The Shoemaker and Slippermaker,
P. N. Sprengel's Crafts and Arts in Structured Descriptions, with Copperplates

by Otto Ludwig Hartwig

"Der Schuster und Pantoffelmacher",
P. N. Sprengel's Kuenste und Handwerke in Tabellen, mit Kupfern
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Preface

First published 243 years ago, *Der Schuster und Pantoffelmacher* (The Shoemaker and Slippermaker), translated below, is a detailed, if under illustrated, forty-six page description of boot- and shoemaking written to help would-be apprentices chose a suitable trade. Otto Ludwig Hartwig (b.1740 d.1802) wrote it while serving on the faculty of Berlin's first *Realschule.*[1] His treatise evaluates German, Hungarian, Dutch, Belgian, and English leathers, lists tools, and provides step-by-step instructions for fitting, cutting, making, and finishing five sorts of men's boots. He includes admired English boots, variations and constructions, and describes men's and women's shoes, and slippers, as well as leather firehose making.

Der Schuster und Pantoffelmacher bears no discernable literary relationship to the German, Swiss, French, English, and Italian shoemaking publications circulating in eighteenth-century Europe. Instead of borrowing from these works as others did (many outright plagiarized text and copperplates), Hartwig combed workshops in and around Berlin, interviewing tradesmen for insights and documenting their techniques.

The Realschule's bookshop published *Der Schuster und Pantoffelmacher* in 1775, folding it into the seventeen-volume *P. N. Sprengel's Handwerke und Kuenste en Tabellen mit Krupfern* (P. N. Sprengel's Crafts and Arts in Structured Descriptions with Copperplates). *Der Schuster und Pantofflemacher* nestled in volume thirteen with six other texts on leather trades—from tanning and tawing, to harness- and glove making. Peter Nathanael Sprengel (b.1737 d.1814) was responsible, merely, for the spare texts comprising the first two volumes; Hartwig superintended the rest. *Handwerke und Kuenste* introduces each trade, critically discusses its materials and their sources, listing tools, products, and methods. Each description concludes with a glance at guild requirements for apprentices.

Having translated, edited, and annotated all nine of the contemporary European shoemaking texts for *M. de Garsault's 1767 "Art of the Shoemaker" An Annotated Translation* (Colonial Williamsburg/Texas Tech University: 2009), I find Hartwig remarkable for the glimpse he gives of

Prussian shoemaking. Textual comparisons reveal, for example, how Berlin shoemaking varied in nuanced detail from shoemaking in Saxony, which Daniel Gottfried Schreber described in his *Der Schuster* (The Shoemaker, 1769). Readers may consult the *"Art of the Shoemaker*," especially the glossary, for explanations of difficult terms or expanded details on techniques. To avoid cumbersome footnotes and annotations, my emendations within *Der Schuster und Pantoffelmacher*'s translation are placed in brackets [], and Hartwig's in parenthesis (). Page numbering and sentence and page breaks follow Hartwig's, to ease tracking passages in the original German text —readily available on Google Books and other on-line resources.

Harold B. Gill III made the initial German-English translation for me in 1992 from a microfilm of the edition in the Butler Library at Columbia University in New York, available at the John D. Rockefeller, Jr. Library at the Colonial Williamsburg Foundation. June M. Swann, O.B.E.; Serge Volken of Gentle Craft Shoe Museum, Lausanne, Switzerland; and I revised it extensively since 2008. Where the current translation may vary from the passages excerpted in *"Art of the Shoemaker*," the current translation may be taken as a revision. Gill, who translated ten additional *Handwereke und Kuenste* essays on metal trades, wrote that these texts were designed to help young people select a trade to apprentice to. That might seem a mundane thing today, but Sprengel wrote that in his rapidly changing industrial world, it would be a mistake to think that any well-established system was in place in Prussia to guide making such informed career choices. Hartwig, speaking of his "Enlightened century," provided what Gill called "a textbook worthy of the times, and the result was exceptional." "If nothing else, the novelty" of his "descriptions of processes and products," Gill wrote, might "delight the antiquarian, the historian, the tradesman, or any reader with patience and imagination."

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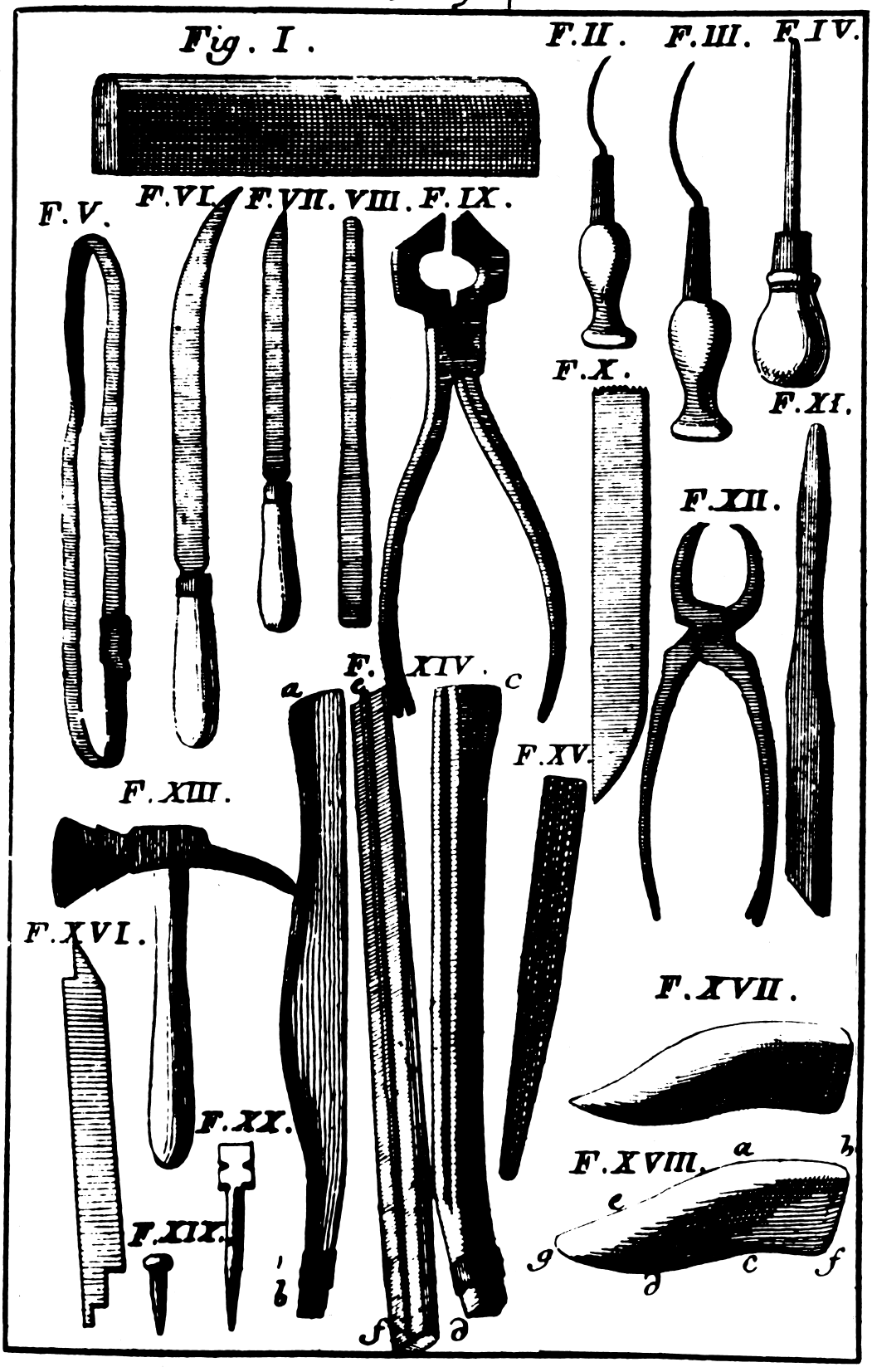
[1] The Economical-mathematical-Realschule, a vocational secondary school teaching practical subjects, the Realschule, founded in 1747, offered instruction paralleling the classic education offered in the German *gymnasiums*. Pupils could study German, French, and Latin, writing, arithmetic, drawing, history, geography, geometry, mechanics, architecture, religion, and ethics. They also could prepare for careers in such business as commercial silkworm breeding, or the manufacture of ninety kinds of leather.

The Translation

Tab. VI. Der Schuster.



"Der Schuster und Pantoffelmacher",
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Section Six:

The shoemaker and the slippermaker stand in the same relation to each other as do the saddler and the harness maker.

The shoemaker may make any of the products of the shoemaker [boots, shoes, firehose], thus he can also make slippers. But, the slippermaker practices only the making of slippers, and he makes no other shoes or boots, except at most, for his personal use. Otherwise, both artisans have identical tools and techniques in their repertoire. I can therefore speak of these two artisans together in one and the same chapter.

I. Leather for Shoes and Boots

The shoemaker, as well as the slippermaker, works with sole leather, upper leather, and finally leather for lining. For all three groups of leather, I must address a few words.

A. The ordinary sole leather in Berlin follows according to firmness. 1) Swine leather

is made from the skin of wild pig. It is particularly durable, but it can only be worked with difficulty. Therefore, because of its stiffness, it must be thrown into warm water to soften it prior to being stitched. It is only used for soles on such boots that are going to be worn in the wet, because, when dry, this leather is too hard and stiff. This also applies to the 2) Liège sole leather. This leather is not only thin, but very dense and durable. Therefore a good sole of this type outlasts the best upper leather. It is tanned from buffalo hides. 3) English sole leather will be employed more often than either of those mentioned above; it is used primarily for boots and shoes that require an especially durable sole. There are two types of this leather; namely the ordinary English sole leather, and butts [double bends]. The latter is the strongest and best. Of little value is 4) Maastricht sole leather. It is almost thicker than the English, but spongy, and therefore occasionally soaks in water when it is not of a good sort, or as the leather worker says, 'from the butts' [double bends]. Nonetheless many shoemakers commend Maastricht leather, because it does not crack as

easily as the English. 5) German sole leather is stronger and denser than the worst English, if it has been well-tanned. I have already mentioned, in the description of the tanner

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(page 65), that English sole leather is also imitated in Germany, and for this reason raw hides from England are imported. 6) Hungarian sole leather, according to the opinion of many shoemakers, can be worse than the German. It is quite thin, hard as a board, and for the latter reason it can only be worn in the wet. In past wars there were frequently shortages of leather in Berlin, in these circumstances this Hungarian leather became well-known in the local area and frequently used. I have already said above (page 64) that it is imitated in Berlin as well. 7) Native cowhide, the shoemakers use for outer soles of turnshoes and for stout insoles. Due to the latter reason it is also called 'cheap' insole leather, as is 8) horsehide. The latter insole leather will only be used for army-contract and market work. This is because it is brittle or, as the shoemaker says 'short', and therefore cracks easily. For this reason it is entirely unsuitable in the wet.

B. Upper leather is divided into calfskin, deerskin, and colored or dyed leather. 1) Above all other types of calfskin the English is superior. Some of this leather comes to us from the London suburb of Southwark, and some from Bristol, therefore one has Southwark and Bristol

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calfskin. It is said that English calfskin is the best of all other similar types of leather, since, as the shoemaker says, it has a good 'draft', or it can stretch-out [and draw back] well in length or breadth. Therefore the bootleg of English calfskin fits well over foot. Moreover, this leather can also be worn comfortably in dry and wet weather, and the English tanner will induce this special draft quality in the currying. In spite of this, not all English calfskin is of equal quality, and the Southwark is not only better but also more expensive than the Bristol. In particular, the former has a much better draft than the Bristol. Following the English, the Maastricht calfskin is next in quality. Indeed this leather is quite inferior to the English, in spite of it often being passed off as English. Among the German calfskins, in the local area, Berlin and Altona calfskins will be particularly employed. Both types are of a similar quality, and formerly one could also get Altona leather during war-time, since local leather supplies were not sufficient. Overall, the local calfskin does not have as good a draft as the English, and it also stretches in the wet, but it is finely grained and strong when it has been well tanned. Sometimes, though rarely, Hanover calf and deerskin will be used in Berlin. 2) The particular

attribute of deerskin is that it is usable in the wet weather, since it is not so easily stretched when wet. It will be curried on the grain, or on the flesh, and in the latter instance it is waxed. English deerskin has the best draft and is stronger. Following this is the Maastricht, and the native, or German, is the worst. Instead of deerskin, sometimes, Russia leather will also be used for army-contract shoes and boots. 3) The colored or dyed leathers will most often be used for women's slippers. First among these is the napped leather of the chamois-type that is either white, or dyed yellow, red, or black. The yellow and red leather of this type is now no longer made in Berlin, since it is seldom sought. The shoemaker uses the white napped leather, etc., for running and dancing shoes. The latter shoe will be soled with chamois-dressed strong ox hide [oil-dressed buff leather]. The napped black calfskin of the chamois type [oil-dressed] is sought most often, since it is similar to the black napped cordwain, and therefore will frequently be worn by women and men for black shoes and slippers, as well as boots. There is also white-tawed calfskin, which is dyed and painted on the grain with all common colors, and in the past was worn by women for shoes. The stuff [textile] shoes

produced for some time have put this leather out of fashion. It is no longer made in Berlin. For this same reason, morocco leather is rarely used for women's shoes today, but more commonly for slippers, and for boots for the Hussar officers. It is well-known that one has red, green, yellow, and blue morocco leather, but the yellow, and the best red is most sought after. Just as well-known is that the Turkish morocco leather is the best, but instead of this the local product is often pushed. This also applies to the cordwain, that is worn either with the grain or the flesh outward. Some grain cordwain is white and some buff, and the latter has a resemblance to the fine grained calfskin, but it is finer. When cordwain is blacked on the flesh, then one calls it 'rough black' [*rauhschwarze*] cordwain. Of this type there are also two varieties. The normal type is blacker than the so-called genuine cordwain, instead of this rough black [*rauhschwarze*] cordwain, the black napped calfskin mentioned above may be substituted. I have also seen fine grained calfskin myself, that like the fine grained cordwain, is made white with the currier's glass sleeker. Cordwain as well as morocco leather both have the drawback that they crack easily, since they receive too little fat during currying. For linings, the shoemaker also uses white-tawed and

tanned sheepskin [basil], the latter especially for slippers.

II. About the Tools.

I will name the tools in the current section one after another, since I find this an opportunity to attach many provisional comments that would disrupt the coherence of the text that follows.

The shoemaker and the slippermaker click the upper leather on a work- or lapboard that, as with the saddler, must be made from soft and at the same time smooth, lime wood, so that the knife will not damage it during the clicking. He cuts during this operation with a straight knife [*messer*], or 1) knife [*knief*] (plate VI, figure VII) that is forged by the edge-tool-maker and fixed into a cheap wooden handle. With this straight knife he cuts leather in all ordinary circumstances. He only cuts the wooden heel of the women's shoe with a curved knife (figure VI), not bent on the cutting edge or in the back, but curved on the side of the blade. He strokes this knife on a round sharpening steel (figure VIII) if it becomes a little dull. But, if they are very dull, he must grind them on a grind- or whetstone, and afterward stroke them on the steel as well. 2) If he sews two pieces of leather together after the clicking,

then he lays both pieces together on a half-round closing block (figure I) in such a manner that the edges that are to be sewn butt together, and clamps them together with a stirrup (figure V). The stirrup is a strap that can be shortened or lengthened by means of a buckle according to the distance to the foot of the person using it. The shoemaker lays the closing block on his thigh during the clamping-together, lays the two pieces of leather over the block, and then over these the end of the stirrup. Through the other end of the stirrup he places his left foot, and in this manner tightly holds both the pieces of leather together on the closing block. In general, during the sewing he tightly holds each piece of leather, or the whole shoe as well, on his thigh with the stirrup. Similarly, if he is not clamping together two pieces of leather, he therefore does not require the closing block. He sews from both sides with a white or black waxed end, and usually sews with a specific size awl. Of all these things I must speak circumstantially. When the shoemaker sews together two pieces of upper leather, or when he sews a dainty seam, then he always uses a white thread. The shoemaker makes this waxed end from bleached linen yarns that he lays together free-hand, from six to eight strands according to how strong the thread is. He twists the thread on his thigh, rolling it a little with his hand, then

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pulls it through a ring that is fastened to the wall of his workshop for convenience, and he coats it with masheen. Finally a boar bristle must be attached to each end, so that he can easily poke the waxed end through the holes pierced by the awl. The shoemaker splits the tail of a bristle into two halves, and twists one half together with the taw of the thread. Then he turns the other half of the bristle's tail and the taw of the aforementioned thread opposite, and winds both together by themselves through twisting. Finally the shoemaker pierces with the awl one or more holes in the thread below the twisted-on bristle, and pulls the tip of the twisted-on bristle through this hole. Thus, the bristle will now be strongly locked onto the taw of the thread. Also, on each end of the black waxed end, the shoemaker must also twist on a bristle after he has coated it with shoemakers' wax. With this black, or yellowy-brown, waxed end the shoemaker sews all the seams that must be especially strong, particularly in the soles and heel. Such a thread will be made from strong hemp yarns, and its strength and thickness depends on the size and character of the shoe or boot. Usually it is ten to twelve stands thick. The shoemaker understands the art of

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'skeinning' or winding the hemp yarns so skillfully around the five fingers of his left hand that a long waxed end results of the required thickness. Seeing this done can give a better understanding than a written description. The shoemaker twists them together as well, rolling the whole on his thigh; pulls it through the aforementioned ring; coats it with the so-called yellowy-brown wax, and wipes it smooth with a wiping rag. For a wiping rag he uses either a piece of an old fishing net, or in want of this, old twisted thrums [*litzen*] from the shaft of the weaver's comb. Finally a boar bristle will be twisted on each end. At this point I must linger a bit over the yellowy-brown shoemakers' wax, mentioned above. Just as the melted pitch, or the tar from the pitch-heater furnace, can be used only on occasion by the saddler and the harness maker, or by the shoemaker, because it is too brittle, he must therefore make it malleable by the following means. The leatherworker melts the hard pitch over a coal fire and adds fat, or tallow, or trayne [whale] oil to it to suit, by which the pitch becomes soft. He pours the molten mixture of pitch and fat in cold water so that it cools and can be handled without injury. Therefore, the shoemaker also moves the poured shoemakers' wax around in the water with his hands until he can hold it without discomfort. This is because he must pull and tug it with his hands, and this must happen as soon as the shoemakers' wax can be handled

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with bare hands. The shoemakers' wax will become softer and more yellowy colored from this. Finally the shoemakers' wax will be rolled into individual balls for use. The saddler and the harnessmaker color their wax black simply with rust during the melting. I have already mentioned the awl often in the foregoing text, with which the shoemaker pierces when he sews with a wax end. Usually the shoemakers' awl is curved, and it is fastened tightly into a turned wooden haft. The size and thickness of the awl must be in proportion to the stoutness of the waxed end each time. Because this is not consistently the same thickness, the shoemaker must have a number of awls of various sizes and thicknesses. The finest and thinnest is the closing awl (figure II), with which the shoemaker sews the uppers. Of middling thickness and size is the sewing awl for sewing [inseaming], and larger yet the stitching awl for sole stitching. Finally the heel awl (figure III) is the largest of all. The following text will make the use of these awls more comprehensible. The awls named here are all curved, only the 'spindle' or pegging-awl (figure IV) must be straight. This is because one drives holes in the heel with this awl with a hammer, into which wooden pegs will be pounded. All of these awls have a steel point, that when dull

must be ground on a grindstone. Usually, nowadays, the shoemaker sews with the help of an awl, nevertheless he also sews sometimes with the two-edged harness, or tailors' needle, that was described in the previous section. With this, particularly, the side linings of the shoes and boots will be whip-stitched with the aid of white thread, or as the shoemaker expresses himself, 'whipped.' 3) An important utensil of the shoemaker is the familiar last. The last for a boot or shoe varies only in the aspect of the back part (figure XVIII a, b). This is because the last for a boot has a thicker back part than that of a shoe. This back part must be thick for the boot last, since with the boot an after leather [heel lining] will be placed around the heel of the last. On the other hand, the quarter of a shoe fits closely to the foot, and therefore the back part of the shoe last must be narrow. The last for the men's shoe (figure XVIII), and the women's (figure XVII)**,** vary only in the aspect of fashion. A last for a slipper with a quarter is like a shoe last, on the other hand a last for a slipper without quarters can be thicker in the back part. The shoemaker defines the length of a last for the shoe of an adult person according to size. One size is about eight *lignes* long [approximately 11/16"]. The shortest last is six sizes, the longest fourteen.

It happens sometimes that the last for a very long shoe must be longer than fourteen sizes. There are specialists in Berlin who make lasts, and moreover there are shoemakers who have gained some practice in this. First they hew the last in the rough from beech with a hatchet, and then dress it with a carving knife

that resembles the knife which is used to cut hands of tobacco. Finally the last will be smoothed with a rasp and glass. 4) Over the last, the shoemaker stretches the upper leather with toothed pincers (figure IX). These pincers do not have smooth jaws as usual, but instead have thick flat jaws. This is because where the two jaws meet they have teeth or grooves, that is notches, and this is necessary so that the pincers can grip the leather very tightly during the lasting. Additionally, the shoemaker has ordinary nippers with which he pulls out nails and tacks. 5) The seams must be tapped flat and the softened sole leather will be beaten out prior to the stitching, and both are done with the hammer (figure XIII). For beating out the sole the shoemaker places it on the smooth surface of a hard field stone that he calls the lapstone. The lapstone lies on both thighs of the shoemaker during this operation. 6) During the finishing of fine work, the shoemaker uses the following tools. Wooden shoulder sticks

(figure XVI) have notches on either end with which the edges of the soles will be burnished smooth. The scratch bone (figure X) commonly has a notch across the width of the bottom end, with which the sole edge along the heel breast of the women's shoe will be burnished. On the other end are a series of teeth that are also shown on the scratch bone (figure X) above. With this toothed end the white stitching of the men's and women's shoes will be scraped clean, since the white stitches commonly become dirty during the work. With a rasp (figure XV) the shoemaker rasps the stitched soles, and with the long stick (figure XI), a round rod of plum wood, he burnishes it smooth and white. The rasp mentioned above has [four] various half-round and flat faces, and each face has a fine or coarse cut, as do the others. The artisan can thus get at all areas with one and the same rasp, and rasp the leather coarse or finely. 7) To the legs of various boots the shoemaker give a pleasing shape with the boot tree (figure XIV). Basically, the boot tree is a wooden leg that is divided along its length into two halves. The half (a, b) is the calf and (c, d) represents the shin. Both wooden pieces will be inserted into the bootleg and in-between a wooden key (e, f) will be driven in,

by which means the boot is stretched, and at the same time acquires the shape of the boot tree. Well-equipped shoemakers have boot trees for large and small boots. The shoemaker also has 8) a press. It is built just like the previous copperplate shows (plate V, figure XXXIV), similar to a book binder's press except that the plates are broader. With this press, the shoemaker presses the stuck heels for the shoes and boots. Leather heels can be made in two ways. For the cheaper type, the shoemaker cuts and stacks from so-called 'heel cake' [laminated scraps and fleshings]. The leather cutter, of whom I have spoken previously at the end of the tanner's section (page 58), takes the smallest leather scraps of the tanner, casts all into a

mold of a square cake, and lets these dry. However, all heels cut from this cake have little durability, and therefore will rarely be used except for market and army-contract work. Stronger are those heels that are stuck together from whole lifts of leather; however, with these heels a deceit proceeds. This is due to the fact that sometimes one solid piece of leather is used only for the top piece and split lift of the heel, and the middle lifts are assembled from many smaller pieces of leather. Collected for this purpose is every scrap of leather made during the clicking and making. One can easily perceive that these small pieces easily come apart,

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by which reason this heel is at least uneven, if not spoiled. If the shoemaker trades honorably, then he uses a whole lift, or at least a pair of large pieces of leather, for each layer of the heel. Nevertheless he can use scraps of every type of leather in this, except very small pieces. In the making of a heel the shoemaker cuts a half-round piece of leather or, at best, a couple, according to the consistency of the size of the heel. He then coats this on one side with pitchbarm or, when this is lacking, with paste, and lays two lifts together. These are cut according to the size of the first lift, and he proceeds to paste all the lifts of the heel together over one another. He presses a built-heel together more densely and tightly in the press mentioned above. The aforementioned pitchbarm [*pechbaerme*], or as one says in Berlin '*Pichbaerme*', is nothing other than the first viscous barm that is taken off of wheat beer when this is held in casks. It binds strongly and will therefore be used advantageously by shoemakers, rather than paste, in towns where wheat beer is brewed. This applies also to the Berlin shoemaker. If no wheat beer is brewed in a town; however, then the shoemaker uses a paste or a *Pappe* **[**paste**]** instead**.** He throws some yellow-pitch into boiling water, and, when it is melted, he stirs rye meal into the water and

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lets the paste grow cold. The Berlin shoemakers sometimes paste up heels themselves, commonly they save time and effort by buying the heels from such people who regularly supply them with pasted heels.

This introduction can now remarkably shorten the description of how the shoemaker makes shoes and boots.

III. Making of Boots, Shoes, and Slippers.

A. Boots

Boots will normally be made either from calfskin of from deerskin. The ordinary light boots of English and German calfskin commonly have the grain outward. The shoemaker receives the German grain calfskin already blackened, and he cuts one bootleg from each skin. The deerskin boots, commonly worn in the wet, may have the grain or the flesh out. In both cases the shoemaker receives russet deerskin from the tanner, and when it is to be made into grain boots, then he either blackens the grain himself or he leaves this up to the leather cutter. If he wants to make the heaviest boots from deerskin, however, he waxes the leather himself, on either side, especially on the flesh. Aside from these typical

and well-known boots, today, the so-called English 'draw-boots' [*zugstiefeln*] of curried calfskin are frequently worn, as well. The shoemaker gets the bootlegs for these boots from England ready-cut, and they are so well-curried in advance in that country, that from the heel to the calf they fit closely from the calf down to the foot. Usually these bootlegs are waxed, but they are also sometimes worn grain out. From the following description of the making of a boot I will be referring to the grain boot in each instance, and finally I will give notice to the differences relating to the waxed boots, also known as jackboots. For the best boots, the shoemaker cuts according to measurements [bespoke] each time, which he takes from the right foot of the future owner of the boots. He normally takes the measurements with a doubled strip of common paper, or with a single strip of stiff paper. First he measures the distance up the inside of the right leg, and begins to measure from just above the calf where the boot straps will be sewn on, down to the sole of the foot. He further measures the girth of the foot around the heel, or in circumference at (figure XVIII a, f), and finally the girth of the calf. According to these three measurements he adjusts the cut of the bootlegs. Now, in order to cut the vamp of the boot to the required size as well, he thus measures the length of the foot

(f, g) from the rear-most part of the heel up to the tip of the longest toe, as well as the circumference of the foot in girth (a, c), and finally around the ball (e, d). The shoemaker can easily survey at once, however, when he measures the length (f, g) of the foot, if the longest toe is bent and the stocking hides this. Therefore a few shoemakers have a wooden size stick, with which they simply measure the length of the foot. This is two equally long wooden rules, or rectangular slabs, joined to each other in such a manner they form a wooden shell and can be pulled from one another, and thereby can be lengthened or shortened according to the circumstances. Over each rule there is an upright. The shoemaker places this device under the sole of the foot, and slides the rules in such a manner that one upright touches the back of the heel, and the other

upright touches the tip of the longest toe. On the rule are lines or marks, and the tip of the other rule indicates how many sizes the foot is long. The shoemaker measures the length of the foot and at the same time the last according to the sizes shown above (page 223).

According to the measurements the shoemaker now seeks out a boot last (figure XVIII), and if he cannot find any that have the required girth in circumference, he then lays a few fittings of leather on and enlarges it by this means. Indeed every time at least one piece

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of leather [shover] at (a) on a boot last, the reason for which will be shown below. Commonly each foot of a pair of boots will be made on one and the same last; it is for this reason that the shoemaker has two identical mated lasts [a pair of straights]. For his regular customers, however, he sometimes has pairs of lasts on hand. From this is now seen that a shoemaker must have a great number of lasts of all types.

At this point the shoemaker can click the boots, and he begins with the bootleg. In clicking, he is certainly guided by the measurements; meanwhile he also has a paper pattern for the bootleg, as well as the boot vamp, as for an actual shoe. This pattern enables him to give suitable proportions to the outline of the leather for clicking all the parts. With the bootleg he always cuts the leather while folded in half, and this also pertains to the vamp of the shoe. According to the first cut half the second will be cut, and according to one bootleg the boot tongue will be cut, and according to the bootleg the vamp of the boot. Since he cuts this way, for example, the calf of the bootleg in halves, he applies the calf girth measurement in such a way that he creates two equally overlapping halves, and this he defines by using half the circumference of the customer's leg at the calf.

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Thus he proceeds with all the other points of the bootleg, as well as the leather vamps. First he measures the length of the bootleg up to the straps, and allows beyond this a span for the top. Then he measures on the leather below the tongue from the heel to top (Figure XVIII a, f) and cuts the leather either narrower or broader according to the measurements, and according to the paper pattern laid on at the point. Above this tongue the bootleg must be nearly full up to measure. A little reduction can be made, since the leather stretches-out [then draws back] when pulling the boot on. Finally the shoemaker measures out the leather to the dimensions of the calf, where he must cut full up to measure without any reduction or excess. This is because the boot must fit closest here. In this measuring, the given length is indicated and a pattern laid on the spot where he must apply each measurement. His eye soon tells him when he first measured, how much

he must take off or add cutting to the pattern laid on. After this the shoemaker now cuts the bootleg with a straight knife (figure VII). In the cutting of the leather for the vamp, the shoemaker must take into consideration the width of the sole. This is because, in taking the measurements, he has measured around the entire circumference of the foot including the underside, as well as in the instep

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(figure XVIII a,c) and the joints (e, d), and this measure must be divided into the uppers leather and the sole. Therefore he measures the width of the sole under the last at (c) as well as at (d), deducting this width from the instep and the joint girth measurements taken, and according to the remainder, he cuts the boot vamp. Meanwhile he must cut the vamp a bit wider than the remainder of the girth measure mentioned, since the boot vamp and the insole must be sewn together as the following text shows. The paper pattern will again be used in clicking the halves, and therefore first one, and then the other half of the leather is cut, namely the halves reckoned according the girth. Finally a tongue will be cut to the boot vamp, or the excess upper at (figure XVIII a,c) where the boot vamp is closed into the bootleg. This tongue of the boot vamp will, as the shoemaker says, be 'let-in' to the bootleg; or to put it more plainly, to accommodate the tongue a piece will be cut out of the bootleg so that the tongue of the boot vamp fits precisely into this notch in the bootleg. The shoemaker lays the tongue of the boot vamp carefully over the leg of the boot, pinches it in a little bit so that it comes to lie properly [so it will be wider than the resulting notch when flattened back out] and cuts the bootleg tongue notch according to the outline of the [pinched] tongue of the boot vamp.

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After the clicking, both the boot straps will be sewn into their positions on each bootleg with white thread; they are either made of strong leather or of wide tape. When this is done each bootleg will be closed with a white waxed end using a closing awl (figure II). This is not only to close the bootleg up the back, but also for sewing the tongue of the boot vamp into the bootleg. Commonly one sews both together with a [round closed] seam [inside] on the flesh, and only [flesh out] boots for common people will be sewn with a visible [round closed outside] seam. The thread as well as the awl for closing is very fine, and each time, when sewing, the shoemaker pierces with the awl, he sews with doubled-ended threads. Particularly, when he has pierced a hole with the awl, then he places the boars' bristle on the right side, and the left one at the same time with his left hand, then the bristle of the other half of the thread goes through, and he pulls in both threads at the same time. In the closing, not only will the bootleg be clamped together on the closing block (figure I) with the stirrup (figure V), described above (Page 219), when he wants to close it up the

back, but the bootleg and the boot tongue will also be clamped together when the shoemaker wants to sew both of these pieces of the upper.

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After the closing, an underlining or side lining must be whipped in, that is, sewn inside along the bottom edge of the foot of the boot with white thread, with a twin-edged, cutting, or leather needle. In this case the shoemaker sews, as can easily be surmised, with only a one-ended thread, and he sews overcasting because he continually overstitches over the edge of the side lining. This side lining will be put in for durability, since at this place a portion of the upper leather of the boot vamp is sewn together with the insole, adjacent the outsole will be stitched on. With the strongest deerskin boots this side lining is omitted, but never with calfskin. This side lining goes around the whole boot vamp, except the toe. Next, to the bottom edge of the bootleg the shoemaker sews in an after leather [heel lining] of cowhide, or thin sole leather, with a white or yellowy-brown waxed thread, either using a cutting needle or simply a fine awl. This after leather surrounds the back part (a, b, f, c) of the last in the following text. The shoemaker sews this after leather on the inside; and on the outside, at the same time, a spur-block or spur-rest will be affixed, but these frequently fall off. This strong and doubled leather piece must be stitched on with two white threads, in nearly the same manner as the stitching described above (page 234).

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All of this the shoemaker could still do on both boots without the help of the last, but now the boot vamp and the lower part of the bootleg must be stretched over the last (figure XVIII), so that the foot and heel assume their requisite size and shape. First the insole is tacked under the last. The insole must be ‘cheap’ and of cowhide for the bespoke boots; with the cheapest market or army-contract work they are only of horsehide, which is penetrated by the wet. I have stated that the insoles will be blocked. This trade term derives from the fact that the shoemaker tacks this sole onto the last with iron nails that he calls blocking tacks (figure XIX). The nail, or blocking tack itself, as well as its head is round; the latter is sometimes thick and flat on top, and each tack is one inch long. Of these common tacks the stout heel tacks are different, of which I will comment upon further below (page 240). Then a piece of insole leather is tacked under the last so it can be cut to follow the last itself, corresponding to its dimensions, with a straight knife (figure VII). During the blocking of the insole the shoemaker tugs the leather with the lasting pincers (figure IX), this is also the tool he uses when he tacks the upper leather of the foot, adjacent to the lower part of the bootleg, to the last.

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He pulls the leather, with the aforementioned lasting pincers, so that it forms no folds or wrinkles. In lasting the uppers, he lays them as required over the last, pulling without tacking; then stretching them completely around the last with the lasting pincers, fastening them tightly under the last with tacks.

The foot of the boot will now be sewed, since the shoemaker always sews the insole and upper together. He sews in this case with a double-ended, black, and strong waxed end, in the same manner as has been illustrated for closing. He uses here, as he will every time in the following text, not the closing block, because he does not require it to position the parts together because they are already tacked together next to each other on the last; but instead the lasted foot of the boot lies on his thigh and he holds it tightly with the stirrup (figure V). He sews with a middling sized sewing awl while inseaming. Once the foot is sewed, he then cuts off with a knife the superfluous upper leather all around the sewing around the insole.

In the meantime, while the shoemaker is sewing the foot of the boot, he softens the outer sole to some degree in water. For this and all similar occurrences, a pail of water is kept under the low work-bench or the work-table in front of which the shoemaker sits

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working on a low stool. Particularly the outer sole must the beaten out on a lapstone with a hammer (figure XIII), by which action it becomes denser and more compact. I have established the basis of the preceding description, so far, as if the boot will get a ‘triple-stitched’ outer sole [channel-stitched, no welt], and I will now pause on this subject. Below, I will show with shoes, how the outsole of welted boots and shoes will be attached. I do not know the origin of why the shoemaker uses the name ‘triple-stitched’ outer sole in the common vernacular, since this sole will only be stitched one single time. Perhaps this sole was stitched three times when they were first introduced in fashion, and I recall having seen outer soles stitched two times [double channels], since the shoemaker first pierced without stitching and with a single seam, and next with an ordinary strong seam [false double channels?]. I have not seen this in Berlin, but rather in a medium-sized town. In Berlin the outer sole will be tacked onto the insole with tacks, and will be edge-trimmed up to the last as necessary with a knife. After tacking on the shoemaker makes a rough channel with the knife around the whole perimeter of the outer sole, a small distance in, and in this channel the thread lies on the exterior of the shoe. Once the outer sole is

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stitched on, in the following text, then the shoemaker hammers the leather of the outer sole again, and by this means hides the thread [closed the channel]. This slit or channel is omitted, however, when the outer

sole will be stitched in the English style, as I will illustrate below. At the heel seat, the outer sole of 'triple-stitched' boots will be sole stitched, or through-stitched, with a somewhat thick awl and a double-ended black waxed end. Particularly, the outer sole will be stitched at the spot mentioned [heel seat] with a strong double-ended waxed end. Since half of each stitch of the waxed end is inside of the boot below the heel seat, the other comes to lie on the outer sole. The shoemaker just stitches the outer sole here, around the entire perimeter of the heel seat, in such a manner that the heel will cover these stitches. From this entire description, it is obvious that the shoemaker takes the last out of boot before stitching the outer sole, the outer sole must be fastened with tacks alone to the insole. When he has cut the channel in the outer sole, he then pulls the aforementioned tacks out, and drives them into the channel in such a manner that they pierce through the outer sole, and only their points penetrate the insole. If necessary he also fastens the outer sole with two small pointed iron screws. One screw will be screwed into the outer sole at the toe, and another at the heel seat. Now,

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one can pull the last out much more easily, because a piece of strong cord is knotted through the hole in the back part. It is also easy, partly, because at least one or two leather shovers lie on the instep (figure XVIII a). The shoemaker pulls these shovers out first; he then pulls the last out with the cord without particular trouble. In the sole stitching he stitches exactly as I have shown with the stitching of heel seat. After the sole stitching the last will be replaced into the foot of the boot, and driven in with the aid of a rod and hammer. The reason for this is that now the heel of the boot must be attached, and therefore the shoemaker must first sole stitch the outer sole so that it is attached to the upper and insole around the heel seat, then the heel can likewise be through-stitched onto the attached outer sole. The shoemaker fastens the heel with a large heel tack (figure XX), which he drives through the middle of the heel up into the last. Such a heel tack is several inches long and proportionately thick. It has a long rectangular head that is notched in the center, and in this notch the shoemaker grips the tack with the nippers (Figure XII) when he wants to pull it out again. While stitching the heel to the outer sole, he stitches with the largest awl, for this reason it bears the name heel awl (figure III)**,** and stitches the heel with a particularly strong, black, double-ended waxed end.

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The heel tack will be pulled out again after the stitching of the heel, which will be topped with two lifts of sole leather. The shoemaker fastens two lifts of sole leather onto the heel; afterwards he drives in the aforementioned heel tacks in the center, and trims these lifts to the outline of the heel. Additionally, he

drives evenly spaced holes in the heel, though the leather lifts, around their border with the ‘spindle’, or pegging awl (figure IV) and hammer. Into each hole he then drives a cut peg of birch or alder wood, pulls the heel tacks out, drives a peg in those holes as well, and cuts the pegs off flush with the leather. Finally, he trims around the entire perimeter of the heel with a curved knife (figure VI). Now the outer sole can be sole stitched, and the shoemaker must again, therefore, pull the last out of the boot. In doing this he stitches with a strong, black, waxed end, and with a large stitching awl. For each stitch of this seam one thread comes to lie on the inside of the shoe, the other comes through to lie in the aforementioned channel of the outer sole. From such established circumstances the shoemaker, as is easily guessed, cannot see the hole pierced by the awl inside of the boot, and therefore also cannot poke the bristle of the inner thread through.

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For this reason he must very tediously stitch in the following manner [stitch drawing]. Through every stitch hole he places just the bristle of the outer thread through, and pulls the thread through the interior of the boot far enough until it projects out of the bootleg a little. Through this same portion of the thread he pierces with the awl at a little distance from the bristle, a hole, and through this hole he places the bristle of the second, inner portion of thread. This bristle of the second portion of the thread he pulls with the first thread back to the outside through the stitch hole, and when he has pulled the bristle out of the hole in the first portion of thread, and then he can pull both threads in tight. The entire sole will now be through-stitched at each stitch of the ordinary ‘triple-stitched’ outer sole. I have already called to mind, previously, that the outer sole can also be stitched English-style, or ‘aloft’, and in this case no channels will be made in the outer sole. The thread thus lies on the outer sole totally exposed, but it is in turn thicker and it will be stitched more finely than for the former sole stitching. All the rest with this English-style of stitching is in accord with the previously described stitching. Outer soles that will be stitched English-style last longer, but they are more expensive. Therefore, typically, only good English leather outer soles of this type will be stitched aloft.

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The boot is now finished to the point that only the heel and the sole edges need to be blackened and finished. The shoemaker says that he puts the boot ‘in the black’ when he blackens the heel and the edge of the outer sole. He mixes lampblack and iron black, and then with this he paints both the edge of heel and of the outer sole with a brush. The iron black is also made in the workshop when the shoemaker pours small beer on rusted iron, and lets this lie on the iron for at least eight days. When the blackened heel and edge is dry, then the shoemaker coats both with wax, for which he can simply use yellow [bees] wax, but it is better

if he melts the wax before using it, mixes in some lampblack with it while it is molten. The reason for this is that the heel, particularly, will soon redden if one has merely coated it over with yellow wax. The shoemaker applies the wax with a rubbing stone of [heated?] sandstone, for which he uses a piece of old whetstone. Next the sole edge and heel will be buffed with a piece of calfskin or better yet a piece of sheepskin, since this buffs the heel smoother and brighter. Finally the heel and sole edge will be buffed with an old wool, or better still a silk stocking makes it shinier. The roughness on the sole he smooths with the rasp (figure XV), and with

the sharp edge of a piece of glass. He will also scrape the leather heel lifts smooth, burnishing with a long stick (figure XI) after he has wetted the leather a little with water for this purpose. Finally the shoemaker drives the boot tree into the boot (figure XIV) again, in the manner described above (page 225). If in doing this he only intends to give the bootleg a good appearance, without stretching it, then this treeing is harmless. But, if he has cut the bootleg too narrow and wants to overstretch it on the tree, then the boot will be stretched out too violently by this and not last long. And thus both boots that belong to a pair of grain boots are now finished by the shoemaker.

The shoemaker similarly makes so-called jackboots, and they differ from grain boots merely in the manner of the waxing. Jackboots are either shiny or dull. The shoemaker waxes the matte, dull, boots in the following manner. He melts tallow, a bit less wax [presumably beeswax], and lamp black together, coats or waxes the bootleg and foot of the boot on the flesh with this, with the help of a rolled-up piece of felt, and holds the leather over a coal fire so that the wax melts or draws in. Thus will the bootleg and the foot be waxed, after the clicking, [closing], and after the shoemaker makes it in the manner described above. Once made, the shoemaker then

puts it on the boot tree (figure XIV) and waxes it a second time, but not as before with warm wax, but with cold; otherwise with the same wax. During this second waxing on the boot tree, he rubs it smooth with a long stick (figure XI). The riding or cavalry boot, either with or without wax melted in, gets, in addition, a top of stiff leather. Otherwise the bootleg will be waxed as before. The so-called shiny or English-style jackboot must never be waxed with greasy material after clicking, since the grease will not accept the English polish. Therefore, the shoemaker blackens the boots, also on the flesh, either just with iron black

or with pure molten wax [presumably beeswax] mixed with lampblack. Afterward, the boot is made, put on the boot tree (figure XIV), and waxed as before with cold shiny English polish; and burnished with the long stick (figure XI). With the English polish, whose method is not completely known at this time, the wax must be the most important ingredient. To this is added a bit of lampblack and sweet oil, such as spikenard oil. A few add gum Arabic, sugar, and the like. Thus, as stated, it cannot be reliably said at this time what exactly is in this English polish.

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B. The Shoe

In most cases the shoe will be made like the foot of the boot, and therefore I ought only to describe the differences. In a similar way, the women's shoe only differs from the men's in that the latter usually has a leather heel, the former wooden heel. I speak first of the man's shoe, and then of the shoes for women.

The shoemaker takes measurements for the shoe in just the way he did before for the foot of the boot, but the clicking of the uppers is a bit different. The uppers for a shoe have two essential parts, the forepart, or vamp, and the quarters. The quarters are first long, and then short, as the fashion of each period dictates. Before the clicking the shoemaker finds a last with the guidance of his measurements, and cuts the vamp to this with the help of the measurements and a pattern, just as he does for the foot of the boot. Likewise, according to the given length of the foot he cuts first one quarter, and following this the second; but during the clicking the grain of both quarters are outward and thus the flesh sides are turned against each other. The dogleg seam of both quarters, with the vamp wings, or as the shoemaker says, the 'side seam', will be cut into the vamp according to the dimensions of the already cut dogleg in the

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quarter. The shoemaker folds the vamp in half along its length, places one quarter on it as required, and determines with the last on the vamp and the quarter whether both have the necessary lengths, as he lays them together. If both are still too long according to the measure of the last, he then moves the quarter further forward along the rear of the vamp. If it is too short, then he moves it backward and finally cuts out the side seam of the vamp wing with a knife according the quarter. Following the first clicked upper of one shoe, he cuts its mate.

After the clicking the upper will be closed, since the shoemaker first sews both of the quarters together [back seam], and then sews this together with the vamp [side seam]. He sews, in this case, as with a boot, with a white thread and an inside seam. The insole will be tacked onto the last adjacent to the upper,

and the shoe will be completed just as was previously done for the foot of the boot when it is to be, specifically, a ‘triple-stitched’ shoe, or more precisely when the shoe will have a ‘triple-stitched’ outer sole. I have promised before to speak of the welted shoes and boots, and I want to illustrate this with a welted shoe, since the outer sole of the welted boot is attached exactly the same as the welted shoes. It will namely be sewn in this case, with a welt, that is, a strip of cow or steer hide is added when

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the shoemaker sews the upper together with the insole. Around the heel of the shoe a separate heel rand will be sewed on as well, and in just the same manner as the foregoing welt. This heel rand the shoemaker attaches following around the insole, and braces the leftover loose portion of the heel rand together with a thread [under the insole]. This is the same way he sews the entire forepart rand of the women’s shoe, when the outer sole of this shoe is to be stitched with white thread [forepart rand]. When the forepart rand has been sewn completely in the foregoing manner, then the shoemaker tacks the outer sole on, as in the man’s shoe, and stitches it to the forepart rand, or just up to it, since the heel still needs to be fastened on. In this situation he says he has ‘stitched’ the outer sole, or similarly, that he has ‘single-row stitched’ or ‘outsole-stitched’, this is done with a strong, black, waxed end. Following this he cuts the outer sole and the welt, marks it with the awl where the heel is to be sewn on [heel breast], and places the shank piece, an old piece of leather or else a thin piece of wood. This shank piece lies partially under the outer sole, and partially under the heel. Finally the outer sole, as well as the heel, will be sewn to the heel rand with a strong, black waxed end. Afterward the shoemaker sews, on this occasion, not completely through [through-stitched], as occurred above with the heel of the [‘triple-stitched’] boot. All the rest will be done just the same with the welted shoe as

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with the ‘triple-stitched’ shoes. Thus common welted shoes are made. One has shoes with an ‘English’ heel rand as well, however. This varies from the former only in that it is very fine where the other is, on the contrary, broad and large. Specifically the shoemaker stitches the former type of heel rand, of very firm leather, and stitches it so that the stitches lie on the [outer folded] edge of the heel rand; however, when the outer sole of the ordinary welted shoe is stitched, or ‘sole-stitched’, then the stitches do not come to lie on the edge [as on a rand] but on top [of the welt], rather back from the edge of the welt along the upper. It follows that the welt sticks out much. Aside from the ‘triple-stitched’ shoes, welted, and randed shoes, the shoemaker makes turnshoes. As soon as the uppers are closed, that is sewn together; the shoemaker then tacks a separate thin outer sole onto the last and trims it as necessary. In just this manner

as well he lasts and tacks the uppers onto the last, but turned so that the flesh is outward. He sews the outer sole to the upper, but only from the heel breast around the forepart. After sewing around, he pulls all the tacks out, except one at the very tip of the toe of the shoe, and turns the shoe, that is, he slips it from the last in such a manner that now the grain of the upper come to be on the outside.

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He then coats the bottom of an insole with pitchbarm, shoves it into the shoe attached to the last, merely sticking it into the shoe in this way, and [stuck] only under the vamp. This is because in the back part or heel seat, he will, as in all other shoes stitch or sew, since the outer sole at this spot is not yet attached, as will be clarified in the text below. In the sewing of the insole a heel rand will be sewn in with the quarters [and the insole] at the same time, as was done before with the welted shoes, and to this heel rand the shoemaker sews or stitches through the outer sole. Finally, he sews the heel to the heel rand and the outer sole simultaneously, and finishes the shoe like all other shoes. A shoe may be 'triple-stitched', turned, welted, or randed, and he must finally blacken the edges and the heel and finish it off. All of this I have already illustrated with the boots, and I only want to add a few further remarks that will only be found on the finest and most elaborate shoes. First, among the shoes in the current fashion, a border of white stitches will be sewn around the heel cover at the base of the quarters. The shoemaker stitches this border with a white thread so that with each stitch, one thread comes to lie in the inside of the shoe; the other thread comes to lie below the bottom edge of the heel cover [The Box/LaBoîte]. Further, the so-called

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buckle straps are now trimmed on each side at the same time as the vamp tongue, but are not sewn on. Underneath the buckle straps the shoemaker sticks on, with pitchbarm, tawed sheepskin entirely for decoration, as well as inside next to the top edge of the quarters. This, along with the side seam, will also be bound with ribbon by the shoemaker according to the current fashion of the women.

Women's shoes can be 'triple-stitched' or turned, or made with a forepart rand. With the randed shoes, the outsole will be stitched with white thread as has already been explained above (page 248). Women's shoes differ from a lined version of men's shoes, apart from in style, partly in that they are not only made of leather but of stuff [textile] as well. That makes no difference in regard to the making; however, other than that they are covered with paper during the work when they are colored shoes, and partly because they receive a wooden heel. With stuff shoes the vamp is lined with linen. The quarters, though, will at times also be lined with sheepskin, but nowadays it is typically with linen. After the

clicking, the shoemaker sticks the linen to the upper with white starch paste. But this soaks through silk fabric, and therefore the linen is merely coated with cold wax,

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and to this the silk upper is stuck on. The white paper with which the colored stuff shoes, as said, will be covered during the making, is sewn in with the uppers to the insole. The shoemaker cuts it from the finished shoe, going around carefully with the tip of a fine awl. This is the primary difference between men's and women's shoes, and also the women's shoes are given 'woods' or wooden heels as well. These wooden heels are of hackberry wood [nettle-tree/lotus *Celtis australis*] for stuff shoes, since this wood is light, but for calfskin shoes, the heels are solid beech wood. The shoemaker gets this wood in the rough-cut form from the woodland areas, and he carefully dresses them by eye with a curved knife (figure VI) to the required size. In carving them he must fit them to the lasts, and often holds both heels next to each other checking that they are the same size. When he has closed the upper as usual, and it has been tacked to the last close to the insole, then the edges of upper, the insole, and the cover of the wood heel will be sewn together at the base of the quarter. In the workshop of the shoemaker the leather or the stuff with which the wooden heel is covered is called the heel cover. He coordinates it nowadays in each case according to the vamp and the quarters, and in this, the same leather or stuff is used. When it is leather the shoemaker softens it in water

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before sewing, so that it fits closely onto the carved wooden heel. This wooden heel will be coated on the outside with pitchbarm, set into the heel cover, driven tightly in with the hammer, and the heel cover will be firmly tacked onto the wooden heel. Then the shoemaker tacks the outer sole on, trims it and stitches it first with white thread [down each side of] the heel cover, or as the shoemaker says, he 'stitches it off fine' with double-ended white waxed ends. On top he places two leather lifts, making a channel in the top piece around the entire perimeter, and sews the top piece with the white thread, as before, to the heel cover. Finally he makes a channel around the edge of the outer sole beneath the vamp, slips the last from the shoe, and through-stitches [stitch drawing] the 'triple-stitched' sole exactly as above (page 238) with the boot. Of the randed shoe, which nowadays has gone quite out of fashion, he stitches the outer sole and rand with white thread, as shown above (page 248). With the turnshoes the heel cover will be sewn on through the insole at the base of the quarters; after turning, the wooden heel set into it, and finally the outer sole will be stitched to the heel cover. Women's shoes will normally not be blacked, but instead the edges

of the outer sole remain russet. The shoemaker coats this edge carefully with a bit of pitchbarm and burnishes it bright with a notch of the shoulder stick (figure XVI).

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Finally he rubs the dirt off of the white edge of the heel cover with the scratch bone (figure X).

C. Slippers

Most men's slippers are either made of calfskin, cordwain, morocco, or else of stuff; the latter only is true for women's slippers. The shoemaker lines cordwain and stuff with thin deerskin, he lines inferior leather, however, with sheepskin, commonly with brown sheepskin [basil]. The slippermaker lines all slippers with sheepskin however. Indeed, men's slippers with quarters are seldom lined, except when they are of stuff. With a fabric lining the clicked upper will be stuck on with starch, when leather pitchbarm or paste will be used. In the making of the men's slippers with quarters, there is no difference in the work than the shoes, other than that they get a wooden heel that is either of the common shape or is wedge-shaped [spring heels]. The wooden heel, however, will be carved and held on with a heel cover, as was done for the women's shoe. With men's slippers without quarters only this is omitted, and otherwise they will be made like a shoe. This applies also to women's slippers. Finally the slipper will always be edge-bound on leather uppers and this in three ways.

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Stuff and fine leather slippers tend to always be bound with a ribbon. One sometimes binds cheap leather slippers with leather edge-binding, or the upper leather is hemmed on itself. The artisan cuts the leather edge binding in such a way that it projects a bit from the lining. He folds this projecting part along the inside of the slipper and whips it down [inside]. From this it is shown that the shoemaker and the slippermaker work with one and the same processes and tools, and there is no other difference between them other than that the shoemaker makes all products of shoemaking, but the slippermaker, however, only makes slippers.

D. Of the hose for the fire engine

A few contract-shoemakers make fire engine hose, which also is among the shoemakers' products. I say a few contract-shoemakers, or shoemakers who make government-contract work, since all shoemakers do not go in for this, as the waxing of the leather hose is a dirty business. Supple hoses for small fire engines will be made out of cowhide, strong ones for large fire engines, though, will be made from ordinary shoe

leather. Prior to cutting the shoemaker treats the leather with tallow and melts in this grease over a coal fire. This greasing and melting-in occurs for no other purpose than so the water does not

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penetrate the leather. The whole hose will be cut in sections so that each section is about a foot long, and as broad as is required for the size of the hose. The shoemaker bends each section together around into a cylindrical form, and sews it on the outside with a doubled-ended black waxed end, not with a single seam but with two seams [double row round-closed], so that the seam will not leak water. When all of the sections are sewn round together, individually, then each end of the neighboring one will be sewn together, but with a double seam. The result is that no water leaks through the hose.

Postscript

Each shoemaker must be able to make all men's and women's shoes and boots, but in the larger cities there are shoemakers that normally, and most skillfully, make either women's shoes or, in contrast, men's shoes, or boots. Their apprentices study four years, as one says 'free.' If they submit an apprenticeship fee, then they study only three years. A young master makes for a masterpiece: one pair of cavalry boots, one pair of ordinary German, and one pair of men's grain boots of calfskin, one pair of women's shoes, and finally one pair of ladies' slippers. The apprentice lads of the slippermaker study three years, and their young master must exhibit a masterpiece

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of one pair of men's, and one pair of women's slippers. Each either has a rand, or is 'triple-stitched', or turned. The slippermaker and the shoemaker preserve an old professional rivalry between themselves.

END