches the fabric manufacturer, it is frequently rewound on to suitable spools or bobbins for the next process of warping." Good winding is regarded as essential to good knitting, and especially so in the case of glove fabrics which include the finest of all knitted fabrics. There are several types of winding machines used, but all follow much the same principle, and the operation, which is highly technical in character, need not be described here.

The next process, that of "warping," is of even greater importance. "Warping" consists of winding a large number of threads of yarn side by side on to a "warping mill." To effect this a number of bobbins or spools of cotton are placed upon a framework or stand, called a "creel" or "jack," the number of bobbins "warped" at a time varying according to the gauge of the machine for which the warp is being prepared. The "warping mill" consists of a large drum or reel and round this the yarn is wound, often being measured by clock work in the course of winding and each section of threads being warped from the same number of revolutions of the reel. From the reel the yarn passes through a perforated warping plate, which fixes the distance between the threads, and the warp is then wound

either on brass bobbins for the Milanese machine, or on to rollers, sometimes called "beams," for the Atlas machine. In warping the utmost attention has to be paid to the tension of the yarn, for upon this factor the closeness of the ultimate fabric largely depends.

We pass now to the knitting of the fabric.

Warp knitting, reduced to its simplest form, as already explained, may be described as a series of simple chains of loops running longitudinally the whole length of the fabric, each chain being attached to its nearest neighbours on either side and so forming a continuous fabric. There is, however, more than one type of machine now used for knitting glove fabric. The chief are the Atlas and the Milanese. The Atlas machine, or loom as it is sometimes called, is a verticle needle fast warp machine, and although it is the older of the two it has shewn itself capable of greater development and is now more widely used owing to the fact that it enables a greater variety of fabrics to be produced and can be run at very high speeds. The Milanese machine, however, produces rather finer fabrics.

The Milanese loom is what is termed a two-bar machine, that is, there are always two rows or "bars" of cotton yarn in the machine. Brass bobbins of cotton warp are mounted on travelling carriages and these move automatically along their base from the back to the front of the machine. A thread from the top "bar" and a corresponding thread from the bottom "bar" are fed to each needle. In working the brass bobbins carrying the thread on the bottom bar move slowly transversely across the machine from left to right, while those on the top bar move from right to left. At each side of the machine there are attachments for transferring each thread as it reaches the extreme end of its sideways journey from the top bar to the bottom bar and

vice-versa. Thus, while the threads are continuously travelling from one end of the machine to the other, the threads of the top bar are constantly crossing those of the lower bar. The needles (of the bearded type) are mounted upon a bar running along the width of the machine, and the yarn is knitted by the usual method, *i.e.*, by being forced over and under the beard of the needle by means of a sinker.

During the process the needles are looping the yarn into a strong and elastic knitted fabric. Some of these machines are built to knit great widths of fabric, and many contain up to 5,000 needles, and there being, as explained, two threads to every needle, it will be seen that 10,000 threads of yarn may be knitted simultaneously. The machines vary in gauge according to the fineness of texture of the fabric being produced, and some Milanese fabrics are so very fine that there are 56 threads knitted to 1 in. width of fabric. The gauge is calculated from the number of needles to the inch.

The operations of the Atlas machine are rather more simple. Just as in the case of the Milanese machine, there are two bars or rows of warp thread at work ; but these are wound on rollers or beams and instead of working from one side of the machine to the other, the threads of each bar travel only over a limited number of needles, the number varying according to the quality of fabric being knitted. The threads of the bottom bar travel in one direction and return to their original position, the threads of the top bar moving in the opposite direction, and then return, the needles knitting the fabric as the threads pass over them. Atlas cloth so produced can always be identified by the shaded bars running across the fabric, an effect which is due to the fact that the various bars of thread travel in reverse directions.

These machines are also built in great widths and work at high speed, and are thus capable of producing huge quantities of fabric. The length of the pieces and the width vary considerably, the finer fabrics being usually shorter and narrower than the heavier makes.

Dyeing and Finishing the Fabric. After it has been knitted the fabric has to undergo various dyeing and finishing processes ere it is ready for the glove factory. It is precisely these processes which have presented the greatest difficulties in the task of re-establishing the industry in this country. British dyers and finishers had to start in this section absolutely *de novo*, and it has only been by the slow and tedious path of practical experiment that the necessary processes have been evolved. The manner in which the various difficulties have been surmounted is worthy of the highest praise and commendation.

Glove fabric is received from the mills in the "grey" state exactly as it comes off the machines. It is first graded, and then bleached by the usual methods. Dyeing, one of the most important operations, follows. Here the greatest care is lavished. Fast colours are essential, and as a great variety of tones is called for (and these tend constantly to change), the dyers, resources are taxed to the utmost. Certain colours, however, may be regarded as staple lines, such as lemons, greys, beavers, blacks, browns, and blues, for these there always being a steady and constant demand. Other shades vary according to the prevailing fashion. The actual dyeing is carried out by running the fabrics through the dyeing liquids by means of washing machines of the rotary type, hand or power driven.

On leaving the dyeing-house the fabric is next treated with chemicals to reduce its elasticity, and then passed on to the drying-rooms. There it is stretched out upon

long frames, the atmosphere of the rooms being maintained at an even temperature of about 95° F. by means of steam pipes. Above each drying frame, numerous large fans are rotated to keep the air in constant circulation, which facilitates drying.

In recent years a great demand has sprung up for suèded fabrics, *i.e.*, cloths having the appearance and feel of suède leather, and duplex fabrics, or cloths of double texture. Fabrics of these types were produced with extraordinary success by the Germans, who jealously guarded the secret processes by which these effects were produced. "Suèded" and "duplex" cloths, however, are now being produced by several English firms with varying degrees of success. Probably the most effective results have been achieved by Messrs. Thomas Adams, Ltd., of Nottingham, who have devoted considerable attention to the dyeing and finishing of gloving fabrics, and use machinery of their own invention and make. By the courtesy of this firm, the author has been permitted to inspect the actual machines used for these processes, and the methods of working them; but it would be obviously unfair at this time to disclose trade secrets of this nature which have been discovered and perfected only after painstaking research and the expenditure of considerable capital. All that can be said is that tremendous strides have been made in this branch of the industry, and although by no means disposed to rest content with their achievements, the British finishers need fear no comparison between their fabrics and those of their German rivals.

In suèding the fabric, extraordinarily ingenious machines have been devised for raising the nap of the cloth in such a way that when the fabric is handled it needs very close scrutiny to detect that it is not actually leather. British finishers can also claim that

they have gone a step further than the Germans in this direction, and they are now producing heavy fabrics with chamois and wash-leather effects which approximated the actual articles with remarkable fidelity.

The making of duplex fabrics also involves secret processes which cannot at present be divulged. These fabrics, again, were invented by the Germans; but to-day satisfactory methods have been discovered for producing them in this country. Duplex cloths consist of two separate fabrics which are stuck together by ingenious means. The great advantage of these fabrics is that they allow the making of much stronger and stouter gloves than ordinary single fabrics, particularly where suède and similar finishes are required. English makers, however, are also carrying duplexing a step further even than their rivals did, and the process is now being employed to join an ordinary glove fabric with fleecy and other similar fabrics so that when the glove is made the fleecy side is turned inside the glove and forms a warm lining.

In addition to the "duplex" fabrics, English inventors have succeeded in producing other types of interlock or double fabrics, but these do not as yet compare with the "duplex."

During the last few years more attention has been devoted to weft fabrics, and developments in this direction are to be looked for. If suitable fabrics could be produced for gloving, weft knitting offers certain advantages owing to the reduced cost of production. Speaking generally, however, warp fabrics have certain advantageous characteristics which it has so far proved impossible to reproduce in weft knitted goods. Warp fabrics, for instance, can be knitted with a great variety of stitches and gauges. They are more rigid than weft-knitted cloths and yet retain sufficient elasticity to

yield the pliability essential for gloving material. They are more durable, wear better, and are not so liable to "run" when cut as are weft fabrics. Moreover, the close knit of the warp fabric lends itself readily to "suèding" and other popular finishes.

Cutting and Sewing Fabric Gloves. The making of fabric gloves follows closely the procedure adopted in making leather gloves. The fabrics are received at the factory in pieces varying from 12 to 40 yards in length. These are first very carefully inspected for faulty knitting or finishing defects, any imperfect patches being rejected and cut out. The fabric is then divided into shorter lengths and ultimately into "trunks," as in the case of leather gloves.

The actual cutting out of the glove is executed by means of calibres and screw presses of the same type as described in Chapter VII, but larger quantities of fabric gloves can be cut out at one operation than is possible when leather gloves are being cut. Usually, about a dozen pairs are cut at a time. Thumb-pieces and fourchettes, and gussets and quirks, when used, are cut out by separate machines.

In the sewing and stitching of fabric gloves a very wide range of sewing machines is used, and co-incidentally with the revival of the industry in Great Britain the Singer Company have shown commendable enterprise in developing and improving suitable machines for the various operations. As in the case of leather gloves, a great variety of styles of points is called for. Combinations of roundseam (*La surjeteuse*) with chain or other stitching furnish a very popular design, a single central row of roundseam, flanked by a single row of chain-stitch on either side forming a particularly neat point. A richly embroidered effect is produced by employing a double chain-stitch machine sewing several

parallel rows of stitching. Other machines of the multiple needle variety are also employed to good effect, whilst special machines for ribbing or beading the fabric are also utilised. Another popular point, known as the "Kohler," is produced by a double needle machine, the needles of which are set tandem fashion, *i.e.*, one behind the other, one sewing with a fine thread, whilst the other sews with a thicker thread, and the combination results in a singularly artistic point.

In the closing of the glove, the sewing of the fourchettes to the fingers, and the closing of the thumb, diamond stitching is more frequently preferred. The piqué stitch is used to a large extent for the heavier makes of fabric gloves—those of "duplex" and similar material. With these gloves a Boulton thumb is very popular as it gives greater freedom to the wearer. In some cases piqué stitching is partially employed, the upper seams of the fingers only being sewn on that principle, diamond stitching being used for the remaining seams. This is known as half-piqué. Thumbs are often inserted by means of a twin needle chain-stitch machine.

For "welting" or "binding" the edge of the glove, sometimes called "wristing," a hem is often formed merely by turning the edge of the material at the wrist opening and sewing it down with a chain-stitch machine. For the better class of work, however, twin-needle embroidery stitch machines are preferred. In other gloves again a separate narrow strip of fabric is welted round the edge of the glove. Small strips of material are also usually sewn up the edge of the wrist opening to reinforce the section of the fabric which is to carry the buttons or fasteners. Many machines for wristing are fitted with a cylindrical arm or base which enables the operative to hem the wrist after the glove is closed.

Button-holing and button-sewing, both machine operations, are very similar to those described for leather gloves. Finally, the gloves are ironed-out on heated hand-shaped instruments, after which they are banded in half-dozen pairs and boxed ready for sale.

Silk Gloves. In recent years the demand for silk gloves has grown very insistent, the popularity of these articles having shown very marked progress. Silk gloves are essentially luxury articles, and appeal more to the fashionable ladies of the United States, London, Paris, and other European capitals. Comparatively small quantities are made in the United Kingdom and in France, but the real centre for their production is the United States, where they are manufactured with marked success. The late Julius Kayzer, who migrated to the States from Germany whilst a youth, was the pioneer of the American silk glove trade.

The making of these gloves is very similar to the making of cotton fabric gloves. The silk is spun, and wound on to spools, and subsequently warped. The warps are fed to fine gauge knitting machines of the Milanese type, and knitted into a fine close elastic fabric. Afterwards the fabric is carefully dyed. Special machines are used for dressing the silk after dyeing, by which the extreme elasticity of the fabric is reduced.

Finally the material is cut into short lengths from which the parts of the glove are stamped out, assembled and sewn in the usual manner.

Woollen Gloves. Woollen gloves represent another important branch of the glove trade, and although their sale is more or less confined to the winter season, it is a large and growing business. Their manufacture is to be regarded as a branch of the hosiery trade, and the woollen gloves of Leicester, Hawick and other English centres enjoy a world-wide reputation. Practically

all hosiery firms of any importance specialise in their manufacture. Originally they were produced as hand-knitted articles, and naturally the output was then on somewhat limited lines. However, with the rapid improvements which have taken place in the knitting industry during the last half-century, the manufacture of woollen gloves has shown remarkable development, and a wider range and variety of articles are now available. The improvement in manufacturing processes, leading to rapid and cheap production of these goods, has been of particular benefit to the working classes, providing them with serviceable winter hand-wear at a price well within the reach of the poorest.

Woollen gloves, speaking broadly, are of two types, *i.e.*, the seamless variety, and what is known as the wrought glove. The seamless glove is fashioned to shape in the course of making. These are usually produced partly on a hosiery knitting machine of the circular type, and partly on flat hand-knitting machines. The wrist section is frequently formed with a ribbed cuff, while the hand and fingers as a rule are made with a plain knitted stitch. The cuff and the hand can be knitted on circular machines or flat machines while the thumbs and each finger are knitted separately on flat hand machines. Special types of machines have been designed for automatically knitting the rib cuffs with a plain hand.

Wrought gloves are all knitted on straight bar machines and can be made with a great variety of stitches and patternings. Each part of the glove is fashioned to shape with a selvedge, and afterwards the parts are seamed by a special sewing machine designed for joining hosiery and known as a cup seam machine.

Until recent years the woollen glove has been regarded rather as an article of utility than of luxury, but

recently the manufacturers have devoted a great deal of attention to producing fancy effects. Exceedingly fine wools are being used, and checks in contrasting colours and other beautiful effects are now available in the long gauntlet style of glove so much in demand among ladies.

CHAPTER XI

MARKETING

WE have now concluded our brief description of the making of the glove, and a few words will suffice to explain the method of distribution.

Many of the big retail stores buy the majority of their gloves (as they do the major portion of the merchandise they handle) direct from the manufacturers at home or abroad. Most drapers and retailers in this country, however, only requiring smaller quantities at a time, secure their supplies through the intermediary of a wholesale house. Some of these wholesale houses are known as general houses, carrying a great variety of merchandise largely in common demand ("bread and cheese lines" is the vulgar description used in the dry goods trade); others are known as specialty houses which have built up a reputation for stocking the newest, freshest and most fashionable merchandise in certain classes of goods. Thus in the wholesale glove trade there are many houses which handle gloves among a host of other articles, and a smaller number of firms which make a special feature of gloves, and it is through the latter that most of the novelty styles are to be obtained. In addition there are several very large firms of glove manufacturers having their own wholesale warehouses in London and throughout the world, through which they dispose of their own factory output (supplemented by the products of smaller firms) directly to retail customers.

Ordinarily, gloves may be regarded as comparatively safe merchandise to handle. Style changes do occur,

but these are neither so violent nor so frequent as in certain other classes of apparel or dry goods merchandise. The demand is fairly constant and steady, and it is therefore easier to avoid dead stock than is the case in a trade handling ultra-fashionable goods like millinery or costumes. Nevertheless the glove-makers and wholesalers have to watch the trend of events with care and attention. Changing fashions, especially in ladies' attire, exert considerable influence in glove styles. A vogue for short-sleeved gowns brings a bigger demand for long-sleeved gloves of the mousquetaire type. Recently there was quite a rage for fringed dresses, and immediately a demand for gloves with long fringed gauntlets arose. Men, while not so susceptible to fashion changes as women, have also to be watched with care. A few winters before the war a sudden craze set in for white woollen gloves. Half the men in the country seemed to be wearing them, and the glove trade had much to do to meet the demand. The season's colours, too, have to be anticipated and allowed for.

Unseasonable weather is perhaps the worst enemy the glove distributor has to face : and the fact that it can never be anticipated intensifies the evil. A delayed spring, or a cold, wet summer will often have serious effects upon the sale of the lighter classes of gloves for summer wear. So, too, a mild winter curtails the demand for lined and woollen gloves. Unseasonable weather, in fact, can easily throw all the wholesalers' calculations out of gear.

It will be understood, then, that the glove trade has its pitfalls for the unwary, and wholesale merchanting calls for considerable skill and experience. The buyers for the big houses have to be very watchful and alert in order to anticipate possible changes in public taste, especially in the case of those catering for the high class,

or fashion end, of the trade ; and at the same time they have to be prepared to face risks.

Competition in the trade is keen, and for this reason the wholesale houses are always sending their buyers into the manufacturing centres in order to keep in the closest touch with manufacturing developments. With those businesses which specialise in novelty lines this is particularly true, and when a manufacturer produces something exceptionally striking, one wholesale firm or a large retail distributor will often undertake to purchase the whole output of that range.

With regard to the retail trade—the trade of the drapers, hosiers and outfitters who pass the gloves on to those who will ultimately wear them—little need be said here. Many of the considerations we have indicated as bearing upon the wholesale trade, apply also to the retail. Generally speaking, however, the retailers' stock being much smaller, he does not have to take such big risks as the wholesaler. Practically every draper or hosier carries a stock of gloves, and in many of the larger stores of the West End and Suburbs of London and the provinces, separate specially equipped departments are set apart for their sale. With the retail, gloves are popular goods, being clean merchandise—of a character easy to handle.

How to Judge Gloves. Gloves vary tremendously in quality as all wearers of them will agree. It is true in their case, as with all merchandise, that if a good, sound, reliable article is desired one must be prepared to pay a fair price for it. As practically everyone wears gloves nowadays, the manufacturers have to cater for a very varied demand, and consequently there are very many styles and very many varying quantities in each style. There are a great number of people who cannot afford to pay for good quality gloves, hence

there is always a big demand for low-priced articles. For these, naturally, the lower grades of material are used, whilst their workmanship is not of the best. Nevertheless one can pay quite good prices for gloves and yet buy without discrimination.

Gloves of all kinds are divided into different classes within their own group, according to quality, and the various classes or grades are known as "firsts," "seconds," etc.

The three main points to observe in buying gloves are (1) the quality of the leather or fabric, (2) the cut, and (3) the sewing and finish. In the case of leather gloves, particularly, care should be taken to see that the material is free from flaws, blemishes or harsh patches. The colouring too should be of a regular, even tone. The cut should be well-balanced and shapely, true to size and to the shape of the wearer's hand. Many manufacturers make several varying finger lengths to each size of glove so that those with long, medium or short fingers can be equally suited. Another point to look for is to see that the fourchettes, quirks and gussets (the small pieces between the interstices of the fingers and thumbs) are evenly cut and regular. The sewing should be regular, following the line of the edge sewn, with even intervals between each stitch.

CHAPTER XII

DISTRIBUTION OF THE INDUSTRY

It must be clear to everyone that the recent war has had a tremendously disturbing effect upon the industry and commerce of the world, yet few people outside immediate business circles realise how far-reaching that disturbance has been. The fact is, the whole system of international commerce as it existed prior to the war has been largely thrown out of gear owing to the welter of industrial and commercial confusion which is proving one of the worst consequences of the prolonged hostilities in Europe. It is not merely that old and known standards of commercial value have largely disappeared ; but, what is in some respects even more disconcerting, the very centres of production and avenues of distribution have in many cases shifted. The trade of the world at the present time is passing through a period of transition, and there are possibilities of change without parallel in the history of commerce. It is therefore extremely difficult for any writer dealing with an industry of international ramifications to give a clear, accurate and reliable picture of the geographical distribution of that industry. This is peculiarly true of the glove trade. The industry has, it goes without saying, shared in the general dislocation of commercial machinery. Regarded from an international point of view, the trade is in a state of flux, and no one can forecast with any certainty what the position will be a few years hence.

Let us look at the international geographical distribution of the glove trade prior to 1914, when the chief centres of the industry were well-known and easily

defined. We shall then be in a position to form some idea of the position to-day. Taking leather gloves first, in those days France was the leading producing centre, Austria-Hungary (Bohemia) and Germany competed for second place, Belgium coming third, Great Britain fourth, Italy, Denmark and the United States bringing up the rear. It is necessary to bear in mind, however, that British enterprise exerted considerable influence in the foreign centres of production. Britain was not only one of the largest importing nations in pre-war years, but several large British glove houses owned and controlled factories of their own in the principal manufacturing centres on the Continent.

To-day the position may be set out roughly as follows : France still holds her place as the leading leather glove manufacturing country, the United Kingdom probably takes the second position, the situation in the remaining producing centres being obscure. But the annual production is very much below pre-war quantities in all branches of the industry.

It would be absurd, however, to assume that the present state of affairs is one that will continue permanently. So far as one can gather, for the time being, the production of leather gloves in Germany is severely handicapped by the disturbed political situation prevailing, by the difficulty in securing supplies of raw materials, and by the dislocation of the credit system. In Bohemia, which has been transferred to the new state of Czecho-Slovakia much the same applies. Certainly until the political situation is clarified, neither country can settle down to normal work, and until that is possible it is futile to attempt to anticipate their prospects of recovering the trade they have lost. Whether our erstwhile enemies can ever regain the position they held formerly, only time will prove. All that can be

said is that the industry of neither country is at a complete standstill ; on the contrary there is ample evidence going to show that the German and Bohemian manufacturers are biding their time, and merely await a favourable opportunity to re-enter the world's markets.

The Belgians, of course, are making big efforts to reconstruct their industry, which was centred largely at Brussels. They are suffering from the disastrous effects of the prolonged German occupation. Here the prospects of recovery are more certain than in the case of either Germany or Austria. Belgium enjoys the goodwill of the world, and the course of a few years should again see the glove industry of that country thriving and prosperous.

Meanwhile the manufacturers of leather gloves in other countries, especially those of Great Britain and America, are making very strenuous efforts to extend the field of their activities. Far more success has attended the efforts of British glovers in this respect than is generally credited, although the measure of success attained would be considerably greater were the general conditions prevailing in the trade more favourable. Unfortunately the situation is complicated by a number of adverse factors. As we have already explained in dealing with the glove leather situation, our own glovers, in common with those of other nations, are seriously hampered by the world shortage of skins : but that is not the only hindrance to progress. Other obstacles are presented by the delay in proceeding with factory extensions and the installation of new machinery and factory plant owing to financial conditions and difficulties of other industries, while the general movement towards shorter hours and higher wages in industry has naturally a retarding effect on production.

With regard to the fabric branch of the industry, we

have already noted the effects of the war in our chapter dealing with the history of the manufacture of fabric gloves. Practically speaking, the Germans had prior to the war a monopoly of the fabric glove trade : the reasons for this have already been explained at length. Of the 2,531,798 dozen pairs of fabric gloves imported into this country in 1913, 2,511,009 dozen pairs were of German origin, and the bulk of the remainder were silk gloves of American make. In that year, and for years previously, in point of quantity the British production of fabric gloves was negligible. These facts reveal the extent of the former German predominance in this branch.

Since the war, the fabric glove situation has undergone a great change. But, looking to the future, as in the case of leather gloves, it is extremely difficult to offer any reliable forecast as to how events will shape. Last year (1919) although the imports of fabric gloves into this country closely approached one million dozen pair (less than one-half the pre-war volume), very few came through from Germany. The official analysis of the figures is not yet available at the time of writing, but it is well known in the trade that the largest portion of the gloves imported were of Japanese origin. The Japanese, by the way, were very early in seizing the opportunity presented by the temporary elimination of German competition, and promptly took steps to develop the manufacture of the cheaper grades of fabric gloves. Yet notwithstanding many advantages—considerable support from a progressive and sympathetic government, good supplies of raw cotton, and abundant cheap labour—Japan has failed to make the most of her opportunity. Her glove factories, hastily organised, turned out gloves in extraordinarily large numbers : but quality was sacrificed all through to quantity

production. The gloves sent from Japan to Europe so far, have been for the most part cheap, inelegant articles of poor quality fabric, atrociously cut and shaped, and badly sewn and finished. They were, in the main, totally unsuited for the European market, and were it not for the absolute shortage of gloves of all kinds would have stood little chance of a sale here. This year the imports of such gloves from Japan have fallen off considerably. So far as this country is concerned Japanese competition is very little feared.

France last year was sending us bigger consignments of fabric gloves than ever before in her history, and the majority of these were very high grade articles.

Whether Germany can ever regain her monopolistic position in this branch of the trade must remain a matter of speculation. The German manufacturers are already very active and it is unreasonable to imagine that they will let the trade slip out of their hands without making a fight. They have a generation of experience behind them ; so far as is known their factories are intact, while possibly the majority of their skilled workpeople are available to help in the rehabilitation of the industry. Momentarily their chief disadvantages are the unsettled state of the country and the difficulty in securing supplies of raw cotton, cotton yarns, etc., owing to the depreciation of the mark. However, they are already undercutting home producers in the British market the low rate of the mark against the pound sterling being a big advantage.

Meanwhile British manufacturers of fabric gloves have made remarkable and steady progress. In point of quality, British productions can now claim to compare with the German : indeed, in some lines they are certainly superior. Until recently, even the price factor was in favour of British-made gloves and it was

possible to buy a better British fabric glove at a slightly lower price than an inferior German article of the same type. In recent months, however, the position has changed in this respect. From a national point of view, the progress made in this branch of the industry is extremely encouraging : but no British manufacturer is foolish enough to overlook the fact that much yet remains to be done. Although the British fabric glove in point of general excellence and quality will bear comparison with any—qualitatively the industry has nothing to fear—the output is, comparatively speaking, still small. Much development must take place before the home trade can claim to rival the highly organised German industry of pre-war years. It is this fact confronting the British fabric glove-makers which gives them most concern. They have demonstrated that fabric gloves of high quality and excellent workmanship can be manufactured in this country on a commercial basis ; they have laid foundations upon which an important industry, offering employment to many more workers, can be reared : but to develop an industry of this kind necessarily takes time. Capital has to be raised, factories built, and workers trained and organised ; so that for a few years development must proceed slowly and on tentative lines. The question arises : can our continental rivals resume large scale trading on their old methods before the industry here at home has become established firmly enough to withstand competition ? This is the dominant question present in the minds of the trade leaders to-day : it is the vital consideration behind the policy of British glove manufacturers at the present time.

The leaders of the industry urge, possibly with justice, that during the war they were invited by the Government (through the Board of Trade) to endeavour to

develop the manufacture of fabric gloves in this country. They responded to the call. Much time and money were devoted to research and experimental work, workers were trained, factories were built and a fair amount of capital was sunk in the industry. When the armistice was signed, the industry was just emerging from the experimental stage, and everyone concerned felt that granted favourable conditions during the next few years there was a good chance for its development on a large scale. So far, however, the trade holds that the Government promises to take steps to check the "dumping" of foreign made goods into this country have been singularly ambiguous. A frank and unequivocal official undertaking that under no circumstances would they permit the home industry to be swamped by unfair competition from abroad would do more to encourage greater progress and development than anything else. If that undertaking were forthcoming, there is no reason to doubt that the manufacture of fabric gloves in this country would in the course of a few years reach gigantic proportions.

As it is, a few of the smaller firms have already abandoned the making of fabric gloves, whilst some of those who strove the hardest to re-establish the industry here are beginning to be discouraged.

The Industry in Britain. The glove trade of England has witnessed considerable vicissitudes in the course of its long history. As mentioned in an earlier chapter there are many indications pointing to the making of gloves in those early seats of learning and craftsmanship—the monasteries. In Anglo-Saxon times glove-making was carried on by the tawyers or skin-dressers in association with other crafts involving the working of leather. But by the middle of the fourteenth century the glovers had certainly come to be regarded as a separate trade. The

growing importance of the industry is reflected in the records of the glovers' guilds which sprang into existence at Perth, Worcester and London. There can be no doubt these old guilds rendered very valuable services to the industry, and probably did much to maintain and improve the standard and character of the productions of the trade. Their influence and powers were considerable ; for, in addition to regulating the manufacture and sale of gloves in the home trade, they were also able to bring pressure to bear upon the Crown resulting in Statutes of Edward IV, Richard III and Elizabeth, which prohibited the importation of foreign-made gloves. This prohibitive legislation remained in force until the early years of last century. It has been suggested that these protective measures were obtained by the glovers not so much in recognition of genuine grievances, but rather as privileges in return for moneys advanced to the Crown or other services rendered. Be that as it may, there can be no doubt that they enabled the home industry to keep its head above water when otherwise it might have been swamped by competition from abroad. They did not entirely prevent the entry of foreign gloves into this country, and ample evidence could be adduced to show that such gloves were continually being brought in during the four centuries while the Statutes were operative. Smuggling was a profitable calling and comparatively easy to effect. The laws were not rigidly enforced although they stood upon the Statute Book ; but when necessity arose they were remembered and put into effect. The protection afforded by these laws was extended by an Act passed in the reign of George III (1776) ostensibly to encourage the importation of kid and lamb skins. English glovers, even in those days, excelled in producing the heavier types of gloves, whereas the French were more successful

with the lighter and more elegant articles. It was hoped that by rigorously excluding French-made gloves, the importation of suitably dressed skins for the manufacture of the lighter class of goods would follow as a natural consequence. To this end the fines imposed on those detected importing foreign gloves were increased to the point of severity whilst the goods so seized were sold and the proceeds divided between the officer making the seizure and the Crown.

Thus during four centuries and more the industry enjoyed comparative freedom from foreign competition. Whether the protection thus afforded was an unqualified advantage in the long run is at least debatable. The limitation of free competition, whilst it may have enabled the glovers to pursue their industry without fear of being driven out of business, had also the effect of making them somewhat lethargic. When business could be had for the asking, there were not and could not be the same incentives to initiative, invention and progress, as when trade had to be striven for in the face of keen rivalry. Desirable as it might be that home industries should be fostered and encouraged, there is a limit beyond which State protection should not be applied. It is perhaps difficult to fix an arbitrary limit, but it is at least beyond serious contention that where protection is so complete that the industry it is intended to safeguard is in danger of being stultified thereby, State aid, whether direct or indirect, begins to be undesirable. Artificial economic expedients for the stimulation of industry need to be applied with considerable intelligence, and it was the absence of an intelligent application of the old prohibitive laws which rendered them harmful.

In 1826, the British glove trade was confronted with its first great crisis. Three years earlier Huskisson had initiated his Free Trade policy which was destined to

change the whole course of English political economy, and by the date mentioned the old legislation prohibiting the entry of foreign-made gloves was finally repealed and all such wares were admitted, subject only to the payment of certain *ad valorem* duties. The effect appears to have been little short of disastrous, and the unemployment and distress which followed entailed undue hardships upon the unfortunate glovers. It was to protest against the evil consequences which the removal of protection brought in its train that led Mr. William Hull to write his *History of the Glove Trade* (published in 1834). The main portion of that publication is devoted to the development of an argument in favour of re-enacting the old prohibitory laws. While we may now ignore Hull's remarkable and somewhat controversial special pleading, some of the evidence he adduced to support his case is worthy of citation as illustrating the disturbance caused by the legislation of those days.

Thus, in Worcester and its environs (Hull tells us) there were in 1825 some 30,000 men, women and children engaged in the trade, and the average production of gloves amounted to 12,000 dozen pairs weekly. Few people were then out of employment. In 1832, according to a statement issued by a committee of operative glovers of the town, out of 1,000 men, only 113 were in full employment, whilst 465 were partially employed, and 422 were out of work. In London, the industry furnished employment, prior to the removal of the prohibition, for from 1,500 to 1,700 men, mainly on making gloves from French kid skins. By 1834 several manufacturers of the metropolis had discontinued making and had become importers of French made goods. At Hereford, York and Ludlow the industry was being driven out of existence. Ludlow, indeed,

which formerly employed some 900 hands, at the time Hull was writing could only find employment for 163. At Yeovil and the other west country centres much the same experience was recorded.

However, debates in Parliament, and petitions to Ministers were unavailing ; the government persisted in their policy, and the industry continued to suffer. By the early forties, it would seem, the distress had reached its acutest pitch, and public funds were raised for the relief of distress. By that time, however, realising that they must rely upon themselves to discover the means for their own salvation, the more resourceful and enterprising manufacturers were concentrating their energies upon special lines, and by paying increased attention to the quality and excellence of their merchandise they succeeded in building a reputation which enabled the industry to embark upon more certain paths of progress.

In 1860, the last vestiges of protection for the home trade were removed, the small import duties upon gloves of foreign manufacture being repealed in that year. But by that time, the British leather glove trade had established itself again upon a firm and sound basis. In several respects its position was unassailable, particularly in regard to the making of men's and the heavier types of gloves. The withdrawal of the duty had, therefore, comparatively little effect upon this branch of the trade, which has since continued to make steady progress.

To-day the British industry is chiefly centred in the Worcester and Yeovil districts where gloving has been carried on for centuries. In addition to this the industry is scattered in many small hamlets of Somersetshire, Dorsetshire, Devon and Wiltshire. Gloving is also carried on to some extent in Oxfordshire, another

ancient seat of the trade, at Woodstock, and at Abingdon in Berkshire. London, formerly one of the largest British centres, now produces but few gloves. The Parish of St. Giles, Cripplegate, was at one time noted for its glovers, but like the silk weavers of Spitalfields, these have long since disappeared.

The making of fabric gloves in England is carried on largely in the same centres where leather gloves are made ; but during the war small factories have sprung up all over the country. The making of the fabric itself, however, is almost entirely confined to the Nottingham (Ilkeston and Melbourne) and Leicester districts. Nottingham produces the finer fabrics, and Leicester the heavier cloths.

At the present time the home industry supports between 15,000 and 20,000 workers, the majority of them women, but this number tends to increase with the development of fabric-glove making. The shortage of suitable trained labour is not the least of the difficulties which hamper progress.

Very large quantities of gloves were imported into the United Kingdom in pre-war days, nearly all coming from Europe, chiefly from France, Germany, Austria, Italy, and Belgium. The table shown on the following page gives the quantities of the Board of Trade returns for the three years prior to the outbreak of war.

The extent to which the international trade has been disturbed by the war is shown by the Board of Trade returns for last year (1919), according to which British imports of leather gloves only aggregated 243,254 dozen pairs. The detailed returns showing the origin of these are not available at the time of writing, but it may be taken for granted that the majority of the leather gloves imported last year came from France and smaller quantities from Italy and the United States. Prior to

the war, Germany and Austria-Hungary sent us the bulk of the cheaper classes of gloves sold, whilst France concentrated upon the higher grades of women's dress gloves.

PRE-WAR IMPORTS OF LEATHER GLOVES INTO THE
UNITED KINGDOM
(*Dozens of Pairs*)

	1911.	1912.	1913.
France . . .	470,686	493,067	466,688
Germany ¹ . .	304,160	376,492	343,009
Austria-Hungary	303,193	304,701	369,886
Belgium . . .	222,236	232,745	278,926
Italy . . .	23,316	24,152	11,379
Other Foreign Countries . .	1,707	2,658	3,933
	<u>1,325,307</u>	<u>1,433,815</u>	<u>1,473,871</u>

Pre-war, the exports of gloves from Great Britain were of considerable value. The following figures show the quantities sent abroad in the three years prior to the outbreak of war with their destinations—

BRITISH PRE-WAR EXPORTS OF LEATHER GLOVES
(*Dozens of Pairs*)

	1911.	1912.	1913.
Germany . . .	15,351	17,026	16,291
France . . .	29,824	31,276	33,307
United States	75,402	75,907	67,239
Other Foreign Countries . .	17,167	17,128	19,277
British Possessions	64,482	99,100	93,123
	202,336	240,437	229,237

It may be added that the total number of leather gloves exported from Great Britain in 1919 only amounted to 51,207 dozen pairs.

¹ Probably not all these were of German manufacture. Many gloves made in the Prague district of Bohemia would be shipped via German ports and would figure in the returns among the quantities credited to Germany.

Dealing with fabric gloves, the import figures for the 1911-13 period were—

PRE-WAR IMPORTS OF FABRIC GLOVES
(*Dozens of Pairs*)

	1911.	1912.	1913.
Germany . . .	1,819,480	2,051,379	2,511,009
United States . .	20,677	24,183	17,162
Belgium . . .	1,483	1,021	30
France . . .	—	75	60
Other Countries .	3,443	2,849	3,537
	<u>1,245,083</u>	<u>2,079,507</u>	<u>2,531,798</u>

The monopolistic character held by the German fabric glove industry in pre-war years is apparent from the foregoing table. During the war no German gloves were imported into this country, and few came in last year, but they are again beginning to enter the market. The total number of fabric gloves imported during 1919 amounted to 964,944 dozen pairs. The majority of these came from Japan, but the imports from that source have since fallen away considerably.

Pre-war the British exports of fabric gloves were comparatively small in volume, but even then they were expanding year by year. Even so, few of these would be of British manufacture, and should be really classed as re-exports. The figures were 1911—25,021 dozen pairs; 1912—33,034 dozen pairs; and 1913—65,456 dozen pairs. Last year (1919), however, no fewer than 129,259 dozen pairs were exported. These figures represent real and substantial progress which all who have the interests of the home industry at heart desire to see continued.

Looking forward, it may be said the British industry is now entering upon a new stage in its history. The war has brought many changes, and the years

immediately ahead are full of possibilities. There is undoubtedly immense scope for expanding the industry, and it is to be hoped that the utmost advantage will be taken of the opportunities for development as they become available. Fortunately, there is evidence of a new spirit of enterprise at work in the glove trade which augurs well for the future. The trade is better organised, now than in former years, and there is more co-operation among the various sections of the industry and between individual manufacturers. These signs are encouraging, and coupled with a vigorous and progressive policy on the part of individual makers, aiming at the production of sound and reliable merchandise, should do much to promote the healthy development of the trade in the Kingdom.

The French Trade. The glove industry of France, like that of Great Britain, is of considerable antiquity. It is in fact safe to assume that gloving, as an industry, was flourishing in France by the twelfth century. Records are extant of a French Company of Glovers reaching back at least to A.D. 1190. By that time the industry was administered under a settled code of regulations. These had for their object (1) the control of the conditions of manufacture and sale of gloves, (2) the adjustment of differences between masters, journeymen and apprentices, and (3) the provision of aid and succour to old and necessitous members of the craft. So far as leather gloves are concerned, there can be no doubt that France stands as the leading seat of the industry. Just prior to the war some 25,000 workers were employed in the making of gloves, and the French trade has always enjoyed a special reputation for the production of high grade gloves, particularly in the finer qualities of ladies' hand-wear. Grenoble, the chief centre, is probably the largest gloving town in the world. The town contains

over 60 factories and afforded employment in pre-war days to over 17,000 employees. Several English makers have factories in the town. Grenoble kid gloves are famed the world over. Millau is the next French centre in order of importance and is noted for its choice lamb skin gloves. Next comes St. Junien and Niort employing about 2,000 workers, whilst there is also a good deal of gloving done at Paris and Chaumont. It is not possible to give any reliable figures bearing upon the present production of gloves in France, but in 1913, the output was valued at 120,000,000 francs. France also manufactured several thousand dozens of fabric gloves—largely from German fabric, be it said—in pre-war days. Fairly large numbers of such gloves are now being made in the Lyons district from English and French-made fabrics. The French industry is well organised, and there are Chambers of manufacturers at Grenoble and all the big centres. During the war the industry suffered severely from one cause and another ; but it is now making good progress, although the post-war difficulties of supply and labour troubles common to the trade all over the world are considerable.

Czecho-Slovakia. Formerly, Austria-Hungary produced immense numbers of leather gloves annually, many of which found their way (largely *via* Germany) into the markets of the United Kingdom, Russia, the Northern European countries, and also into South America. A great proportion of the output was represented by cheap "nappa" gloves. Many thousand dozen pairs of so-called Mocha and of wash leather gloves were also exported. The bulk of these, however, were produced in Bohemia, which under the peace treaty is now incorporated in the new State of Czecho-Slovakia, which means that Austria loses quite 80 per cent. of the industry. The chief seat of the Bohemian

industry was at Prague, where from 850,000 to 1,000,000 dozen pairs used to be produced annually. Production is now on a much lower scale owing largely to the shortage of raw materials, labour and other difficulties ; but the situation at Prague is said to be more promising than at many other centres of Middle Europe. The Erz-Gebirge district (now also part of Czecho-Slovakia) used to produce some 200,000 to 300,000 dozen pairs annually, but the industry was severely affected during the war and the output is now much diminished. Moravia and Silesia (which also must now be included in Czecho-Slovakia) used to yield about 100,000 dozen pairs annually, but here again, production has decreased considerably. At Caarden, also, there are a number of factories mainly producing washable leather gloves. There again the industry shows little sign of re covering from the serious set-back caused by the war. In addition to the shortage of suitable skins, the materials used for making washable leather have been practically unobtainable.

The Bavarian Industry. The leather glove industry of Germany is chiefly carried on in Bavaria, Munich being the principal centre. In pre-war days large quantities of cheap but inferior gloves were produced, the main proportion of them being exported to England, Russia, Scandinavia and the United States. Cheap fur gloves were a speciality—rabbit and hare-lined gloves being sent in large quantities to Russia and Scandinavia. So far as export trade is concerned, the industry has been practically at a standstill since the outbreak of war. There is little prospect at present that production can be resumed on the old scale for some considerable time to come.

Other Centres. Belgium before the war produced large quantities of gloves, Brussels being the seat of the

industry, and one or two British firms had dressing yards and factories in the neighbourhood. A considerable amount of gloving was also carried on formerly in Luxembourg. Both in Belgium and Luxembourg progress towards recovery promises to be fairly rapid.

Italy produces considerable numbers of gloves annually. Naples is the largest centre, but the gloves produced there are on the whole of the cheaper variety. Better quality gloves, but in much smaller quantities, are made at Turin, Milan and Genoa.

Denmark had formerly a prosperous gloving industry centred at Copenhagen, but not so much has been heard of it in latter years.

Just as some of the European centres have been almost crippled by the war, so the American and Canadian glove industries, in the absence of competition, have been able to make a great deal of headway. This is particularly true of the American trade. The industry there is practically confined to the States of New York and Jersey. One town, Gloversville, derived its name from the industry. America is known throughout the world for the production of high-class silk gloves, the making of which is restricted more or less to the State of New York.

Several British and French firms have in recent years opened factories in Canada, whilst the establishments controlled by Canadian glovers have also been considerably extended and added to. A recent report issued by the Census Bureau at Ottawa for the year 1918, reveals the extent of the Dominion's progress in this respect. In 1915 the industry was evidently declining. At that time the output for the year was valued at 1,877,964 dollars, as compared with 2,995,356 dollars in 1910. In 1918, however, the output is stated to have totalled 8,307,677 dollars, and even allowing for the higher

values obtaining, it is clear that substantial expansion has taken place.

Taking quantitative figures, over 776,706 dozen pairs are officially reported to have been manufactured in Canada during 1918. Of these 516,760 dozen were leather gloves (other than kid), 7,583 dozen were kid, whilst cotton gloves accounted for 138,434 dozen, woollen, 63,505 dozen, and silk, 50,424 dozen. About one-half of these were dress or fashion articles, the other half representing men's and boys' lined and unlined working gloves. Of the dress gloves rather less than one-third were women's. The capital invested in the industry in 1918 is placed at 6,291,269 dollars, which is exactly ten times the amount invested eight years previously. Further proof is afforded of the rapid progress of the Canadian industry by the growing volume of gloving materials imported. On the other hand the imports of gloves for 1918-1919 fiscal year declined 64 per cent. in value (notwithstanding the higher prices ruling) as compared with the last fiscal year before the outbreak of war. This, of course, was due largely to the restrictions on exports from Europe.

CHAPTER XIII

BRITISH GLOVE TRADE ORGANISATIONS

ALTHOUGH the old Glovers' Guilds of earlier centuries are no longer in existence to exercise an influence over the affairs of the glove trade, there are now several organisations connected with the industry both on the employers' and employees' sides. In the first half of the nineteenth century, in common with the general spirit of the times, there was little or no attempt at combination, either on the part of the masters or of the men. During the critical times through which the English trade passed, firstly subsequent to the repeal of the prohibitory import laws in 1826, and again after the repeal of the import duties in 1860, we hear of sporadic attempts at combination, but apparently nothing came of them. In those days, it is necessary to remember, the actual master glovers, although often men of substance, frequently lived among their workers, and the community of interest between employers and employees was far more apparent than it is to-day. Troublesome periods were experienced, and differences arose from time to time, but actual labour disputes were remarkably few.

In the latter half of last century, however, a new movement towards combination and organisation definitely set in. The initial efforts, it is true, were anything but promising. In the early eighties the first recorded instance of any real attempt to launch a glovers' trade union occurred at Worcester. There the Glovers' Trade Society was formed in 1884. It was a workers' society and its policy followed the usual lines

of nineteenth century trade unionism. Contributions were levied upon the members for a benevolent fund for the relief of necessitous members in times of sickness or periods of unemployment due to slack trade. Intermittent employment was the great bugbear of the industry and, with a view to mitigating this evil, the society aimed at the restriction of the number of apprentices to be indentured to the trade, in the hope that by thus thinning the ranks of recruits, employment for those already engaged in the industry would be made more secure. The society was, happily, far too weak to push so short-sighted a policy to a conclusion. Neither were the offices of the organisation ever called for in more serious matters, and there is no recorded instance of a strike in the trade. Throughout its history the Glovers' Trade Society, membership of which was confined strictly to male operatives, received but inadequate support, and after languishing for some twenty years it was dissolved in 1904.

In 1917, however, another attempt was made to organise the workers of the Worcester area, as a result of which the Worcester Glove and Leather Workers' Society was formed. This organisation admits female workers, and boasts probably the largest membership of any glovers' trade union. During the last two years special efforts have been made to attract the women home-workers into membership, and the position of the Society has been strengthened by affiliation with the Amalgamated Society of Gas, Municipal and General Workers.

About six years before the first Worcester Society came to its untoward end, the operatives in the Yeovil district succeeded in founding the United Glovers' Mutual Aid Society. In this case, again, the apathy of the operatives for a long period prevented any real progress, but since

the war the membership has been very largely extended, although it is still confined to male operatives.

Another trade union, the Amalgamated Society of Glovers, was formed some twenty years ago at Stoke-under-Ham for male operatives, and now embraces workers engaged in the industry in North Devon and Dorsetshire.

Strangely enough the organisation of the women operatives, who comprise a majority of the workers in the industry, has been largely left to unions not directly associated with the gloving industry, and the National Federation of Women Workers, the Dock Wharf and Riverside Workers' Union, and the General Workers' Union each claim a number of gloveresses among their members.

On the employers' side, there are two important organisations representative of the leather glove trade : The Yeovil and District Glove Manufacturers' Association, embracing over 30 firms established at Yeovil, Stoke-under-Ham, Milborne Port, Sherborne, Martock, Westbury, Taunton and Glastonbury, and the Worcester and District Glove Manufacturers' Association, embracing practically all the firms engaged at Worcester, and one or two drawn from outside that area. In addition to these there is a North Devon Glove Manufacturers' Association. In 1919, a new organisation came into existence embracing practically all makers of fabric gloves. The National Association of Fabric Glove Manufacturers of Great Britain, as it is called, has a membership of about 40 firms representing some 6,000 employees. With it is affiliated the Glove and Warp Fabric Makers' Association of Ilkeston (near Nottingham), representing the fabric knitting branch of the trade.

In 1918 an Interim Industrial Reconstruction Committee for the glove industry was set up on the

lines of the recommendations contained in the report of the Whitley Commission. In this body all the employers' associations and employees' unions connected with the industry are represented, and questions relating to wages, hours and conditions of employment throughout the industry are referred to the committee for discussion. So far the relations of employers and workers have been singularly happy. Disputes have fortunately been rare, whilst the worst evil—strikes—has been conspicuous by its absence. Wage advances during the last four years have been made representing about 150 per cent. above pre-war figures. Latterly, however, it has become increasingly apparent that certain fabric glove manufacturers do not see eye to eye with the manufacturers of leather gloves, nor with those firms producing both classes of articles. Some of the fabric manufacturers contend, possibly with some justice, that the fabric glove being a cheap article in comparison with the leather glove, will not admit of the same high standard of wages as the latter. Recently, the fabric manufacturers' association even went so far as to reject (by a majority vote) a recommendation of the Interim Joint Industrial Council for a $17\frac{1}{2}$ per cent. increase of wages. The decision, however, was not unanimous, and many of the biggest firms manufacturing fabric gloves decided to recognise the award made by the Council. It remains to be seen whether the differences between the two branches of the industry can be composed, or whether the policy of the National Association of Fabric Glove Manufacturers will lead to the disruption of the Interim Industrial Reconstruction Council, in which case it is expected the Government would set up a Trade Board whose orders would have Statutory effect.

This difference of opinion among the manufacturers exemplifies the need for a closer, or at least a more

co-ordinated, organisation throughout the industry. On the employers' side there are still a number of establishments unrepresented in any association, while sectional differences and petty jealousies sometimes prevent the best results accruing from those organisations which do exist. It must be remembered, however, that organisation (in the modern sense) is in its infancy in the glove trade. Possibly the passage of time will show individual firms that although membership of a corporate body does sometimes involve the subordination of individual ideas to the general consensus of opinion, the sacrifices called for are far outweighed by the security and benefits which combination alone can confer.

So, too, on the employees' side, the multiplicity of trade unions connected with the industry—the glove workers in some of them representing but a small minority of the total membership of the unions—does not make for coherent policy or facilitate smooth negotiation. Whether the time will come when the industry will enjoy a single organisation on either side remains to be seen. Such a development is recognised as highly desirable by all progressive leaders of the industry and by many of the more alert organisers among the workers. The scattered locale of the trade, and the strong sectional feelings animating each district and branch, unfortunately militate against the recognition of that general community of interest which is essential if the organisation of the industry is to reach a higher pitch of perfection.

GLOSSARY

Atlas fabric.—Fabric which has been knitted in an Atlas machine

Bandalette.—Another name for the welt or binding sewn round the wrist of the glove to finish the edge Sometimes called a Binding or Welting

Beaming.—The operation of scraping the skins for the removal of hair

Boulton thumb.—In gloves fitted with Boulton thumbs, the trunk or main part of the glove is cut with a strip projecting down towards the inner side of the base of the thumb opening No quirk is then required and a stronger glove is obtained

Cape.—Originally the name of leather made from Cape sheep skins Now applied indiscriminately to sheep and goat skins tanned by the dipping method and given a glaze finish

Chamois.—Originally leather made from the skin of the Chamois or Swiss mountain goat (now practically extinct) The term is to day used for leather made by the "shamoying" process in which fish oil is largely used

Chevette.—Leather produced from young goats

Degrains.—Leather the grain of which has been removed by the frizing or freizing process

Doeskin.—Formerly deerskin or antelope leather, which is now becoming exceedingly rare Sheep skins finished as "chamois" leather are now sometimes sold under this name

Doling.—An alternative process to paring used for thin skins

Drenching.—Skins after liming and puering are immersed in a mixture of flour or meal and water Fermentation ensues, which reduces the skins to a gelatinous condition and facilitates the reception of tanning ingredients

Duplex fabric.—Is produced by causing two separate fabrics to adhere together by means of special solutions involving secret processes

Fleshers.—Sheep-skins are frequently split edgewise, and the half nearest the flesh of the animal is known as a flesher These are used largely for suedes chamois and washable gloves

Fleshing.—A mechanical operation for removing particles of flesh from the skins preparatory to tanning

Fluffing.—Sometimes called "wheeling," is a mechanical process which is rapidly superseding paring The skins instead of being shaved with a knife are ground down on emery or carborundum wheels

Frizing or Freizing.—A method of removing the grain of the skins used for Mocha, reindeer gloves and other degreens

Fourchettes, Forgets or Forks.—The six slender slips of leather used to close the fingers of the glove

Glacé or grain finish.—Gloves finished with the outer side of the skin outwards are said to have a glacé or grain finish

Gussets.—Small pieces of leather of diamond shape used at the junction of the fingers and palm They are sometimes known as "piecettes"

Heart (or protector).—Stay pieces used under the binding of the palm

Kid.—The leather made from kid skins Lamb skin leathers, however, are now often sold as kid

Lisle.—Special fabric knitted from lisle threads made by spinning yarns from two separate strands spun in opposite directions

Milanese.—Fabric knitted in a Milanese machine

Mocha.—Actually the skin of the Arabian haired sheep Other skins are now tanned and finished by special processes and sold as Mocha

Morts.—The skins of abortive lambs or kids Sometimes known as "slinks"

Overseam.—See "Roundseam"

Paring.—The process of planing the flesh side of the skin to a uniform thickness Formerly entirely a hand operation it is now largely being displaced by "wheeling" or "fluffing"

Piqué (P. K.) sewing.—A lapped-seam stitch, used for medium weight gloves

Prix seam (P. R. X. M. or Priek seam).—A sewing passing through the leather, leaving both raw edges exposed A strong sewing, if not neat, used for heavy gloves, more particularly those made for driving

Points.—The decoration on the back of a glove

Puering.—The process by which the skins are softened after liming preparatory to tanning

Quirk.—A gusset or gore sometimes used at the base of the thumb

Roundseam (overseam).—A sewing for light-weight gloves, in which the stitching is carried through the leather and over the edges.

Sac wrist.—Gloves made without a slit at the wrist opening, a strip of elastic being usually let into the glove at the wrist in order to keep the glove in position on the hand

Slinks.—Another name for "Morts" The skins of abortive lambs or kids

Staking.—A hand or machine process for softening harsh dry skins after they have been dried in stoves

Strikers.—Chemical salts used to fix the dyes for colouring leather gloves.

Suède.—Is not actually a distinct leather, but is produced from "flesher" sheep-skins or lamb-skins and finished on the flesh side by means of a wet emery wheel

Suèded fabrics.—Glove fabrics are sometimes passed through special machines in order to brush up a nap on the surface of the cloth to simulate a suède leather effect

Tambour.—A crocheted point

Tawing.—The term applied to the most common method of tanning glove leather with a mixture of alum, salt, flour and egg-yolk

Trank.—The name of the sections of finished leather stretched and cut by the cutters ready to be shaped into gloves

Warp fabric.—Glove fabric is knitted from warps of cotton or silk, as distinct from weft yarns

Wheeling.—Another name for fluffing, the process which is superseding "paring"

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