

### The Manufacture of Woollen Cloth.

A fleeco from Australia, California, Texas or Ohio is, rolled together and bagged or baled. Arrived at the mill it is first sorted, that is, cut up into parts according to its fineness. The "skirt," and that which grows upon the legs and head is very coarse, while that from the front shoulders is exceptionally fine. The sorted wool finds its way at once into the scouring room where a solution of lie and soap and a long line of washing machines are waiting to receive it. Wool in this process loses about half its weight, but gains decidedly in beauty, having turned from a dirty greasy color to a yellowish white. When thus scoured the stock is put into a centrifugal dryer, from which after a few minutes rapid rotating it is conveyed to the dye house; here it is placed in net bags of close mesh and dipped several times in the vats of prepared color and permitted between each dipping to drain away. Another method of dyeing is to reserve the dipping until after the wool has been spun into yarn, when the skein is dipped into color. The next process is to card the wool, and so evenly spread the staple that it will string out in a suitable roll for spinning. The first step of this series is to break up the irregular masses into small tufts. To accomplish this it is fed into a hopper where a rapidly revolving cylinder covered over with hooks pick it to pieces and fling it into a chamber or room at the back of the machine. Thus prepared and broken up into tufts not bigger than a half dollar it is conveyed to the carding machines proper. In a "set" of cards there are three machines performing substantially the same office, carding the wool, into an even roll, excepting that the first takes the wool in an irregular shape and separates the burrs and foreign substances from it, and then delivers it upon a spool in a continuous roll of puffy, untwisted wool, about an inch in diameter. This is recorded by the second machine into the same form. The third card of the set is so arranged that it breaks up the single roll such as the first and second machine delivered into some thirty or forty little strings perhaps an eighth of an inch in diameter. These are wound upon spools very lightly and taken to the spinning room, where they need the thousand humming spindles of the mules which all day long travel back and forth over their track of six or seven feet, alternately spinning, and then taking up the spun section and drawing in its place a fresh length upon which to repeat the process. Hundreds of these spindles with their various colors of yarn are then simultaneously unwound upon the warp drum of the weaving looms, when each thread must pass through the loop of its proper harness. These harnesses move up and down with regularity, so as to throw their threads above or below the weft thread as the shuttle draws it from side to side. An ingenious contrivance controls every harness and shuttle of the loom, so that the figure is worked in with unerring exactness.

The woven cloth is now taken to the scouring and dressing room, where its ends are joined together, and it is drawn in a wet and

soapy condition through a round hole and between heavy rolls which crush it together. After having run through this fulling machine for hours in order to felt its fibers together it comes but reduced in width perhaps one-third. And now the washing machines seize it, and the endless ring of cloth passes for a season over the rolls first of a soaping, then a washing, and finally a rinsing machine. And now, after having been thoroughly fulled and washed the dressing commences. First comes the gigging of the cloth—passing it in a wet and stretched condition over a cylinder, while a rapidly revolving roller covered with the stiff hooked burrs of a vegetable seed pod comb a nap upon it and remove much of the fuz from the face of the cloth. This is the last important mechanical process that broadcloths and all goods with an unshorn nap undergo. After being examined for faults such are made up into rolls, wrapped and cased for market. But materials in which the figure is brought out distinctly, and which are shorn of their nap, are passed for some time before the knives of a shearing machine. This instrument is worked on the principle of the lawn mower, having a revolving and a stationary knife, before which the cloth passes in close contact. How rapidly a fabric made of the best material improves in appearance and feeling in the fulling, scouring, gigging and shearing processes one has little idea who has not felt of the slazy goods that go into the fulling machines and finally issue from the knives of the shear, thick, clean, soft and beautifully figured.

It will thus be seen that the several processes we have outlined may be classified into four groups. First, the cleaning and dyeing of wools. Second, the carding and spinning of it into yarn. Third, the weaving of yarn into cloth and finally the fulling and dressing of the cloth for market. Every one of these processes must be conducted with the utmost skill and economy in order to make a product to compete profitably with the beautiful cloths now on the market. In the manufacture of worsted goods the process is the same, save the staple is combed rather than carded. Carpets and irregularly figured goods are woven upon Jacquard rather than harness looms, where every thread of the warp can be independently controlled instead of only the sets of threads which enter each harness as in the simpler loom.—*New York Mercantile Journal.*

### Commercial Agents and Foreign Trade.

It is about three years since we first commenced an agitation for the commercial representation of Canada at foreign ports, and from that time till the present have constantly advocated the same subject; and now believe that the time is not far distant when such a policy will be inaugurated. When first the *Canadian Manufacturer* placed this issue squarely before the manufacturers of the Dominion it did not receive much support or attract much attention, and those who, even then, were most in favor of it, gave but indifferent encouragement as to the prospect of the idea ever being carried out. There were several reasons for its not at first being thought

of moment, and which, at the time, held good, considering the position of the manufacturers then held, for was it not a time of great industrial activity, when mills and factories were running to their fullest capacity both day and night, when large extensions to existing facilities were being constantly added, and when new enterprises were projected and carried out on every hand, till at last competition became so keen that it was found the tide had turned, and in some lines production had overtaken the requirements of the home market? Other branches have not yet arrived at this stage, but, nevertheless, they are approaching that point where extension must necessarily cease, unless an outlet be found where the surplus output may find a profitable sale. It is only that we have developed our resources as a manufacturing country, and that, thanks to the N. P., many industries are in a position to compete, other things being equal, in the markets of the world, that the question of commercial representation abroad has become a live issue, and a sign of the times is that the executive committee of the Ontario Manufacturers' Association, at a recent meeting fully discussed this question, and unanimously decided in favor of it, and agreed to take further action, thus fully endorsing our views, which have from time to time been placed before them.

But before going further it would be well to state that not only would such a system be in the interest of the manufacturer, but equally in the interest of the farmer and importer, but it is here discussed solely from an industrial standpoint, as being the cause in which we are most nearly interested. Such a service would, however, undoubtedly lead to a wider market and probably to better prices for cattle, butter, cheese and all kinds of farm produce, while the Government and the honest importer would, in a great measure, be protected by means of information as to foreign values which such agents would furnish, against those who seek to enter and pass goods through the customs at undervaluation. The question may still be asked by some: Would such a service pay, or be simply a burden to the ordinary taxpayer, imposed for the benefit of a favored class?—and can be answered, without need of elaborate argument, by pointing to the effective service rendered the country by the American Consular representatives, in commercial matters entirely apart from diplomatic duties, and in a lesser degree by the consuls of other countries, who, however, as a rule, are not as enterprising and as ready to appreciate and "catch on" to anything novel in the way of commerce, but who, nevertheless, render most efficient service. As stated above, other things being equal, our manufacturers can, in many lines, successfully compete with older countries who at present hold possession of foreign markets; but what they require, first of all, to place them on anything like an equal footing, are similar facilities for acquiring information as to foreign requirements, as are furnished to their rivals. As a case in point we again cite the fact of a pamphlet being prepared by the American Government, which will contain information of great value to