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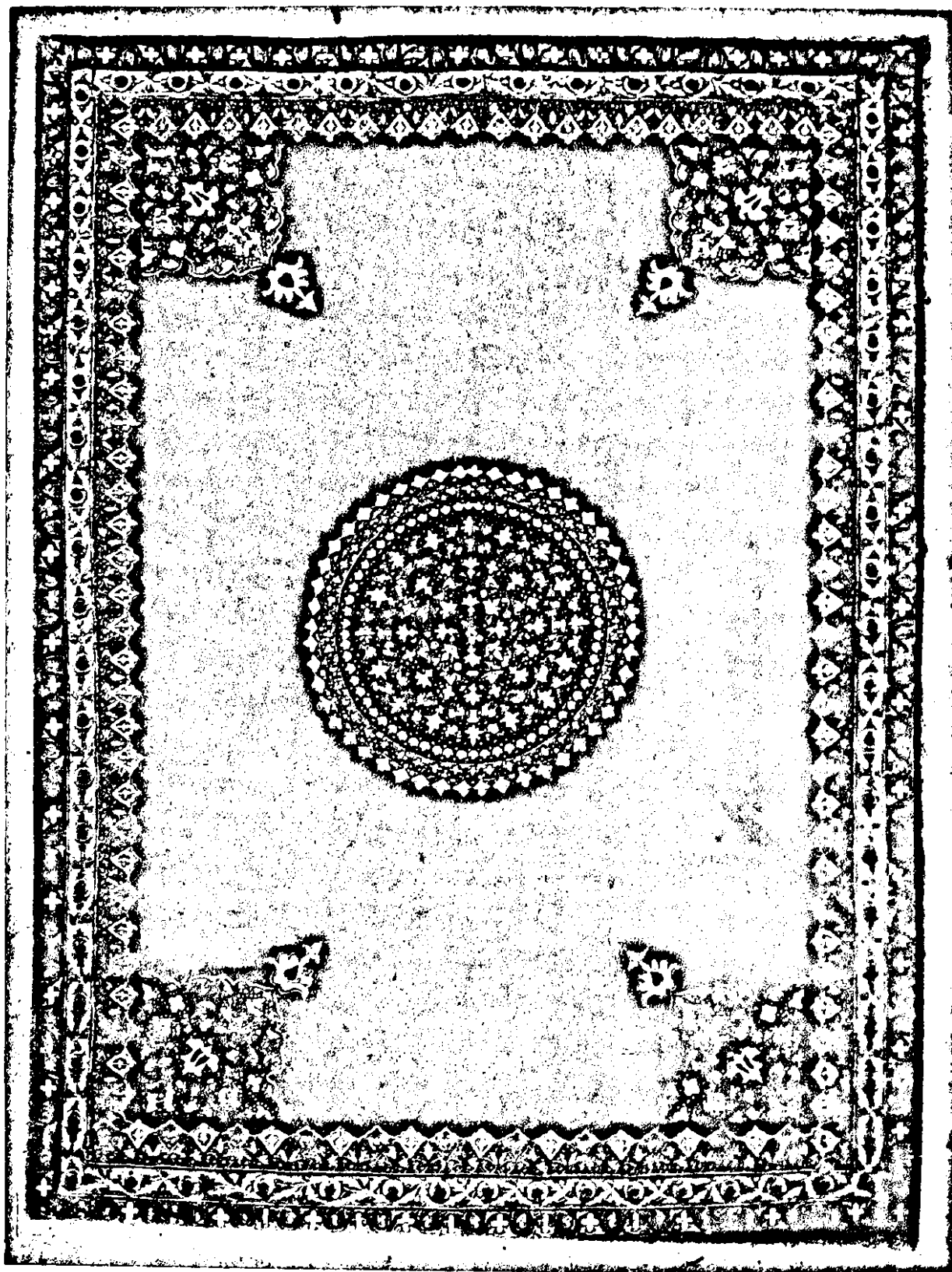
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*Frontispiece.*



A  
MONOGRAPH  
ON  
TANNING AND WORKING  
IN LEATHER  
IN THE  
BOMBAY PRESIDENCY

BY  
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1903

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NOTE

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# A MONOGRAPH ON TANNING AND WORKING IN LEATHER

IN THE

## BOMBAY PRESIDENCY.

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### CHAPTER I.

#### INTRODUCTION.

“ Whatever skin (garment).....is ordered for any one.....that is for him even in (the performance of) vows.”—*Manu's Code of Laws*.

The tanner's trade is in India an ancient, if perhaps not an honoured, one. Many passages in the ancient literature of the Hindus show that even in those early days, of which our only knowledge is derived from this literature, the use of skins had been discovered, and that a high value was set on them. Such references as that which heads this chapter, and their number in various early writings, would seem to prove that clothing was one of the earliest and principal uses to which skins were put.

Various passages however tell us of other purposes which they served and other articles manufactured from them. Shoes, for example, are mentioned in the Code of Manu as a suitable gift for a guru. In another place in the same work, the taking off of sandals with the hands is classed amongst prohibited acts. The use of the word ‘charm’ for ‘shield’ shows, too, that leather was in use for shield making; while in early writings, such as the *Máhábhárat*, frequent mention occurs of such articles as quivers of leather, drums, leather armour, whips, and even of leather bags.

The worker in leather, too, is brought to notice, though usually only to couple with his name some contemptuous epithet or point out his position amongst the most degraded classes. “ From a Shudra are born, by a mixture of caste, an Ayogáva, a Ksatter, and a Chandála (leather-worker), who is the basest of men.”

It will thus be seen that the use and preparation of leather is in India of the utmost antiquity.

Turning to more historic times, and to the more restricted limits of this Presidency, we find a large and important trade in leather flourishing in Gujarát in the thirteenth century. Marco Polo states in A. D. 1290 that "the curing of hides and the manufacture of leather were two of the most important of Gujarát industries. Every year a number of ships went to Arabia laden with the skins of goats, of oxen, of unicorns, and other animals. The leather was used for sandals, and was cleverly worked into red and blue sleeping mats exquisitely inlaid with figures of birds and beasts, and skilfully embroidered with gold and silver wire." \*

The merchant Barbosa (A. D. 1511—1514), in his description of Mahomed Begada's cavalry, notes their "leggings of good thick leather worked with gold knots and embroidery," showing that Gujarát retained its reputation for the manufacture and artistic ornamentation of leather. It still continues to occupy one of the foremost places in West India in tanning, but unfortunately seems to have lost much of its former skill in the working and finishing of articles made from leather. In Ahmedábád, however, there is not only a large business done in tanning, but the city enjoys a more than local reputation for the manufacture of shoes. Poona, too, produces shoes, such as are worn by Bráhmíns, and sends them to various outside districts. Bombay, however, as is only natural, is by far the largest centre for the tanning of hides and skins and the working of leather. In addition to an extensive tanning and boot factory at Sion, the neighbouring village of Dharavi, in the north end of the island, is entirely given up to the tanning industry, while in the bazárs the leather thus produced is turned by native craftsmen into boots, shoes, harness, etc.

Hyderabad (Sind) is famous for its leather work, which is honourably distinguished as presenting features of some artistic interest.

These constitute the chief centres of the industry, though a small, but in the aggregate important, trade in shoes and other articles in common use is carried on in almost every village of any size. Tanning, too, is carried on on a small scale throughout the whole Presidency and on a larger scale in a few places in addition to those already mentioned, the most important being Surat, Panch Maháls, and Belgaum.

In treating of the leather industry it seems most convenient to follow the natural order and discuss tanning, its materials and processes, before passing on to the articles produced, the people who prepare them (amongst whom may be included those who work as tanners), and the prospects and position of the trade generally.

In pursuance of this plan the raw materials used by the tanner demand first place.

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\* Bombay Gazetteer, Vol. VI, page 183.

## CHAPTER II.

### RAW MATERIALS.

The requisites of the tanner are few, and of these the hides and skins which he is to treat are naturally the most important. It is with these that his craft is concerned; and lime for unhairing and bark for tanning are only the means by which he rids the hide of superfluous matter and brings it from the soft, raw state, to the tough, imputrescible material known as leather. Hides and skins then are of prime importance to the tanner.

In trade parlance a distinction is made between 'hides' and 'skins,' the former word being confined to the pellicles of buffaloes and cows, the latter applying to those of sheep, goats, and calves. These are the chief of any commercial importance, though skins of deer, tigers, etc., are dressed in many parts of the Presidency, and camel hide is extensively used in Sind. In the mofussil the carcasses of animals which die are generally the perquisites or *haks* of the Mahárs or other lower village servant. These people are, in some cases, the tanners, and, if so, after unskinning the animal, they themselves tan the hide; if not, it is sold to the tanners.

The village tanner finds his other materials ready at hand. Tanning barks or berries are produced in the neighbouring jungle, while for unhairing 'chunam' or lime which he uses for building is usually the only necessary.

A more elaborate agency brings the materials to the larger centres of industry—Bombay, Ahmedábád, and Poona. The agents of the large tanners of the former city, established in some populous centre, collect the hides for which there is no local demand, or in many cases by giving higher prices than the local tanners can offer, and the railways, or the *machwas* (country craft) which trade along the coast, pour in the many lákhs of hides which annually find their way to Bombay.

Local agents of Bombay tanneries are found as far afield as Peshawar, Rawal Pindi, Aligarh, and Agra, though the major portion of the supplies are drawn from Káthiáwár, the Deccan, and the Southern Marátha Country by agents established in such towns as Ahmedábád, Nadiád, Godra, Sholápur, etc. In these latter parts the hides and skins are mostly purchased from the village Mángs or Chámbhárs, who have roughly cleaned them and treated them with salt.

From Rs. 12 to 16 are said to be paid for the best class of buffalo hide, Rs. 3 to 7 for cow hides, and Rs. 30 for 60 lbs. of wet goat-skins; while Rs. 20 is given for the same weight of sheep-skins. These prices, however, relate only to hides and skins of the highest quality; average prices are much lower. A similar machinery supplies Ahmedabad, Poona, and other larger cities with material from the surrounding districts.

It is impossible to estimate the number of hides and skins disposed of locally, and indeed the only places for which figures are available are Ahmed-ábád and Bombay.

In the former it is stated that 26,000 buffalo and cow hides, and 50,000 sheep, goat, and calf skins are annually turned into leather, of which about 5,000 cwt. is exported to Bombay and smaller quantities to surrounding villages and districts.

Bombay, as may be supposed, is the most important tanning centre in West India dealing with by far the largest number of skins and hides. In 1902 the quantity of buffalo and cow hides which reached it by rail, road, and sea was about 23,134 cwt. of the value of Rs. 6,23,193.

Deducting 11,351 cwt. exported principally by rail and road, we find that 11,777 cwt. were tanned in Bombay. To this must be added the hides 44,388 in number disposed of to the local tanners at the municipal slaughter houses. If these be taken at 8 to the cwt. we find that about 17,000 cwt. of hides are annually turned into leather in Bombay.

Bombay Province, as might be expected, contributes the largest item to the above total of raw hides imported, while the United Provinces of Agra and Oudh and the Punjáb come next in the order named.

Rájputána and Central India also send to Bombay a considerable quantity of raw hides, but this mainly to the Presidency proper, which, strange to say, receives in recent years a very considerable quantity of hides from Bombay City.

From Madras Presidency comes the larger part of the hides carried by coasting vessels, which in 1901-1902 amounted to 4,754 cwt. In 1902-1903 the figure had fallen to 2,962 cwt., Madras still contributing the largest share, while "Ports within the Presidency" come next.

The trade in hides and skins is carried on principally by Mahomedans of the Borah and Memon communities and is a flourishing and profitable one. It was immensely stimulated by the tremendous mortality amongst cattle in famine years, and it is doubtful whether it has even now resumed its normal course. In 1899-1900 and 1900-1901 the exports to foreign ports were 55,836 and 209,779 cwt. as compared with 2,157 cwt., the average export in the six previous years; while during the year 1902-1903 the total of raw hides exported to foreign countries was 39 cwt. This decline is by no means to be lamented when the peculiar circumstances which caused the inflation are remembered.

Economically, the export of tanned hides in place of raw can only be a gain. The cost and risk of transport of large quantities of bulky tanning materials are obviated, not to speak of the carriage of the waste materials which form a large part of the weight of raw hides.



Turning to skins of sheep, goat, and calf, we find that the number treated in Bombay City varies little in the last ten years, if the years 1899-1900 and 1900-1901 be excepted. In 1893-94 the weight of raw skins brought into Bombay was 57,375 cwt., while the total sent out was 5,299 cwt., leaving 52,076 cwt. to be dressed in Bombay. The corresponding figures for 1894-95 and 1895-96 are 55,370 and 54,320, while in 1901-1902 the net excess of exports over imports was 50,357. To these must be added the skins produced in Bombay which have during the same period increased in number from about five to six lakhs (509,704 in 1892-93 to 606,681 in 1901-1902).

These figures give some idea of the magnitude of the tanning business carried on in Bombay. Complete figures are not available for the year 1902-1903, but those interested complain that their trade suffered from the operation of the tariff imposed on dressed skins in the United States, which causes the skins which leave India for that market to go principally undressed. This is to some extent confirmed by the figures for exports of raw skins to the United States, which show a rapid increase. In 1898-99 their weight was *nil*, in 1900-1901 15 cwt., while in 1902-1903 1,846 cwt. was exported, of which the value was estimated at Rs. 1,41,140. The magnitude of this total is by no means alarming, but its sudden rise gives cause for anxiety. An additional and perhaps more important cause for this state of things is possibly to be found in the newer methods of tanning now in use in American tanneries. With these skins can be treated much more rapidly and cheaply than by the old methods, and the goods so produced are said to be finding their way into English markets, displacing English tanned skins. It is not certain, however, how far such methods are suited to Indian climate, and attempts to introduce them into Bombay have so far met with little success. Reference to this point may however be postponed as it more properly falls for discussion when tanning methods are being described.

The following tables show the transactions of Bombay in skins with Foreign Countries by sea for the last five years and the distribution of this trade in the year 1902-1903:—

Year.	IMPORTS.				EXPORTS.			
	Raw.		Dressed.		Raw.		Dressed.	
	Cwt.	Rs.	Cwt.	Rs.	Cwt.	Rs.	Cwt.	Rs.
1898-99 ...	16,720	6,33,795	681	2,99,859	44	1,875	38,183	62,00,091
1899-1900 ...	12,826	4,72,746	507	2,38,311	91	5,915	41,109	65,05,710
1900-1901 ...	12,516	4,72,337	407	1,79,090	920	57,756	48,053	77,76,141
1901-1902 ...	12,386	4,74,292	672	3,22,138	581	43,135	31,460	48,30,527
1902-1903 ...	20,373	8,05,600	843	3,73,907	1,869	1,43,133	31,168	49,30,304

*Analysis of the Imports and Exports of Raw and Dressed Skins by Sea  
for the year 1902-1903.*

Countries whence imported or to which exported.	IMPORTS.		EXPORTS.	
	Raw.	Dressed.	Raw.	Dressed.
	Rs.	Rs.	Rs.	Rs.
United Kingdom ... ..	333	3,40,533	725	49,23,745
Belgium ... ..	...	14,764	...	...
Mauritius ... ..	7,500	...	...	50
United States ... ..	...	3,185	1,41,140	...
Aden ... ..	61,454	...	...	120
Arabia—Muskat ... ..	56,392	...	...	...
Persia ... ..	6,53,160	618	...	...
Turkey in Asia ... ..	23,285	...	...	175
Other Countries ... ..	3,476	14,807	1,268	6,214
Total ... ..	8,05,600	3,73,907	1,43,133	49,30,304

It will be seen that the imports of both raw and dressed skins have increased in the past year, the former from increased imports from Persia, the latter probably from purely temporary causes.

The exports of raw skins have also increased, but there is a marked fall in the number exported dressed.

As regards geographical distribution, Persia sends by far the largest number of raw hides; while the United Kingdom supplies practically all the dressed skins imported, and on the other hand is the chief and almost only customer for the very large quantities of dressed skins which are exported each year.

The United States, as already mentioned, takes most of the raw skins.

*Tanning Barks.*—The forests or jungles of Bombay itself produce a large proportion of the barks used for tanning, and the Nizam's territory sends annually barks to the value of about 1½ lakhs, of which the major part is imported into the Konkan, but a large portion probably reaches Bombay Port in the end. Bombay City receives large quantities also from the North-West Provinces and Oudh, Rájputána, and Central India.

The Central Provinces send enormous quantities of myrabolams, chiefly however for export.

There is little export trade by road or rail to other provinces, though the forests of the Southern Division supply Madras with considerable quantities of tanning barks and myrabolams.

The bark of *babul* (*acacia arabica*) is one of the most common tanning barks. In Bombay tanneries it is generally used in conjunction with myrabolams. In the ruder class of tanneries buffalo hides are sometimes tanned with it alone. The leather thus produced is rather coarse and of a dark reddish colour. This colour is one of its disadvantages, and for this reason it is advisable to mix with it some lighter tinted agent, such as the myrabolam abovementioned.

The bark is obtained by the village tanners from neighbouring jungles and by the tanners on a large scale from contractors, who in their turn procure it from Government forests. From Sholápúr comes by far the largest quantity of tanning barks of any districts in the Presidency, but Násik, Khándesh, and Ahmednagar also export considerable amounts.

In one tannery in Bombay the bark is broken and ground in a mill, not into a powder, which tends to cake when treated with water, but into small pieces. This process enables the tannin to be easily and quickly extracted when infused in the bark pits. These are square chunam pits arranged in a series, the top of each pit being connected by a pipe with the bottom of the next, and the whole so placed that the liquor can be run off into the tanning pits by the action of gravity.

In smaller tanneries it is chopped up by hand and extracted in the vessel or pit in which the tanning is to be done.

Cold water is in all cases used for extracting the tannin, though hot water enables this to be done more rapidly. The results however are said not to be so satisfactory.

*Myrabolam* (*terminalia chebula*) has been already mentioned. Of this, the fruit, not the bark, is extracted for tanning. In one tannery in Bombay it is ground by machinery specially constructed for the purpose, but in all other cases the berries are chopped with a mallet. It is generally used with other tanning agents and is specially valued for the bright colour it imparts; on the other hand, the leather which it produces if used alone is not of good quality. Myrabolams are exported largely to England and are used both there and in India as a dye.

In the Presidency, Poona and the Southern districts are the chief producing centres.

*Aval* (*phyllanthus emblica*) is a third tanning material in common use. In Bombay it is confined to the tanning of skins, and these are usually treated afterwards with myrabolams. In the mofussil it is widely used both alone or in combination. Its leaves are stated to contain 14 per cent. of tannin.

*Tarwad* (*cassia articulata*) too is used in the large tanneries, mixed in small quantities with other sources of tannin, but in the mofussil, often as the

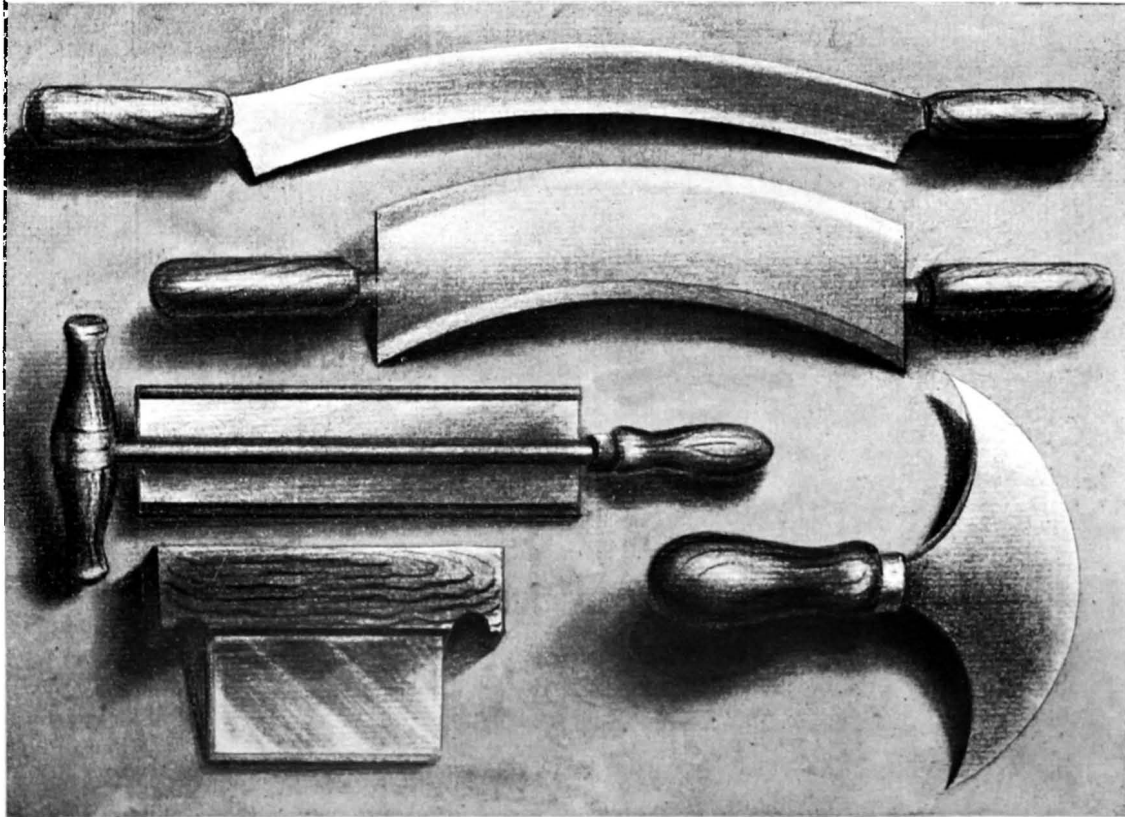
sole tanning ingredient. It is one of the commonest shrubs of the Deccan, and the ease with which it is obtained probably accounts for its extensive use.

*Divi-divi* (*cassalpinia coriaria*) is found in Bombay though it is a South African plant. Though highly valued in England, it does not seem to be used at all by the native tanners, who are very chary in adopting new methods or processes.

Lime or chunam is in almost universal use for unhairing purposes. Its action seems to consist in softening the hard outer skin and hair sheath, so that on scraping with a blunt knife both come away. The fibres of which the hide is principally composed "plump," that is, swell and absorb water, while at the same time the inter-fibral cement substance is dissolved and the fibres thus differentiated. The "plumping" causes the hide to offer a firmer surface when unhairing is going on, while the removal of the inter-fibral matter is a necessity where softness and flexibility are required. All traces of lime must be carefully removed in this case, but for sole leather this removal is not essential or indeed advisable, as stiffness and firmness are then requisites.

A list of other tanning barks and unhairing agents will be found in the chapter on Tanning at page 14.

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Shaving Knife.  
Sleeker

Unhairing Knife.  
Fleshing Knife.

"Rampi" or Native Fleshing  
Knife

## CHAPTER III.

### TANNING.

Tanning, it need hardly be said, is the process whereby the hide or skin as it comes from the back of the animal soft, raw, and putrescible, is converted into the tough imputrescible material known as leather.

The methods by which this is done, though they differ in detail, have all a common chemical basis, the precipitation of the easily decomposable gelatine, the chief constituent of hide, by means of some agent with which it forms an insoluble and non-decomposable compound. The typical agent for this purpose, and that from which the process derives its name, is tannin, a constituent of many barks and nuts. Various preparatory operations have to be performed before the actual tanning takes place—the hide or skin is softened, unhaired, and cleared of all superfluous flesh. The tanning too must be followed by finishing processes, especially if a soft and flexible leather is required.

The following account of the processes in use in the West of India Tannery in Bombay has been kindly furnished by the proprietor:—

“Hides and skins of buffalo, cow, sheep and goat are treated here. They are purchased from agents in different parts of the Bombay Presidency as well as in Upper India and arrive at the tannery some fresh and some in a dried-up state. Those which are not fresh require to be brought back as far as possible to the raw condition. This is accomplished by the first two operations ‘soaking’ and ‘stocking.’

“*Soaking.*—The first process, which the hides or skins are put through when received into the tannery, is known as ‘soaking.’ They are put in pits with water and allowed to remain there till fairly soft. Clean water is used with every pack. Buffalo hides take 30—40 hours to soak, cow hides 10—20 hours. The hides are all carefully selected out of the soak-pits as they become soft. This is done to avoid oversoaking, which is injurious to the leather.

“*Stocking.*—Next the hides undergo what is known as ‘stocking.’ They are put in the stocks and remain there until they are similar to what they were when first taken off the animal. This process takes from 20 to 30 minutes. The “stocks,” it may be explained, is a machine in which the hides are subjected to pressure from heavy weights which work over them, softening and breaking down the dried-up skins, or working out the salt with which they have been roughly preserved.

“*Drumming.*—The hides are then drummed in clean water for half an hour to wash all traces of blood and dirt from them. They are now ready to be treated with lime. The drums are large wooden boxes which turn on a horizontal axis. Small holes allow the inflow and egress of water, which is thus continually renewed from a supply in pits into which the lower part of the boxes dip.

*Liming.*—The first process in ‘liming’ consists in covering each hide with well slaked lime. The hides are allowed to remain like this for 24 hours. This process is known as ‘laity.’ It prevents the hides from decomposing when put in the old limes and thus ensures very strong leather. *Old Limes.*—The second process in liming consists of putting the hides into pits containing old lime liquor which has been partially exhausted by more advanced packs of hides. The hides are kept in this liquor for 7—10 days according to the temperature of the liquor, class of hides, etc. After remaining in old lime liquor for 7—10 days the hair becomes quite loose and can be easily removed by the hand. The hides are then ready for unhairing.

*Unhairing.*—The hides are placed over beams and the hair is rubbed off with blunt knives specially made for this purpose known as unhairing knives. At this stage great care has to be used in order not to damage the grain of the hides in any way.

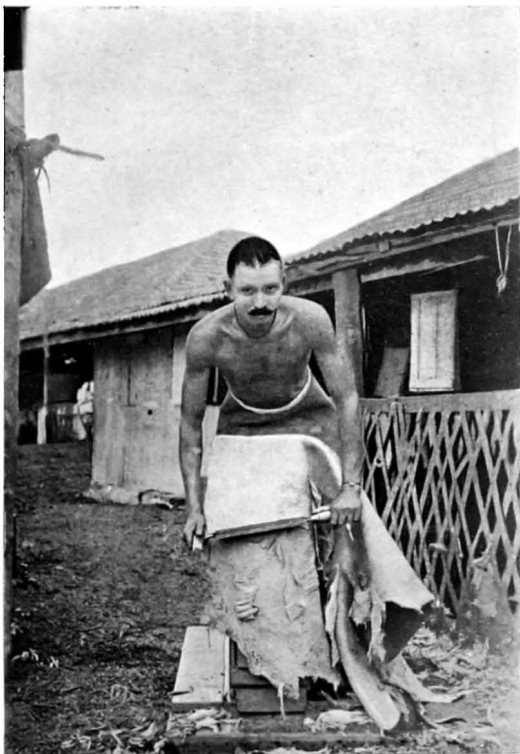
*New Limes.*—After unhairing, the hides are placed in pits containing new lime liquor for 3—5 days. The hides are lifted out of the pits and put back again once every day. This process causes the hides to become plump and firm. When sufficiently firm and plump, the hides are taken out and fleshed.

*Fleshing.*—This consists of cutting the flesh off the hides with sharp knives specially made for this purpose. There are two methods of doing this work, the European and Indian. With the European method of fleshing very large two-handed knives are used. With the Indian method small knives known as *rampis* are used. This work is difficult to do and can only be done by trained men.

*Scudding.*—This consists of scraping off any small hairs that may be on the hides. It is done over a beam with blunt knives specially made for this purpose. After the hides have been scudded they are carefully selected for the different kinds of work for which they are suited and stamps put on the different classes to distinguish them. They are then weighed one by one and the weight known as the “lime weight” recorded. After weighing, the hides are bated.

*Bating.*—Bating consists in drumming the hides in bate liquor made by fermenting bran in water. The hides are drummed for about one hour. This process takes the lime out of the hides; it also softens them. When finished, the hides are ready to be sent to the tannery, where they first pass to suspenders.

*Suspending.*—The hides are tied to bamboos and put into the sour liquors of this set. The sour liquors remove any traces of lime that may have escaped in bating, and also plump the hides up. Every day the hides are moved forward into a slightly stronger liquor. They are kept in this set for 6 to 8 weeks. The hides are now moved forward to the second set suspenders. This set contains much fresher and stronger liquors. The hides are first put into the weakest liquor of this set, and are removed every day into a slightly stronger liquor. In this set they are kept for 8—10 weeks that is, the hides remain



Shaving.



Unhairing.



for  $3\frac{1}{2}$  or 4 months in two suspenders. By this time the hides should be almost struck through. They are then ready to go into the layers.

*“Layering.*—The hides are taken off the bamboos and put in one of the pits belonging to the first row of layer pits. Here they are laid grain to grain, and on the flesh side of each hide a layer of bark is placed. When the hides and bark have been placed in the pit, a fresh liquor of strong degree is run into the pit. They remain in this layer from 25 to 30 days. After remaining 25 to 30 days in the first layer the hides are put into the second layers which are made up similar to first layers, the only difference being that the liquor is stronger than that in the first layer. After remaining 25—30 days in second layers they are put in third layers made up similarly to second layers but containing stronger liquor. After remaining 25—30 days in third layers the hides are put in fourth layers, from  $45^{\circ}$  to  $50^{\circ}$  liquor being given to them in this set. (The strength of the liquor is measured by the barkometer, a species of hydrometer graduated to show the strength of liquor by its specific gravity, *e. g.*, of  $45^{\circ}$  liquor the specific gravity is 1.045). The hides remain in this till they are required for the currier’s shop. They are then taken and drummed in clean water until all the loose tan liquor is removed. They are then removed to the currier’s shop.

*“Mode of Currying Buffalo or Cow Hides for Harness.*—After being received from the tannery they are first shaved to a level surface and then drummed in shumac for one hour or so; on removal from the drum they are placed in a vat of warm shumac for 24 hours, being lifted out twice during that time to allow the liquor to be warmed up.

“Next they are scoured by machine and hand on both flesh and grain sides. Special steam-driven machines are used for scouring. In these blunt brass or steel knives or sleekers work over the skin which is carried backwards and forwards on a moving table beneath them. A hand sleeker is shown amongst the tools in the illustration facing page 9. After receiving a coat of oil on the grain they are hung up. When partly dry, they are taken down, brushed up with water on flesh and grain sides, and a coat of dubbin—a mixture of tallow and oil—is given to the flesh side.

“They are next machine-set and laid in pack for 24 hours, after which they are double-set by hand, dubbined on grain, glassed on flesh, and hung up to dry out. When dry they are placed in pack until required for finishing, which is done by sleeking off all superfluous grease, the sides being well brushed and glassed on grain and glassed on flesh. Buffalo butts are prepared in the same way as harness leather for saddle seats and soles, but they are not put in shumac nor are they dubbined. They are however passed through heavy rollers to make them harder.”

The methods in use in the other Bombay tanneries are much less elaborate. No machinery is used, the work being all done by hand. The tanneries themselves are low one-storied buildings, very often in the form of sheds built round a courtyard with dwelling house or store in front, the only doorway to the

tannery being in this part of the building. In this way the entrance of unauthorised persons is prohibited and the methods and processes, to which considerable importance is attached, kept from curious eyes. Some of the more important tanneries seem to have been originally dwelling houses, but others have plainly been built for their present use. These latter are long low sheds with numerous windows or altogether open to the air on one side but on the other and outer presenting a blank wall.

*Tanning in larger Native Tanneries.*—As before, the hide if dried or salted must in the first place be soaked, so as to soften it and remove the salt. If the hide be received green, this operation is of course omitted. The hides are soaked in large chunam pits and are frequently moved so as to facilitate the penetration of the water.

*Liming* follows next. Here the hides or skins are put direct into lime solutions, first weak and then stronger. The solutions are made in square chunam pits similar to those used for soaking. When the hair is sufficiently loosened, they are taken out for unhairing.

*Unhairing and Fleshing.*—For this they are placed on the tanner's beam, a cylindrical cast-iron stand supported by a prop at the back. The tanner stands behind, and heading over scrapes off the hair with a long, concave, two-handle knife (shown in upper part of illustration at page 9). The edge of this knife is blunt, its purpose being scraping rather than cutting.

*Fleshing* follows. The same workman turns the hide over on his beam and removes all superfluous flesh and fat with the *rampi* or crescent-shaped knife (shown in the lower right hand corner of the illustration). The hides are next steeped in water to remove the lime before treating with tanning barks.

*Tanning.*—The methods of treating skins of sheep and goats and hides of cattle and buffaloes usually diverge from this point. Hides intended for export however are tanned in the manner about to be described, the only difference being that each of the several operations takes longer than in the case of skins. The methods used for skins will be first described, as they form the most important article of the Bombay export trade.

*Aval* bark is the first agent with which they are treated.

The skins are laid in layers in large wooden tubs, bark is placed between them, and a decoction of the bark poured over the whole, care being taken to see that no skin remains uncovered. In these tubs they remain for eight or ten days, being daily turned and moved. Ten days' steeping in stronger solution follows.

They next undergo, for from three to six days, exactly similar treatment, but with myrabolam as the tanning agent. This whole stage occupies twenty days to one month.

At the end of this period the skins are taken out, washed, and squeezed partly dry. Those intended for export are not curried; they are oiled lightly, laid in heaps on the floor, and afterwards hung up until nearly dry. Finally, they are stocked and softened on what is known in England as a "righter," a tool shaped somewhat like a spade handle, the head being of iron with a blunt top edge, while the part corresponding to the shaft is fixed vertically in the ground. If the leather be stiff, bundles of five or six rolled hides are made, and these the workman strikes vigorously on a large block of stone. He then repeats the stretching over the "righter."

In another method of accomplishing this stretching and softening, the hide is laid flat on the ground on a smooth board; one workman sits at one edge, which he lifts up, while a second stands opposite pressing on the skin with an instrument similar in shape to that described above. This he holds in his hands causing the iron head to run towards the edge of the hide, which the other is folding over towards him. This process besides rendering the leather flexible gives the skin a certain amount of glaze and smoothness. The skins are now ready for sorting and classing according to size and quality, baling, and export to England. If required for use in Bombay, skins are sometimes curried in the manner afterwards described for hides. The process is in their case, however, much less elaborate.

As stated above, the methods of treatment of cow and buffalo hides and of skins of sheep and goat diverge after the unhairing and fleshing operations are over. We have followed the skin through its various stages and may now return to the hide.

On leaving the hands of the fletcher, it is sewn up in the form of a bag. This bag is hung up and filled with pounded bark and water. The liquor percolates through the hide dropping into a pit below, from which it is continuously refilled into the hide. The tanning barks most commonly used in Bombay for this class of work are *babul* and myrabolams, the former sometimes alone, but mostly in combination with the latter.

After tanning, the hides, which if of buffalo are generally used for sole leather, are practically ready, only requiring to be smoothed out. If, however, they are to be used for harness, saddles, upper leathers of boots, or any other purpose requiring flexibility, they must be curried.

*Currying.*—In this case, after removal from the tanning pits and washing, they are laid flat on marble tables and scoured with a "sleeker" or stretching iron. This instrument is shown in the left lower corner of Figure I, while the methods of use are shown in Figure II. Both steel and stone blades are used in the sleeker at this stage. A slight coating of oil is then given and the hide hung up to dry.

Next, the hide is reset and dubbin—a mixture of tallow and oil—applied. To do this the dubbin is spread on a marble-top table and the hide laid on this, grain downwards, and smoothed out with a stone sleeker. The operation is then repeated on the grain side with the flesh side on the table.

The hide is then partly dried, reset and glossed with stone and glass slickers, leaving the surface smooth, polished, and the leather flexible but firm.

*Tanning in the Mofussil.*—The methods described are those in use in Bombay. Tanning in the country districts, it need hardly be said, is carried on in a much more primitive fashion. A few tanneries do exist in such places as Ahmedábád, Panch Maháls, etc., but even here the methods are rather crude.

From Ahmedábád, for example, we get the following account:—

“Before skins are tanned they are unhaired. For this purpose they are kept in lime water, *akda* milk or *jecasi* solution. They are kept a certain number of days according to the skin. They are then shaved with shaving knives on curved beams and the hair taken off. They are also shaved on the other or flesh side and the useless fleshings shaved off. They are then taken to the tanning sheds to be tanned. But before they are put into the tanning tubs, certain materials are used to remove the excess of lime that may have remained in them. Next, they are put in tanning tubs containing water and bark (either *babul* or *tarvad*). How long the skins should remain in the tubs depends on the strength of the solution, but generally it takes 24 days for sheep and goat skins and 40 days for hides. After the skins are fully tanned they are kept hanging on strings to dry. When the moisture has dried up, they are softened. For this purpose they are stretched on blunt upright knives and oiled.”

Here the methods are much the same as those already described. The village tannery, however, presents a greater contrast to those in Bombay: instead of in the large building with its rooms assigned to various operations, the tanner's labours are carried on in his own hut or outdoors in its immediate neighbourhood; in place of the vats and pits, the solitary earthen pot or the pit in the ground are used. His supplies of hides are drawn from the village herds and of barks from the bushes in its neighbourhood.

It will be interesting to compare his methods with those already described. His materials are varied. Lime is the usual unhairing agent, but ashes of bark of *ain* (*terminalia tomentosa* or *glabra*), *kutgyum* bark and leaves and salt, *jevasi*, *ankda*, *ankda* and salt, *dhamoso* and salt, *khar* (or potash) and lime, salt and milk-bush juice, are all reported to be used for the same purpose.

For tanning we have a great variety of agents: *babul* bark and *harda* (myrabolams) are the chief, but *aval* and *tarvad* are also common, whilst amongst others we find *avali* tree leaves, *ain*, kidney-bean flour, *dhavada*, *ghat bhor* (*zizyphus jujuba*), bark of *matti* tree, a mixture of *kumbhi*, *ain*, *jambhul* (*eugenia jambolana*), and *jangalbari*, a mixture of sumach, gallnuts, catechu, *babul* and *sarsi* (this, however, is in Panch Maháls, where tanning is carried on on a fairly large scale), and of *phog*, *bawri* and *babul* (in Thar and Párkar).

But while such a variety of materials is used, there is a great sameness amongst the processes. A few typical ones will be described. It may be taken that the others are merely variants, the chief points of difference being the time taken for the various stages or the substitution of one unhairing or tanning material for another.



The following is an account of the methods in use in Broach :—

(a) When an animal dies, the local Khalpa tanner and two or three Dheds remove the carcass to a convenient spot where the Khalpa skins it. The skin belongs to him, but the flesh is shared with the Dheds.

(b) Next he scrapes the skin with a knife to remove as much flesh as possible. It is then left in the sun for a day or two to dry. After drying, the skin is washed in water, rolled, and rubbed to further clean it.

(c) Lime water is prepared by dissolving chunam or lime in water, about five seers being required for each maund of hide. The skin, after being rubbed on the inner side with lime, is rolled up and placed in the vat containing the lime water. In four or five days the solution removes the hair from the skin. The latter is unfolded and returned to the vat for another ten days, though every day or two it is taken out, shaken, and replaced, care being taken to see that the whole of the skin is covered while in the vat.

(d) After being soaked in lime water as above for fifteen days, the skin is again scraped with an iron instrument to remove any remaining flesh or fat.

(e) The skin is next wrapped round some pieces of *babul* bark and placed in a vat containing fresh water. At the end of four or five days the water and bark are removed and fresh materials substituted. This process continues for twenty days when the skin is taken out and dried in the sun. About  $\frac{3}{4}$  lb. *babul* bark is required for each maund of hides.

(f) After drying, the skin has powdered salt rubbed in to make it soft, the process being completed by rubbing with a wooden instrument.

The following is condensed from a report of a process in use in Ahmedabad District. As will be seen, it differs considerably from those already described :—

The fresh skin is first covered with powdered ashes and spread in the sun. After drying, unhairing is taken in hand. For this purpose the skins are placed in a solution of salt in a *khand* or cistern. In it the skins are kept for ten days or so, being turned and moved each day. Afterwards milk or juice of *ankda* is poured in. Each day the skins are taken out and thoroughly rubbed. At the end of twenty-five days they are removed, cleaned and hung up to dry. For about four days now they are kept in a *khand* in which green leaves of *ankda* have been treated with water. The skins are next taken out and salted. Finally they are kept in *babul* bark extract for about twenty days when after being dried and salted they are ready for use or sale.

In the method most commonly practised in the centre and south of the Presidency the hide, instead of, or in addition to, being immersed in the tanning solution, is made into a bag and filled with it.

In Poona for example the following is the process followed :—

“The inner side of the hide is besmeared with lime and it is then immediately folded and put into water for about a fortnight. At the end

of this time it is taken out, spread on a wooden plank, and unhaired by means of a *rampi*.

It is then put into a preparation of four seers of *babul* bark pounded and mixed with two seers of pounded *hirda* (myrabolam). The hide is allowed to remain for about four days in the solution which is stirred up at intervals of about four hours. Next it is taken out and put into a stronger solution of five seers of bark mixed with three seers of *hirda*. It is kept in this preparation for four days and then formed into a bag which is completely filled up with a solution of ten seers of *babul* bark mixed with half the quantity of *hirda* and kept hanging for six days. After drying in the sun, it is ready for sale."

This method is almost universal in the districts south of the Tapti. Other methods and materials, it is true, are used, but usually only as alternatives to *babul* bark and *hirda*, while the bag part of the process is seldom omitted.

It is hardly necessary and would be unduly tedious to describe any more of the methods in use. It will be noted that in few cases is any attempt made at currying.\*

Though "tawing," the process by which skins of tigers, panthers, and deer are preserved, is strictly speaking not tanning, a brief description of it may perhaps not be out of place at this stage. The skin is steeped in pure water and washed. Next it is washed, sprinkled with salt, folded and pressed. The next day it is opened and the same process repeated. This goes on for three days, after which the salt is replaced by alum. After being treated with powdered alum for three days, it is opened and hung up to dry. When dried, it is ready for use. By this method the hair is not removed.

Reference has already been made to the newer and quicker American methods of tanning goat and other skins by chemical means. In one of these the skins are first treated with a tanning solution of bichromate of potash and hydrochloric acid. This is followed by a reducing bath of hyposulphite of soda and hydrochloric acid, after which they are washed with borax or some other alkali to neutralise the acid present. The whole process occupies only twenty-four hours. This, which is called chrome tanning, has, in the case of skins, completely superseded in the United States the older methods of bark tanning.

Up to last year one tannery existed in Bombay in which similar methods were followed, but the proprietor Mr. K. E. Talati has now removed it to Madras. This gentleman had made a study of the subject in England and America and states that he has discovered a "one-bath process" whereby chrome tanning, which as usually practised is dangerous in India, can be adapted to the different climatic conditions which prevail in this country.

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\* In Bijápúr however the Mochigars apply a varnish of crimson powder and lemon juice with cotton. This is dried and a second coating given. It is then wiped with water and oil rubbed with the hand, squeezed, flattened, cleaned, spread on a stone, and rubbed forcibly with a log covered with cotton.

From the skins thus tanned, patent and russia leathers and several kinds of morocco were prepared in the factory which existed in Bombay, but popular prejudice was against them as being Indian made and therefore inferior. The tannery has been removed to Madras, the centre of the Indian tanning industry, which affords a better market for the purchase of skins, and where skilled labour is cheaper and more plentiful than in Bombay. Mr. Talati also intends to take pupils and teach them his processes and methods not only of tanning but of finishing the skins. Should the process be all its inventor claims, one may hope that the many skins which are exported to England or elsewhere and reimported, may in the future be finished in this country.

A few words will suffice for methods of colouring and dying. In factories German aniline dyes are used for all colours.

In the more primitive tanneries 'lák' of *bhor* or *peepul* trees is used for red; in some places it is simply heated and spread over the skin, in others it is mixed with 'lodh' reduced to powder, an emulsion made, and the skins drenched with it; while in others the 'lák' is made into a powder, mixed with lime-juice, and rubbed on the leather, which is finally rubbed over with a block of wood wrapped in tape. For black, "hirakas" or sulphate of iron is the usual agent.

From Sind the following methods are reported:—For red, the leather is soaked in oil and beaten in oil cake; for yellow, soaked in pounded *haldi*, *babul* bark and alum, or in turmeric, alum, pomegranate rind, and jambo oil.



## CHAPTER IV.

### PRODUCTS.

In the Presidency proper, articles made from leather offer little variety and display little workmanship of any artistic value. Boots, shoes of various kinds, slippers and sandals are amongst the most important products of the leather-worker; but in addition he makes and supplies to the agriculturist such indispensable articles as *mots* or *kos* (the leather bags used in drawing water for irrigation purposes), *pakhals* (bags for carrying water, which consist of two hides sewn into the form of a double bag and are slung pannier fashion on bullocks), leather baskets, straps, whips, ropes, and other small articles.

In various places too—Thána, Panch Maháls, and Násik for example—harness for tonga ponies is made locally; while from Sholápur we learn that the Dhors produce excellent portmanteaus, trunks, and pleaders' bags, and that bands for mills are manufactured there. Washers, which are used in cotton ginning factories, are produced both in Bombay and Broach, from which latter place it is reported that there is a large consumption of them in local mills. Covers for account books and for seats, bags in which barbers carry their razors, etc., spectacle cases, and other such articles of trifling importance, exhaust the list of leather manufactures in the mofussil. In Bombay, as is only to be expected, we find a larger variety of products and a better class of workmanship. One large tanning factory already referred to takes army contracts on a large scale for the supply of boots and equipment generally. In it are manufactured boots and shoes of all kinds, from polo boots to rough shoes for army camp followers, gaiters, belts, saddles, harness, portmanteaus, bags, etc.

Various other factories exist too which turn out sandals and belts for police or railway contracts or make boots and shoes on a fairly extensive scale.

On the whole, however, the manufacture of shoes, and especially of native shoes, is not done in factories but in the open shops in the bazár where the small shopkeeper himself working and employing a few men makes and sells his shoes before the public gaze.

Almost all kinds of shoes used in the Presidency are found in Bombay City. It will therefore give a fairly accurate survey of the foot wear of both mofussil and city if that of the latter is described. But first the large and growing custom of wearing shoes of European pattern must be pointed out. Most of the more prosperous natives have given up the picturesque native shoes and adopted those of Western fashion. The change can only be viewed with regret, even though from the utilitarian point of view the latter may have something to recommend them.



Shoes.

In addition to the factories already mentioned, a considerable number of Mochis now make boots and shoes. For boots they charge from Rs. 3 to Rs. 6 or even as high as Rs. 8, the price depending on the leather used. For shoes the usual price is Rs. 2 to Rs. 5, rising, if European leather is used, to Rs. 6. There is nothing distinctive about either methods or products, which it is therefore unnecessary to describe.

In most parts of the mofussil and Sind too, shoes of European fashion are now manufactured by the local Mochis.

The illustration opposite page 19 shows the principal classes of native shoes, of which the following is a brief list :—

The Bráhmín shoe worn in the Deccan by higher caste Hindus generally is a low flat shoe with broad upturned toe, and soft flexible heel, which is always pressed down so that the foot slips in and out easily. These have red leather uppers of goat-skin lined with sheep-skin, and buffalo-hide soles, which are sewn on with strips of leather or ordinary strong shoe-maker's thread. In front between the sole and upper there is often a thin strip of gilt edged leather. Their price is Re. 1 to Rs. 1-8-0.

In the monsoon the same classes wear black shoes of the same material but of stronger and coarser make, with upright heels. The older type of middle class Hindus sometimes wears a black shoe with pointed toe costing about Re. 1. In Deesa, Pálanpur, and other parts of Gujarát and Káthiáwár the corresponding classes of Hindus usually wear a black well-made shoe of the usual materials costing Re. 1 to Rs. 1-4-0 according to quality. They also wear a heavy red shoe of the same shape with rather broad toes and stiff heels. The former has often a rude edging of red silk embroidery in front of the opening for the foot.

Sandals or *chappals* are a general footwear for almost all classes of Hindus in the monsoon. They consist, it is hardly necessary to say, of a stout flat sole with a strap across the instep, two narrow straps running forward from this between the toes, and a loop for the great toe. In the better class these straps are stamped with patterns or sewn with brass wire in ornamental designs. This work is done by women. The price of these sandals varies from annas 12 to Rs. 1-4-0.

Parsi shoe or *Surti jora* is worn by various classes in Broach and Surat, but in Bombay only by Parsis. At the present day however they usually wear European shaped boots and shoes. It has uppers of black sheep-skin with red goat-skin linings which are turned over at the top to form a sort of border to the black uppers. It is a pointed shoe ending in a narrow curved strip and costs about Rs. 1-8-0.

The Kokani Mussalman wears a red leather shoe with rather broad toe ornamented with red silk thread edging in front of the mouth. The same class of shoe is worn by Memons, but in this case the silk is green.

Kokani Mahomedan women wear shoes called 'zenani juta' of red leather with upturned pointed toes and stamped patterns on the inside of the shoe. The better class shoe has a little silk embroidery, usually red in colour on the centre of the opening. The upturned point is often of yellow leather. The price of these shoes is annas 12—14 per pair.

Memon and other Mahomedan women also wear a sort of half shoe with heelless uppers made of sheep-skin covered with cheap velvet and worked with gilt embroidery and spangles. Of these the cost is about Re. 1. Parsis and Mussalman women also wear for rough purposes small leather heelless shoes (*sapat*), of which the cost is only annas 6—8.

Hindu women, it need hardly be said, do not as a rule wear shoes.

Bhori shoes are well shaped and pointed, the point ending in a curved end which comes back almost to the opening. The usual materials are used and the common decoration of a little silk embroidery.

Various other shoes are found, usually worn by some special classes or on special occasions. Such are those worn by Káthiáwár Koli and other low caste women in marriage processions. They are gondola-shaped, with upturned toe, decorated with coloured paper or brass eyelets. They cost annas 12.

Punjabi shoes are of this class. They are made of cow-skin uppers, embroidered with gilt thread and ornamented with spangles.

Káthiáwári shoes of red leather with eyelets inserted are shown separately in the photograph. They are worn only by young men and cost Rs. 1-5-0.

Finally we have the Goa *sapat*, the cheapest of all shoes, worth annas 4—6, worn by the poorest classes, also by better class people when bathing.

Harness in Bombay betrays no features of special interest. In addition to the factories already mentioned, the writer found ten or twelve shops where black or brown harness was produced. The prices for a set varied from Rs. 30 to Rs. 60. The leather is bought from some of the shops kept in the bazar by the large tanners whose methods and tanneries have been described in a former chapter.

Up-country the tonga pony saddle is made in various places. The following description comes from Thána:—

"These saddles are made of leather stuffed inside with cocoanut fibre, covered with jute and cotton. They are 26 inches broad and 14 in length, but have a projection fitting against the pony's neck. Just below the projection a piece of leather with straps and buckles is stitched to hold the yoke pole. A brass ring is attached to the back of the saddle, to which is attached a strap passing along the pony's back with a loop passing under the tail. The saddle is attached by two girths fastened to straps on either side. The hauling power is

chiefly obtained from a leather band 16 by 4 inches on the pony's chest, with rings at either end, through which rings are passed and tied to the yoke pole. No traces are used."

The price of such a set of harness is not reported.

*Mots.*—It is hardly necessary to describe these large leather bags with iron hook at one end tapering to a narrow outlet at the other, which are so commonly used in drawing water by bullocks for irrigation purposes. Their cost is variously reported, from Rs. 6-10 in one district to as high as Rs. 14 in another.

*Pakhals.*—The double bags used by bhisties for carrying water on bullocks or buffaloes cost about Rs. 10.

Portmanteaus and trunks are made in Bombay and differ only in price and quality from those imported. In Sholapur "there are half a dozen Dhors who prepare these articles. Two small portmanteaus or bags are prepared out of one hide, for which the Dhor pays about Rs. 4, brass nails, lining, etc., costing him an additional annas 4. On an average one man can prepare a bag in a day or two. He sells it for Rs. 3 or Rs. 3-4-0, obtaining a margin of annas 12 or Re. 1 profit. For a trunk, a little less than one entire skin is needed, other materials cost about one rupee. It takes about five days to prepare one trunk which is sold, if large, for Rs. 8, if small for Rs. 5. Hand-bags, such as are used by vakils and medical practitioners, are also prepared by these people and sold for Rs. 2."

The above are the chief products in the Presidency proper, though a very large number of small articles, such as belts, bell straps for bullocks, reins, blinds for mill-oven, etc., are made in various places.

In Sind many of the above articles are also produced, but in addition we find various articles possessing both a technical and artistic interest.

*Nafs*, or camel saddle-cloths (*see* frontispiece), claim first place, representing the highest degree of excellence attained in artistic leather-working in the Presidency. An account from Hyderabad, the chief centre of their manufacture, states that "they are made of hog-deer skin carefully prepared and of a very fine and soft texture. They are brilliantly and elaborately embroidered in red, yellow, blue, green, purple, crimson, as well as with gold and silver thread. The floral and geometrical patterns exhibit considerable taste and ingenuity, and are executed with a niceness of finish by no means invariable in native manufactures." Their value is from Rs. 15 to Rs. 450. Here too leather pads for camel saddles and girths of leather and woven camel's hair adorned with innumerable tassels and frequently of tasteful and excellent workmanship are manufactured. The horse saddlery is of considerable interest, the side portions of the saddle-frame being embroidered with coloured thread and gold and silver wire and coloured glass ornaments inserted. The average price of saddle and saddle-cloth is Rs. 75.

Another curious art still survives in Sind in the manufacture of *dabas*. These leather jars for holding ghee, oil, and other liquids were formerly produced on a large scale in Ahmedábád, from whence they were exported to such distant places as the Persian Gulf. Their manufacture in Gujarát has now almost entirely ceased, their place being taken by vessels of tin.

The following is an account of their manufacture in Hyderábád, where their makers are called *dabgárs*:—

“ These persons manufacture a very curious species of receptacle for oil and other liquids known as *dabas*. *Dabas* are of two kinds, large round jars similar in shape to the ordinary earthenware *dila*, and smaller and more elegant vessels with a handle and long, slender, curved spout used for distributing the oil in drops. The raw hides of camels, buffaloes, and oxen are used. The *modus operandi* is as follows:—An earthen model of the vessel is constructed and dried. The hides are macerated in water till they are soft and easily cut; while they are still soft and pliable, small pieces are detached by a chisel and are pasted around the clay model, the adhesive element being supplied by the ground seeds of an oil plant (*hurbo*). After one complete layer has been affixed, the vessel is allowed to dry. A second layer is then superimposed, which in the case of smaller vessels suffices. For the larger, capable of containing several gallons of oil, first a layer of bullock-hide is used, then two of camel-hide, and finally one of bullock-hide. The clay groundwork is then broken and extracted and the *daba* is left for some time to become seasoned. The price of a large *daba* is about Rs. 4, of a small one, annas 8 to Rs. 1-8. The completed article has a very smooth and finished appearance, resembling India-rubber.”

Embroidred shoes, guard-belts, *katardans* (leather receptacles for cups, used by Mahomedans), and gaiters are also produced in Sind; but the remaining articles do not call for any special remark.

Finally, mention may be made of the fact that one shield-maker (*dhalgár*) still pursues his craft in Ahmedabad. Though his shields are as a rule not made from leather but from rhinoceros-hide, he also uses hilgal skins. These are enamelled in gold and red or painted, generally with Indian court scenes.

Rhinoceros-hide shields are carved. The shields vary in price from Rs. 10 to Rs. 400, and take from a few days to six months to make.

*Fig. 5.*



*Dabas.*

## CHAPTER V.

### TANNERS AND LEATHER WORKERS.

“ Among the skilled, the painter stands first, and among the unskilled, the shoemaker.”—*Gujarátí proverb.*

Before surveying in brief detail the particular classes whose livelihood is dependent on leather and its uses, some short general account of the status and condition of those engaged in the industry may not be out of place.

The position of the worker who supplies the village with its *mots* and *pakhals*, its shoes and harness, has never been an honoured one, useful and necessary as his labours are.

From the days of Manu's Code he has been classed with the degraded castes, and though now-a-days the Mángs, Mahárs, and others may be held lower than “ the Chámbhár, the basest of men,” the position of the latter is considered little higher than in the days of the great law-giver.

The trade, needless to state, is a hereditary one, son following father, as Dhor, the village tanner, or Mochi, the maker of shoes for the village. The position of the leather-worker in the village in historic times, though humble, was by no means contemptible. As a craftsman the Mochi, at any rate, occupied a position removed in some degree to a higher place than that of the lower village servants. His products were indispensable to the community. By means of his leather bags the cultivator irrigated his fields, and with his thongs and straps bound the bullocks to the plough. Saddles and shoes might be more or less a luxury to the many, but in any except the least prosperous times, there was a steady demand for these products of his craft.

External competition did not reach him in his village, and the hereditary organization of his industry assisted to prevent its development internally. Even now in most places he holds his own, as far as leather-working is concerned. In tanning, on the other hand, signs are not wanting that improved methods of tanning, production on a large scale, and better communications are tending to take from the native tanner the primary processes in the production of leather goods. The large and widespread demand for hides for the purposes of the large tanneries and for export has raised the price of the raw article, and it is stated has caused the village tanners to lose, to some extent, the work they formerly performed. The hides instead of being tanned by them are bought up by the agents of the large tanneries and returned in the shape of leather or exported, principally to England. From Cawnpore leather reaches to such varied parts as Hyderábád (Sind), the Panch Maháls, and Khándesh, while the leather-producing centres in the Presidency, such as Bombay and Ahmedábád, supply most of the better quality used. In the South too, some Madras-tanned leather reaches the districts there. But while this is so, the fact still remains •



that external competition touches only the fringes of the widespread leather industry. The village shoemaker still retains his hold of the local market, while the leather articles in common use, which he has supplied from time immemorial, will probably be so supplied in the future. His character varies in different parts; hardworking, dirty, and thrifty are the usual epithets applied to him. In Gujarát however his thriftlessness and improvidence are a byword, and in the South his indebtedness to the *sarkár* is a natural consequence of his extravagant expenditure on ceremonial occasions.

Except in the larger centres, and in many cases even there, the industry is not on an organized basis, each tanner or shoemaker works for himself, aided by brothers or other relations, and usually in the lighter parts of his work by the women of the family. In Bombay City and a few other places factories and large tanneries are in existence, where production is carried on on a large scale. In the eight or ten important tanneries which are found in Bombay the position of the labourer is on the whole good; his labour is better remunerated than that of other classes of the same low status; his earnings are fairly certain (though dependent to some extent on the season), and if his surroundings are neither savoury nor sanitary, the work though unpleasant is physically not severe.

The masters and owners of such establishments belong in most cases to the Memon or Borha communities, though the owner of one of the largest is by caste a Mochi. They are as a class keen men of business and well-to-do. The intelligence which has led them to prosperity in other businesses has not been wanting here. Nevertheless, new methods are slow in being adopted, and processes change slowly and with difficulty. If this is true in Bombay, it applies with much more force to the country districts, where the processes are practically traditional. Some laudable exceptions there are to this mental apathy, but these are found rather in other and more energetic classes who, breaking away from time-honoured prejudices, have adopted the industry, and hire the hereditary workers as workmen in their tanneries.

Such a case is reported from Surat District, where in Vejalpore American chemical processes have lately been introduced. With these, skins which formerly took one month to tan are made ready in a day. A tannery of the same class was in existence for some years in Bombay, but owing, it is stated, to the difficulty in finding a market for its goods, which, though finished in the manner of English skins, were rejected as 'country,' and to the difficulty in obtaining skilled labourers, it has now been removed to Madras. Its proprietor Mr. Taláti made a scientific study of the chrome tanning of skins, and discovered a method by which, it is asserted, the American processes can be used with safety under the different climatic conditions which prevail in India. Such enterprise is unfortunately completely lacking in the caste whose hereditary callings are connected with hides or leather.

The position of the shoemaker or other worker in leather has been still less affected by any changes in methods or organization. Centres of production, such as Bombay and Poona, do exist, but their products though carried to some

considerable distance do not reach further than the higher classes, while the humbler village worker meets the wants of the remainder of the population.

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In the Bombay Presidency the three chief classes who tan or work in leather are Mochis, Chámhbárs, and Dhors. The first are leather-workers only and do not tan, Chámhbárs do both, while Dhors as a rule are merely tanners.

#### *Mochis.*

The Mochis are the highest class of workers in leather. It sometimes happens, as in the case of the Chámhbárs, that the leather-worker is also a tanner, but Mochis despise the work of the latter (who occupies a distinctly inferior position in the social scale), and confine themselves to the manufacture of articles from the tanned leather.

In various parts of the Presidency various names are given them, thus in the South they are known as 'Mochigars,' while in Sind the word used is 'Sochi.'

The total number of Mochis and Chámhbárs in British districts was at the last census 311,298 (separate figures are not given), or including Jain and Mussalman Mochis, 313,719, the figures showing an increase of 23 per cent. from 1891. On the other hand, it must be remembered that Mochis practise other callings in addition to leather-working. In Gujarát, for example, the caste has thirteen sub-divisions, in some of which the members occupy themselves with such trades as spangle-making, gilt wire embroidery, etc. Their numbers are greatest in the Central Division and in the Northern Division and the Káthiáwár States. In Sind the number of Hindu Mochis is small, the work being mainly in the hands of Mussalmans. One strange feature displayed by the last census returns is that while Mochis and Chámhbárs have, as mentioned above, largely increased, the number of people supported by leather industries, of whom the above classes form by far the most important section, has in the same period fallen by 15 per cent.

The inference seems to be that many members of the leather-working castes have turned their energies to other callings, and this is supported by reports from many districts that these classes supplement their earnings from leather-working by engaging in agriculture. Still as shoe, boot, and sandal makers number over 50,000 male workers in their ranks in British districts, and support a total population of almost 150,000, their industry is still an important and vigorous one.

The chief products of the Mochi are footwear. The various classes of these products, from the boots of European pattern which cost six or eight rupees down to the sandals at the same number of annas, are described elsewhere.

In addition, the Mochi turns out harness, bags, covers for books, *pakhals* (bags in which water is carried on buffaloes), *mots* (leather bags for irrigation purposes), straps, whips, belting for mills, leather covers for seats, etc. His tools consist usually of an awl, needles, hammer, knife, stone for sharpening purposes, with perhaps in more civilised parts a pair of pincers. In Bombay in some of the Mochis' shops sewing machines may even be seen. Their earnings vary; in the mofussil they are stated to make a profit of 4 to 6 annas on each pair of shoes, which they sell for Re. 1 to Rs. 1-8-0. On cheaper shoes their profits are proportionately less. A good workman can make a pair of shoes in one day.

In Bombay the Mochi is usually not his own master. Each shop contains from four to six workmen, who are paid as a rule by piece-work. Annas 8 seems about the average wage, but a clever man it is stated can earn annas 12. Various classes of Mochi are found in Bombay, the chief being the Gujaráti, the Bengali, and the Maráthi Mochi. The first two classes supply the cleverest workmen, making harness in addition to shoes. They say that owing to the rise in price of leather and increased competition from an influx of country Mochis, their earnings have decreased. As an English-speaking Mochi put it, "Formerly we were very happy; now we are very unhappy. What can we do?" Very few speak English. The writer met only with the one mentioned above. As a rule they are illiterate, but many of the boys now attend school. The women assist by doing the silk embroidery which edges the mouths of the shoes, or other ornamental work of this nature. In this way they earn about annas 4 per day. They live in overcrowded dwellings, as many as three families sharing one room. Such is the Mochi in Bombay.

In the mofussil the conditions under which he works are different. Each man is usually his own master and his profit is derived from the sale of the articles he makes. A distinction must be made between the Mochis of Gujarát and those of the Southern and Central Divisions. The former claim and occupy a higher position in the social scale than their fellow craftsmen further south, though in both parts they rank below the agricultural and above the degraded classes. This difference may be due in part to the fact already referred to that in Gujarát and Káthiáwár leather-working has for centuries back been practised on a scale and has attained a dignity of which we find no traces in the Maráthá Country.

A detailed account of the Gujaráti Mochis is given at page 192 in volume IX of the Bombay Gazetteer. According to it the Mochis state that they were Rajputs who got their present name because one of them made a pair of stockings or *moja* out of a tiger's skin, and their claim to be of Rajput origin is borne out by their tribal surnames. They are divided into sections both according to locality and according to calling. Some of them no longer work in leather, and among the thirteen subdivisions which are mentioned, we find such varied callings as spangle making, electroplating, working in enamel, and making silver and gold foil, in addition to occupations which more properly

belong to Mochis,—the manufacture of shoes, saddles, shields, and leather pots (*dabas*) for example.

The Mochi holds a low position in the social scale, and though he does not touch Khalpas, Dheds, or other depressed classes, his touch is considered a pollution by a high class Hindu.

Their taking to what are considered purer callings has however so raised their social position that they are now treated as on a level with bricklayers, carpenters, and other artisans. As a rule a Mochi neither tans nor cobbles shoes; he buys his leather from Mussalman hide merchants or occasionally from Dheds, Bhangias, and it is presumed Khalpas, who are the local tanners. His tools are several leather-cutting broad knives, needles, stone scales, earthen water-jars, brushes, and wooden lasts of different sizes, costing in all about two rupees. In his work he has to compete with a small number of Multani Mussalman Mochis who are also found in Gujarát. These are hardworking and thrifty, but have a poor name for honesty. Their shoes are in great request, especially amongst women.

Though quiet, well-behaved, and, except in South Gujarát, sober, the Mochi is neither a skilled nor a steady workman, and is generally thriftless, so much so, that his procrastination is a bye-word. A Gujaráti proverb speaks of "The goldsmith's to-night, and the shoemaker's to-morrow morning." Though most of them are badly off some are well-to-do, and they are on the whole an enterprising class. In the Central and Southern Divisions the Mochi occupies a similar position, lower if anything, as here he does not seem to have taken to other pursuits. He makes shoes, sandals and harness, but does not tan, and as a rule leaves *mots* and *pakhals* to the Chámbhár or Dhor. His position, where there is a demand for his services, is fair, but on the whole is not flourishing. In the South they are called Mochigars or Modigars and claim descent from one Arayala Shiv's first disciple who presented his teacher with a pair of shoes made from his own skin and was condemned as a punishment to be a shoemaker. Twenty years ago they were reported to be fairly well off, possessing in Bijápur some money-lenders in their ranks; but judging from present-day reports their condition has fallen off since then. Jingárs or saddle-makers found in some few places, and Dabgárs who make in Gujarát and Khándesh the *dabas* described elsewhere, belong to the Mochi caste.

In Sind the village Mochis, who are mostly Mussulmans, are the chief workers in leather, but in Hyderábád there are in addition Sochis, Sarazis, and Dabgárs. The industry and products of the latter classes are described elsewhere.

#### *Chámbhárs.*

These constitute the next most important class to Mochis, occupying an intermediate place between them and the Dhors (tanners). The Chámbhárs would seem to be the most numerous class of leather-workers in the Central

and Southern Divisions. As stated before, they both tan and work leather, making shoes, sandals, *pakhals*, *mots*, etc. Their work however is of a rougher description than that done by Mochis, though in localities where the latter are not found the Chámbhárs take their place and do their work. They are not so well off as Mochis and earn little more than a living. Like all leather-workers Chámbhárs are considered below the agricultural and above the depressed classes, but their shadow is not considered to pollute the higher class Hindu. As a class they are reported to be dirty, hard working, orderly and hospitable, thrifty on the whole, except those in the Southern Coast districts who are spoken of as thriftless, fond of drink, and quarrelsome. In the Ahmednagar Gazetteer they are described as "dark, strong, well made, with dull expression and high cheek bones," and these seem their general characteristics. They worship the images of Bahiroba, Devi, Khandoba, and Mahadev. The chief divisions are Lingayat, Marathi, and Pardeshi Chámbhárs, or Samgars as they are called in the South. These eat together but do not intermarry. Their houses are small and one-storied, usually on the outskirts of the village, with wattle and daub walls and thatched roof, or in the case of the well-to-do, with mud or dried brick walls and thatched roof. Social disputes are settled by caste meetings presided over by a headman. Their condition and industry are stationary, if not declining, probably from causes common to all leather-workers—the increased demand for hides and skins being one of the chief.

#### *Dhors.*

In the Central and Southern Divisions and in the Southern Marátha States the Dhors are the tanners. They are found from Khándesh to Kánara, but are practically unknown in the Southern Coast districts as also in the districts of the Northern Division and the Gujarát States. A few follow their calling in Bombay, but their numbers are largest in Sátára, Sholápur, and Belgaum. Their place is at the head of the impure classes, below Kunbis and Malis, but above the degraded classes from whose hands they will not eat. As a class they are reported to be dirty, hard working, orderly, thrifty, good-natured and hospitable. In look, speech, dress and customs they closely resemble Chámbhárs. In villages they keep in order the water-bags or *mots*. For this they were formerly paid in grain at harvest time; but the custom seems now to have died out. The women look after the house and assist the men in the lighter parts of tanning work, such as breaking barks. They are bound together by a caste feeling and settle social disputes at caste meetings; breaches of social rules are punished by fines which take the form of caste dinners, and the decisions are enforced on pain of loss of caste.

Of the total 19,089 which make up the caste, the majority are orthodox Hindus, but a few, about 400, belong to the Lingayat sect. They are generally a religious people, worshipping all Brahmanic and local gods and keeping all Hindu holidays and fasts. Mahadev, Khandoba, Jotiba, and Vithoba are specially revered by them. Their priest is usually a Bráhmín, but in the case of such Dhors as worship Shiva, his place is taken by a jangam.

Their earnings in the mofussil are reported to be about annas 2 per day, but as this is derived from the sale of the skins tanned by themselves, it varies largely and is difficult to estimate with any approach to accuracy. As a rule they do not earn more than an agricultural labourer. Some supplement this scanty income derived from tanning by engaging in agriculture. Their profit is estimated at from Re. 1 to 1-8-0 per cow-hide tanned and Re. 1-8-0 to 2-8-0 per buffalo-hide; but from this has to be deducted the cost of their materials and labour. The raw is bought by them direct from the Mang or the Mahár who has removed it from the carcass of the dead animal which is his *hak* or perquisite. The tanned leather they do not themselves generally work up but sell to the Chámhbár or the Mochi or to the agents of Madras or Bombay firms for export. In Sholápur, however, the Dhors are reported to make good portmanteaus of English pattern. They also make *mots* and *pakhals* in various places.

Small colonies exist in the cities and chief towns of the centre and south of the Presidency, but outside they are generally only to be found in groups or families of one or two in the important villages. Their condition is nowhere reported to be very flourishing, and though the industry is on the whole fairly stationary, it has undoubtedly suffered in many places from the demand from hides for export to the larger tanning centres or to England.

*Saltangers* are tanners, found in small numbers in Násik, Ahmednagar and perhaps in Khándesh. Their numbers are few, and in dress and characteristics they differ little from Chámhbárs. They are dark, strong, and muscular like the local Kunbis below whom they rank in the social scale. In addition to tanning they dye leather and patch drums. Their customs, religious and social, are those of the other lower leather-workers. They have a caste council and settle disputes at caste meetings.

#### *Khalpa.*

In Southern Gujarát the tanners are Khalpas, in the North, Chámhbárs or Chamadias and Dafgars.

The Khalpa's work consists chiefly of tanning, but in addition he makes rough shoes for cultivators, *kos* (leather bag), and *varat* (thong or rope) for drawing water from wells, and straps and thongs. Their leather is chiefly made from the skins of buffaloes, bullocks, and cows.

Each village has its own Khalpas, who as village servants hold lands at one-half the ordinary rental. As a class they are poor, living from hand to mouth, and adding to their earnings from tanning by cultivating a little land or working in the fields as labourers. They show few signs of improvement or progress.

The chief leather-working classes have now been described, but in addition we find in particular localities other classes concerned to some small extent in leather-working or tanning. Thus in Sátára, the Holer (a Mahár) cobbler and in

Bijápur the Mang tan; the Kasai or butcher in Násik (called Kathi in Kaira) also tans; while in Sind, in addition to a caste called Kalals, who wander about among the villages collecting hides and supplying them tanned or untanned to the village Mochis and the larger tanneries and leather-workers in Hyderábád, Dheds, Mangwars, Jatias and Kamals all engage in tanning.

Finally, mention must be made of the Madrási Tamil-speaking tanners who work in the tanneries both at Ahmedábád and Bombay. It is stated that these people furnish better labour than the Bombay Dhor or Chámhár and are less affected by working amongst solutions of lime, bark, etc. Their wages are from Rs. 10 to 12, but a good workman may receive up to Rs. 20, or in case of a *mistri* or foreman, as much as Rs. 50.

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## CHAPTER VI

### GEOGRAPHICAL SURVEY.

At some risk of repetition it may perhaps be worth while to survey the leather-working industry as it is divided geographically, and describe as briefly as possible its nature and extent in each district.

### CENTRAL DIVISION.

#### POONA.

Poona is one of the chief centres of the native shoe trade. The Poona Mochis not only supply the wants of the city and neighbouring villages but export shoes to meet a large external demand, being sent to Násik, Ahmednagar, and other surrounding districts. Even in Bombay the Poona shoes are highly esteemed, especially those of the shape usually worn by Brahmins. The number of people in Poona District who are connected in one way or another with the leather industry was, in 1901, 13,904, of which the majority belonged to the shoe, boot, and sandal making class.

In addition to shoes of native pattern considerable numbers of European-shaped shoes and boots are prepared, while the Chámhárs, who are to be found in almost every village, make *mots*, water-bags, thongs, ropes, whips, etc.

#### NA'SIK.

In Násik District the industry is nowhere of much importance and is reported to be in a very undeveloped state. In the town of Násik the number of people who work in leather is only 25, and these do not produce work requiring or displaying skill. The principal items of trade are as usual *mots* and shoes, but even these are not all supplied by the local workers as the better sort of shoes and harness are imported from Ahmednagar and Poona. Leather, too, is mostly brought from other districts, the number of tanners being small. There is also a certain amount of trade to the extent of Rs. 200 or so per annum in the dyed sheep-skin used by local book-binders for covers of books and for merchants' account books. The total trade is estimated at about Rs. 3,000 per year. In the district also there is little to report beyond the usual manufacture of *mots*, slippers, ropes, etc.

#### AHMEDNAGAR.

In Ahmednagar the state of affairs is much the same as in Násik. The industry exists but can hardly be said to do more; the local wants for common articles are supplied, but of export trade there is little or none. In Nagar itself shoes of English pattern are made to order. Native shoes, *mots*, and plaited whips are however the chief products.

#### SHOLÁPUR.

In Sholápur there are two features of note, first that the City Bazár is one to which many raw skins are brought. These are purchased by the



agents of Madras and Central Provinces firms and exported to those provinces. The second is the manufacture of leather portmanteaus and trunks. About half a dozen Dhors are engaged on this work, and it is reported that there is a large demand for their handiwork. The same workmen also make the smaller hand-bags used by vakils and medical practitioners.

Mochis there are a few, who prepare boots, shoes, slippers, and harness, and Chámbhárs, who devote themselves to the manufacture of *mots*, *chadhav jutas*, *chappals*, and leather bands for mills.

In the villages it is reported that tanning, which was formerly carried on on a large scale, has considerably declined, and that whereas every middle-sized village formerly had its own tanners, these are now found only in a few of the large ones.

### SA'TARA.

Here too there are no factories, and tanning and leather-working is carried on on the usual petty scale, rough leather shoes, boots, bridles, saddles, and water-skins being prepared at Sátára, while the Chámbhárs of outlying villages make shoes with leather purchased from Sátára.

Chámbhárs, Dheds, and Dhors are the chief workers, their numbers being given as 14,592 in 1901.

### KHA'NDESH.

The industry does not exist in this district anywhere on a large scale, or on an organized basis. Almost every village, however, has its Chámbhárs who purchase leather from large towns, and tanning is carried on in isolated towns and villages in different parts of the district.

The usual articles turned out in leather are *mots*, country shoes and boots, country saddles, and leather ropes.

Chámbhárs, Dhors, Kachis, and Pardeshi Mochis are the castes that engage in the industry of tanning and working in leather, their total number being 21,325. The condition of the industry is stationary, if not declining, owing to a growing taste for articles of European manufacture, though the simpler articles for the daily wants of the poorer class of villagers still continue to be supplied by the local manufacturer.

## NORTHERN DIVISION.

### AHMEDA'BA'D.

Next to Bombay Ahmedábád is the most important centre of the industry in the Presidency. In or near the city there are four tanneries of considerable size and forty-six of minor importance. These latter tanneries, which use the most primitive methods, are of considerable age, and it is now impossible to ascertain with certainty when the industry took root in Ahmedábád. The four larger tanneries are all of recent establishment, the oldest having been built only

eight years ago. The methods in use in the two are different, the former using lime in the unhairing stage, the latter *akda* or *jevasi*. The lime tanneries are substantial buildings with separate parts properly arranged and equipped for the several stages in preparing and tanning the hides. In the case of the poorer tanneries the work is carried on in flimsy sheds whose chief equipment consists in a few earthen pots. The methods pursued in the two classes of tanneries are slightly different, the former using lime for unhairing, the latter *akda* (*calotropis gigantea*) and *jevasi*.

No tools beyond the ordinary knife are used in the smaller establishments, but in the others curved shaving knives and beams and blunt softening knives fixed on upright posts are found.

The chief articles produced are boots and shoes of European and native pattern and covers for native account books. In addition, considerable quantities of tanned leather are exported, principally to England.

In the larger tanneries the skilled workmen are usually Madrasis, the unskilled, natives of the district. The former get Rs. 20 and upwards per month as wages, the latter seldom above Rs. 10. Chámhárs, Dheds and butchers (Kasais) own the small establishments and do the work themselves with the help of their families. In addition to the skins already mentioned, deer and camel skins are sometimes tanned, and sheep, deer, and tiger skins preserved by "tawing."

Tanning is also carried on to some extent throughout the district, the products being used to supply the local demand. For the coloured uppers of shoes, leather from Ahmedabad is sometimes obtained. Mochis make shoes, but the tanners usually prepare *kos* themselves.

### BROACH.

In this district there is little of note. Shoes are the chief product. In addition, *kos*, leather thongs, and straps are produced.

The tanners are Khalpas by caste, but Mochis and Dabgars also work in leather, the former making the better class of shoes, the latter drums and jars. Leather washers for cotton ginning factories are, as already stated, a special feature of Broach.

### SURAT.

Tanning on a commercial scale is carried on in two places in Surat District, Vejalpore and Katargam. In Vejalpore there is a factory in which the new and quicker American processes of chemical tanning have replaced the bark methods. In this, various kinds of coloured and prepared leathers, *e. g.*, carriage leather and leather for machinery, are prepared. A market is found in Bombay and exports are also sent to England. At Katargam the factory turns out each year dyed and polished leather to the value of Rs. 2,000. Much of the roughly tanned leather of the village tanners who exist here as elsewhere, finds its way to this tannery.

In Surat itself tanning is only done by two persons.

## PANCH MAHALS

Three factories are found in the Panch Maháls, each employing ten labourers or so who are of the Chámhárs caste, the owners belonging to the Ghanchi community, a caste of Hindu converts to Islam, of commendable industry and enterprise. Each factory turns out from 30 to 75 kacha maunds per month. The price per maund varies from Rs. 20 to Rs. 24. It is exported mostly to Indore and the other States of the Central India Agency.

The trade received a great impetus in years of famine, but has now considerably dwindled, and most of the leather tanned is consumed locally. The leather is mostly such as is used for country shoes, rough but good of its kind. No dyeing is at present done, but signs are not lacking that this branch of leather preparation will soon be taken up. It must be mentioned that in some parts Cawnpore leather is used for making the better class of shoes.

### THANA.

The leather-workers in this division are not numerous, nor is there anything novel in the processes of products. Settlements of Chámhárs are found in many villages; in some, these Chámhárs are Christians. Shoes of European and native pattern are produced; boots also. For making the red leather shoe generally worn by Brahmins and higher caste Hindus the leather is brought ready tanned from Bombay.

Tonga pony saddles are also manufactured in some parts, and in addition many small articles in common use, such as reins, straps, barber's cases, whips, etc.

### KAIRA.

Here the industry hardly merits the name. The Chámhárs who tan the hides make from the leather only *Kos*, selling the remainder to Mochis who supply shoes, or to merchants who deal in skin.

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## SOUTHERN DIVISION.

### BELGAUM.

The leather industry in Belgaum is still in a primitive state, the workers belonging to the lowest castes, such as Mahárs, Dheds, Chámhárs, etc., and being very poor, generally living a hand-to-mouth existence. The usual articles are produced, but no work of an ornamental or artistic character.

Outside the town of Belgaum leather-workers and tanners are found in small groups of one or two families in most of the larger villages. They both procure and tan hides and make leather articles useful to the local agriculturist, which they sell either at their own houses or in the local markets.

In Belgaum there exists one tannery of considerable size, which tans leather in the usual way, exporting it to London. Another, which formerly worked here, has now been removed to the Kurundvad State.

The articles usually made are ropes and belts for yokes, whips, saddles, shoes, and *mots*.

#### BIJA'PUR.

In this district the industry is to some extent subject to competition, agents from Madras firms being located in various villages and purchasing skins which are salted, and after tanning at Jambur sent to Madras, whence they are exported to England. In the parts where these agencies are established few skins and hides are left to be dressed by the local workers, who are mostly Mahárs, Mangs, and Chámhárs. Nevertheless, the manufacture of shoes, *mots*, *pakhals*, etc., is carried on to an extent sufficient to meet local requirements. For the better class of shoe some leather is imported from Bombay or Madras, but locally prepared leather is mostly used.

#### KOLA'BA.

Here, too, it is stated that the tanning of hide and working of leather is not extensively carried on. The industry is stationary, and the condition of the Chámhárs not thriving. The majority of them can only be said to live from hand to mouth and supplement their scanty income by field labour.

Tanned leather is sometimes imported from Up-Ghát districts and native shoes prepared and sold; but this only in a few places, and not on a large or noteworthy scale.

#### RATNA'GIRI.

In Ratnágiri there is no leather-working worth the name except the commonest work of making country shoes. These are made by the Chámhárs throughout the district, but certain localities have a good local name for their skill in making sandals (*vahanas*) worn by natives in the rainy season, and their products when exported to Bombay and other places find a ready market on account of their softness and durability. The trade however is very small and not worth the name.

#### DHA'RWAR.

From Dhárwár it is reported that tanning and working in leather is not carried on on a large scale, and that no articles displaying any artistic skill are manufactured. The chief leather wares are shoes (of an inferior description), leather buckets, country boots, straps, and whips.

#### KANARA.

Tanning and working in leather can hardly be called an industry in this district, the few Chámhárs who deal in leather produce only native shoes, and these seldom go outside the district. These shoes and sandals are made in all talukas, as also spectacle cases, belts, and straps. Hides of buffaloes are used for covering wicker boxes made of cane.

## SIND.

## HYDERABAD.

The industry of tanning and leather-working as carried on in Hyderabad District presents features of unusual interest. Though not prosecuted on a large scale, except in the town of Hyderabad, it is there of considerable importance. In the outlying district only shoes of the commonest description, leather thongs, harness, and domestic articles such as bags, are made, and there is nothing noteworthy in the methods or processes. It appears that in various places work of a finer kind—embroidered gaiters, camel saddle-covers, scabbards and sword belts, jesses and gauntlets for falconry, were formerly made, but the industry has now decayed and maintains a precarious existence in a few isolated localities. The causes are the impoverishment of the once wealthy and influential families of good birth, which has diminished the demand for these articles, in consequence of which the traditional methods and patterns are being rapidly forgotten, and not less potent, and from the point of view of industrial art not less pernicious, the importation of cheap European leather and European patterns.

While this has proved disastrous to the native manufacture of leather articles, adoption of European methods has resulted in an improvement of the actual process of tanning. The leather prepared in Hyderabad, together with a certain amount imported from Cawnpore or England, is used by the bazar Mochis, who make boots and shoes of an European pattern, also Cawnpore saddlery, bolsters, travelling bags, and other articles, for disposal to the European community. There are, however, three communities who continue to practice purely indigenous manufactures on a considerable scale and of considerable interest—they are the Sochis, Sarazis, and the Dabgars.

The first are Marward immigrants, of which a community of several hundreds are engaged in the trade which consists in the manufacture of embroidered articles of various kinds, such as shoes and leather bags.

They also manufacture leather pads for camel saddles and girths of leather and woven camel's hair adorned with innumerable tassels and frequently of tasteful and excellent workmanship.

Their horse saddlery is of considerable merit, but their best work consists of *nats* or camel saddle-cloths; these are made of hog-deer skin carefully prepared and of a very fine and soft texture, brilliantly and elaborately embroidered in red, yellow, blue, green, purple, and crimson, as well as with gold and silver thread.

The Sarazis manufacture the lighter and more delicate articles for personal and domestic use, shoes for the zenana of elegant and finished workmanship, guard belts, gaiters, etc. This industry appears to be rapidly decaying, as amongst the wealthier classes European patterns are being to a large extent adopted. It is now almost impossible to obtain samples of their sword belts

and other articles only used by Mirs, Pirs, and Sayads on Darbár occasions, but existing specimens show that much skill and artistic ingenuity was once displayed in their production.

Dabgars manufacture the very curious species of receptacle for oil and other liquids known as *dabas*, also drums.

### KARÁCHI.

In Karáchi itself the industry is not a flourishing one, the people who work in hides are ignorant and their methods crude. Many hides are exported to Europe after salting and drying or after being treated with arsenic. In the district, shoes are the chief and almost the only article made of leather, *pakhals* or water-bags being the only other article mentioned.

### THAR AND PÁRKAR.

A considerable industry is reported from this part of Sind, carried on principally, as regards the common articles, by Dheds and Mangwars.

A large variety of articles is produced, shoes, ropes, saddlery, bridles, reins, stirrup leathers, martingales, gaiters, bags, etc. Some articles, such as *nats*, the covering for camel saddles, are elaborately embroidered in silk.

### LARKHANA.

Here the leather work is confined to the making of shoes and in some cases to that of bridle reins in addition. The industry has suffered to an appreciable extent owing to the importation of leather work from the Punjáb and England. The quality of the local work has not changed, but prices have fallen from the competition between local manufactures and imported goods.

In the manufacture of shoes there is nothing fanciful or ornamental, though often there is some embroidery work over the toes and near the heels. This however is usually not of a superior character.

The work is generally confined to Mahomedans of the Sunni sect.

### SUKKAR.

The work as carried on in this district is of an extremely crude character, and the trade is not in a flourishing condition.

In addition to shoes, harness and saddle-cloths, the leather-workers also make *nats*, leather coverings for camel or horse saddles, *pakhals*, pairs of large leathern water bags generally borne on bullocks, and waist belts.

Much of the work is of a more or less ornate character, but of no great artistic merit. Though the embroidery is quaint and picturesque, the leather is of inferior quality.

In *Upper Sind Frontier*, tanning and leather working industries are reported to be practically non-existent.

## CHAPTER VII.

### CONCLUSION.

Having now completed the survey of the various aspects of the leather industry, it may not be inappropriate very briefly to draw together the scattered threads of this survey and consider the general state and prospects of the industry as a whole. The village tanner's condition, as has been shown, is not a flourishing one, and any changes during the last ten years have been in a backward direction. Little improvement can be looked for, as the rise of tanning on a large scale in India, and the demand of skins for export, coupled with improved means of transit, can only be expected to lessen his trade and consequent gains. His crude methods, though cheap and suited for rough articles, leave him at the mercy of outside competition when better class goods are concerned.

The prospects of the larger tanneries are somewhat brighter, but here a serious menace to the trade is springing up in the increased demand for skins from the United States, where improved methods enable the tanners to turn out cheaply and quickly enormous quantities of the finer leathers. The import duty on prepared leather gives them the further advantage of freedom from competition in their own markets. The tanners of Bombay and Ahmedabad do not finish off the skins after tanning, but they fear that even the latter process may soon be taken from them. So far as Bombay is concerned, statistics of production do not show a serious decline, but on the other hand the decrease in exports of tanned skins and in the number of tanneries points to the conclusion that the tanners have suffered considerably.

The existence of tanneries in the mofussil, which have been opened in recent years, and the fact that improved methods have already been introduced in some of them, are hopeful signs showing the possibility of the adaptation of such processes to Indian climatic conditions. It is possible that the future of the industry depends on the adoption of those methods, but bark tanning still holds its own in the production of goods with a firm surface.

In leather-working the village craftsmen has been touched by competition to a much smaller extent than the tanner. The better class articles however are now usually imported from the larger producing centres such as Bombay and Cawnpore, and this and the growing taste for goods of European fashion have to some degree injured his trade. Nevertheless, there seems no reason to think that the leather-worker's trade has declined or will decline to any very serious extent.

One large factory and some smaller ones exist in Bombay and turn out and supply on a large scale articles formerly imported. Such establishments show the possibilities of the trade. Worked on a large scale and on enterprising and commercial principles, there seems good reason to believe that the leather industry is capable of both increase and extension to the benefit alike of Indian producers and consumers.

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## APPENDIX.

The following statement shows the transactions of Bombay in leather, leather manufactures, and dressed hides, with Foreign Countries by sea, in the years 1893-94 and 1902-1903 :—

	Imports.				Exports.			
	1893-94.		1902-1903.		1893-94.		1902-1903.	
	Cwt.	Rs.	Cwt.	Rs.	Cwt.	Rs.	Cwt.	Rs.
Unwrought Leather ... ..	697	2,05,969	1,995	3,32,895	3,003	1,47,664	130	8,151
Leather Manufactures (including Boots and Shoes) ... ..	...	14,94,175	...	18,62,918	...	1,04,765	...	4,35,586
Dressed Hides ... ..	282	69,868	1,459	1,73,937	6,658	4,47,770	10,491	7,99,565
Total ...	979	17,70,012	3,454	23,69,750	9,661	7,00,199	10,621	12,43,292

The distribution of the Imports and Exports of leather and leather manufactures in 1902-03 was as follows :—

	Unwrought.	Saddlery and Harness.	Manufactures other sorts.	Boots and Shoes.
<i>Imports.</i>	Rs.	Rs.	Rs.	Rs.
United Kingdom ... ..	3,21,830	1,71,682	9,14,459	6,35,229
Other Countries ... ..	11,065	9,174	41,729	90,645
Total ...	3,32,895	1,80,856	9,56,188	7,25,874
<i>Exports.</i>				
British East Africa ... ..	6,329	16,002	2,059	31,573
Mauritius ... ..	.....	820	75	36,682
Egypt ... ..	.....	850	16,115	2,05,174
Aden ... ..	.....	9,905	3,700	25,994
Other Countries ... ..	1,822	6,520	12,150	68,967
Total ...	8,151	33,097	34,099	3,68,390

It will be seen that the imports of unwrought leather show an increase in the last nine years, and the exports a decrease ; but to counterbalance this the exports of dressed hides show a much larger increase than the imports. Both imports and exports of leather goods have increased ; the former come almost exclusively from the United Kingdom, while the exports, which consist mainly of boots and shoes, go to British East Africa, Mauritius, Aden, and Egypt, to the last mentioned country principally for army use.

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