A VISIT TO AN ENGLISH GELATINE FACTORY.

BY "VERITAS"

HAVING some friends in a large photographic factory —who are buyers both of English (Luton) and Continental (Winterthur) gelatine—and also having dabbled in photography as an amusement—I was naturally interested in some of the products that go to make up the sum total of photographic manufacture, chief amongst which is gelatine, in relation to coating baryta paper, dry plates, and films with emulsion, in which it is mixed with different chemicals.

Being entirely ignorant of gelatine and its manufacture, except when used, as I said before, in photographic coating—in which it is an extremely important factor — I, out of curiosity, looked up the word in the dictionary, and found therein that "gelatine was an animal substance which dissolves in hot water and forms a jelly when cold," but afterwards when I saw the practical side of its manufacture I did not find that that bald description enlightened me any on the matter.

A few days later an introductory letter having been given me to the Managing Director, Mr. T. A. Cawley, I decided to take advantage of it and pay a visit to Luton, and see the gelatine factory there, which some four years ago was opened, and eight acres of land acquired, on which the factory occupies a commanding position. I refer to The British Gelatine Works, Ltd., founded by the late Mr. C. Simeons, one of the pioneers of gelatine manufacture, both in the United Kingdom and on the Continent, he having about 1874 established the Winterthur Gelatine Works, the produce of which factory has a wide reputation in the photographic world.

The manufacture of photographic gelatine being principally a continental industry, its establishment in England is practically a new departure for this country, that product hitherto having been imported mainly from Germany and Switzerland. The air in both those countries being drier, the conditions are ideal for such an industry, but the atmospheric conditions at Luton are as favorable as can be got anywhere in England. This continental importation also applied to the gelatine used in straw making—the staple industry of Luton—this trade taking now the bulk of The British Gelatine Works manufacture, one very important consideration when deciding to settle in that place.

Accordingly one Saturday afternoon I started by the express for Luton from St. Pancras Station, and in due time arrived and was driven to the works. On presenting my introductory letter to Mr. Cawley, he gave me a cordial welcome, and proceeded to take me at once over the factory.

I was first introduced to the skins or raw hide, yclept "trimmings," which lay on a platform outside the building, pink and white colored pieces of skin, devoid of flesh and hair, and therefore not objectionable to handle even in this state, waiting for the sorters to classify them.

Whole skins of animals are not bought by the Gelatine Manufacturer, but by the Tanner, who in turn supplies them with the "trimmings" from the hide, &c., the skins being first limed by the Tanner in order to dehair them, and it is this dehairing process which is

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now causing the Gelatine Manufacturer on the Continent a great deal of trouble, as, not content with using lime for that purpose, he has taken to using Sulphite of Soda, and even Caustic Soda to expedite this process, either penetrating the skin so much that the Gelatine Manufacturer is caused endless trouble and anxiety thereby.

This sorting being done—after a further preliminary treatment of washing for cleansing purposes—the skins are taken to the lime pits, and laid in a solution of lime and water—the lime being first properly prepared or slacked in another place before being placed in the pits—which solution is changed when necessary by being pumped out by compressed air, and a fresh supply of it poured in. At one of the pits I saw two men engaged with huge forks throwing in the strips of hide, a third being busy with a similar instrument "stirring up the milk," that is keeping the hide in motion as it is thrown into the mixture of lime and water, the hide remaining in the pit for varying periods, according to its quality when received.

In this place there are about 150 pits, each holding from three to four tons of raw material. By the side of each lime pit affixed to the pillars that support the ceiling, is a slate in a groove, and on each slate is recorded—hospital fashion—the date of the raw material going into the pit, change of solution, &c., so that the Manager is apprised of the way the patient—I mean the raw material—is progressing. Here also is an ingenious arrangement between the tram-lines running through the lime sheds which provides an open drain for carrying off the waste water.

At the end of the proper period the material is next placed in trolleys which run over rails into the washing room, and then emptied in several large troughs or washers, each holding 1,500 gallons apiece, through which a continuous stream of water flows. Paddlers are kept constantly revolving by machinery, so churning the skins—now quite purified—round and round in the water, until every trace of lime or other acid has been thoroughly eliminated, as that property in photographic gelatine would have serious results on sensitized paper, plates and films.

In fact so sweet, clear and clean does this process make the skins, that—but for its utter tastelessness—one could very well eat them as they were.

En passant, I may say, that contrary to other gelatine manufactories, this of the British Gelatine Works is absolutely odorless. I quite expected my nostrils to be greeted with an unpleasant effluvium, and was correspondingly pleased on finding it to the contrary. Even in the sheds where the lime pits were there was only such an odor as a newly whitewashed room might have, and is, I should say, healthful rather than otherwise to the workers.

Also the strictest cleanliness is enforced in all departments of this factory, even in the preliminary departments the hose and brush are kept continually going, and in the finishing departments the polished woodwork of walls, floors and stairs are kept scrupulously clean. So much, I have heard, cannot be said as to either of the abovementioned points in Continental factories, but it is certainly a conspicuous feature in this particular one.

After sufficient washing, the raw material is taken into the extracting room and placed in the large boiling vats—of which there are 4 side by side—each vat holding about 2½ tons. In this department a good deal of judgement is necessary, the heat of the vats having to be varied according to the nature of the material put in. When the liquor has stood long enough it is drawn off, the hide in the vat having melted to about one-half. It is then

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filtered, conveyed into the reception vats for further treatment, and lastly poured into the vacuum evaporator, the liquor there being concentrated to 20 per cent. That known as "the first draught" is the finest gelatine, and is used solely for photographic purposes, the other draughts being utilized for the Luton and other trades. After the last draught is drawn off, the hide has practically disappeared, only a small sediment remaining at the bottom of the vats.

From the evaporator it is then poured into oblong pans, called "coolers." These pans are then taken into the refrigerating room, and put on shelves one above the other. When the jelly is perfectly firm these pans are passed through a narrow slit in the wall of that room to the next, called the spreading room, and thence to a table.

The jelly is then turned out on to a board of the exact size of the pan which held it, the said board being grooved in several straight lines. Attached to this board is an upper frame, across which are a corresponding number of knives, to lines below and when pressed down on the jelly cuts it evenly into oblong blocks. These blocks, resembling bricks, are then placed singly into the hollow of a cutting machine and the lever lowered, the pressure sending the jelly block close up to fifty sharp horizontal knives, which cut off quite smoothly the same number of thin sheets or 'leaves" of jelly from the block, each sheet passing, as cut, through the slits between each knife, and taken by girls, working in pairs, straight to large oblong netted frames, who then lay the sheets side by side, and row after row on the nets until they are full.

These netted frames, resembling wire mattresses—which give the sheets the crinkle marks so familiar to buyers—are then placed one above another on trolleys. When 20 feet high, a slight push sends these trolleys running over the rails out of the room to the lift, conveying them to the floor above, and again over rails into the three large drying rooms, where numbers of trolleys are piled high with nets full of photographic gelatine in process of drying, as all moisture must be extracted from the sheets as quickly as possible. The atmosphere of these drying rooms felt not unlike that of a Turkish bath, so humid and warm was the air.

On this same floor in the center there is also an extensive store room, full of cases containing loose sheets of "leaves" of gelatine ready for the market. Both on this floor, and below all over the works tramways run, but these are only one of a series of labor saving devices which are everywhere apparent.

From the drying rooms we next proceeded to the packing and storage rooms. In the center, too, of these rooms, lay a number of full cases piled high one upon another, awaiting shipment, each case having a label attached to it, on which was written batch, quality, and weight of each make of gelatine.

In the assorting room at a counter running along one side, we found experienced girls packing this photographic gelatine for shipment, first examining each sheet by holding it up to the light to see that it is not defective in any way. The gelatine sheets are then made up into one pound bundles, and tied up.

It might not be out of place to say here that this factory works about five tons of raw material per day, yielding fourteen hundredweight of dry gelatine. Of this quantity a part is used for photographic purposes, whilst the remainder is made into commercial gelatine, and used in jelly form by the consumers at Luton in the straw hat manufacture.

Water mains from the company's own well run through the buildings. They

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also have their own electric installation. The boiler and engine rooms were then inspected and duly admired, a recently installed coal economizer coming in for a share of the general interest.

Knowing the trouble that occasionally occurs to English buyers of continental gelatine, as well as probable delay in shipment, etc., I should think that photographic manufacturers in this country would welcome an English manufacture of gelatine that has proven its worth in the commercial market, not only of the United Kingdom, but also on the continent, competing with the French and German makers in their own country, as well as in the markets of the world.

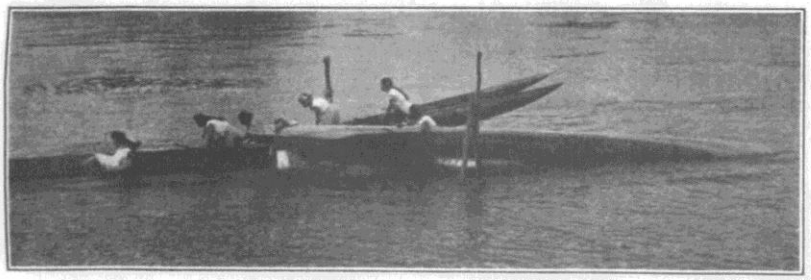
The managing director also informed me that during the last few weeks they have been producing a photographic gelatine by quite a new process, and from results obtained from two of the leading English consumers it has proved far superior to anything that has come under their hands up to the present. Doubtless on application samples would be sent at once to photographic manufacturers.

On the subject of commercial gelatine I have not yet said anything. This is made with precisely the same care and purity as the photographic, but instead of the thin sheets already spoken of, it is made and sold *en bloc*, and looks similar in color and appearance to table jelly, but, of course, without the flavoring.

I was informed that commercial gelatine is concentrated in the evaporator to 30 per cent., the greater part of which is not passed through the drying rooms, but used at once in this state—a great saving of labor in the factory as well as to the consumers—for the British gelatine works have this advantage over their competitors farther afield, in that they can sell their produce to the Luton straw hat manufacturers containing the proper proportions of dry gelatine for immediate use, whereas other manufacturers, in order to save heavy railway freight, send their gelatine dried to the buyers, leaving them to add the water when the jelly has melted. The next time I visit Luton I shall endeavor to see the way the straw hat manufacturers stiffen their wares with this jelly. Commercial gelatine is also used by table jelly manufacturers in compounding their jellies for domestic purposes.

I learned that the works employ an average of 100 regular hands—about 40 men and 60 girls. In this matter, also, the British gelatine works score over their competitors, for, by being able to dispose of their solution in jelly form, they save in labor quite 60 to 100 hands that other manufacturers must employ.

The impression remains with me that the industry of gelatine is an important agent in photographic manufacture, also one in which too much care cannot be expended if good results are to be obtained, and in this particular factory of which I speak, such care and cleanliness, I could see, were exercised in every detail, in order to insure to the buyers a pure commercial product, whether for photographic purposes or for the trade at Luton and elsewhere.



HURDLE RACING IN CANOE—A MAORI SPORT *By Walter Burke*

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