

the white bath, which is composed for 100 skins of 13 to 20 lbs. of alum and 4 to 5 lbs. of chloride of sodium or common salt, and the skins are either worked slowly in this bath or introduced into a revolving cylinder to facilitate the penetration of the preservative agent, which, according to Berzelius, is chloride of aluminium resulting from the action of the chloride of sodium on the alum. When the manufacturer judges that the skins have been sufficiently impregnated with the above mixture, he introduces them into a bath composed of alum and salt in the same proportions, but to which are added 20lbs. of rye flour and fifty eggs for 100 skins. After remaining a few hours they are removed, and allowed to dry about fifteen days, and are then softened by working them with a peculiar iron tool, the white surface which characterises that class of leather being communicated to them by stretching them on a frame and rubbing them with pumice stone. A large quantity of tawed leathers are also preserved, retaining their hair, which is done by simply suppressing the un-hairing and rubbing processes.

*Chamois, Wash, or Oiled Leather.*—These classes of leather are named from the fact that formerly they were exclusively produced from the skin of the chamois, but at the present day sheep, calf, and deer skins, and even split thin hides, are manufactured into this kind of leather. I should also state that the employment of this kind of leather has greatly decreased of late years, owing to the general substitution of woollen fabrics in articles of clothing. You will see by the following description that the preparation of this class of leather differs entirely from those previously detailed; the conversion of skins into leather, or from a substance subject to putrefaction to one free from that liability, being no longer effected by tannin, as in the case of hides, and Morocco and Russia leathers, or by the use of mineral salts, as in the case of tawed leathers, but by that of fatty matters, especially animal oils, such as sperm. The skins are prepared in the same manner as for tawed leathers, and then submitted to what is called the prizing operation, which consists in rubbing the hair side of the skin with pumice stone and a blunt tool or knife, until the whole of the rough appearance is removed, and the skin has acquired a uniform thickness. They are then worked on the peg until the great excess of moisture has been wrung out, and plunged into the trough of a fulling mill, to the action of the wooden hammers of which they are subjected until nearly dry. They are then placed on a table and oiled, and several of them, after being rolled together, are replaced in the trough of the fulling mill. When the oil has been thus worked into the substance of the skins, they are removed, exposed to the atmosphere, again oiled, and once more subjected to the fulling mill; after which they are placed in a moderately heated room for a day or two, the object of which is twofold, viz., to facilitate the evaporation of the water and the penetration of the oil, and to create a slight fermentation, by which the composition of certain of the organic substances have undergone such modification as to enable them to combine in a permanent manner with the fatty matters. These processes are repeated until the manufacturer deems the leather sufficiently prepared to be fit to undergo the

following operations, viz., to be immersed for several hours in a caustic lye bath, to remove the excess of oily matter, washed, and pegged. It is only necessary to stretch the leather on a table, then on a horse, and lastly between rollers, after which it is ready for the market. The ordinary buff colour of these leathers is communicated by dipping them, previously to the finishing processes, into a weak solution of sumac. Before speaking of the further processes necessary to fit these leathers for the glove manufacturer, allow me to have the pleasure of describing that of Mr. C. A. Preller, whose mode of preparing leather is very interesting, owing to the rapidity with which he converts hides into leather, and also the remarkable toughness which his leather possesses. To attain these desirable ends Mr. Preller proceeds as follows:—The hides are washed, slightly limed, unhaired, fleshed, and partially dried; they are then smeared with a mixture made of fatty matters and rye flour, which having been prepared a few days previously has entered into fermentation, a process which has so modified the fatty matters as to render them more susceptible of immediate absorption by the hide. I think that this feature of Mr. Preller's plan deserves the serious notice of all engaged in the manufacture of oiled leathers, as it appears to prove that fatty acids (or modified fatty matters) are better suited for combination with skins than neutral fats. The hides, with additional fatty matters, are then introduced into the large American drums, previously noticed in speaking of currying, and after four days they are removed, washed in an alkaline fluid, worked with a pummel and slicker, and after being dried they are ready for market.

*Gloves.*—The manufacture of this article is now a most important branch of trade, and is the means of giving employment to large numbers of people in several towns in this country as well as on the Continent. To render the above mentioned oiled leather sufficiently soft and pliable for gloves it is necessary to submit it to the following further operations:—The Chamois, kid, or other skins are rubbed over with a solution composed of 1lb. of soap, dissolved in half a gallon of water, to which is added 1½lb. of rape seed oil, and 20 yokes of eggs, or what has been recently found to answer better than eggs, a quantity of the brains of animals reduced to pulp. The use of the two latter substances, is extremely interesting in a scientific point of view, for they both contain a peculiar nitrogenated matter called vitalline, and special fatty matters called oleophosphoric and phosphoglyceric acids, which doubtless, by their peculiar composition, communicate to the skins those properties which characterise this class of leather. The skins are then washed and dyed in various colours, after which they are softened, and rubbed with an instrument adapted to slightly raise the surface, and give it that well-known velvety appearance belonging to glove skins. I shall not take up your time by entering into the details of dyeing these leathers, but describe the following process for bleaching them:—

*Bleaching of Skins.*—The only process known until recently for imperfectly bleaching chamois and glove skins, was that of submitting them to the influence of the fumes of sulphur in combustion,