

ed at the lower end by the whorle, which acts as 'fly-wheel,' and is generally made of stone, often a disk of steatite, about the diameter of a bronze penny, and weighing over an ounce and a half.

Some wool, drawn out from the stone on the distaff, to which it still remains attached, is twisted into a kind of thread and tied to the middle of the spindle, from which it passes upward and is fastened by a simple hitch to a notch near the spindle-head. This is then twirled by the right hand, and as it spins, dropping slowly toward the ground, it twists all the wool up to the distaff. The spinner's hands regulate the speed and further supply, and thus determine the thickness of the thread. From time to time the thread is coiled round the shaft of the spindle into a ball, and a new hitch made, till the clew is large enough to be slipped off and a new one begun.

From the number of whorles found in pre-historic remains in Scotland, their use must be very ancient, yet the spindle is still to be seen at work on the hillsides, employed for its original purpose of spinning. It is also used occasionally for twining together different colors of thread, when the spinning is done by the well-known spinning-wheel. There are niceties about the use of this little machine, such as the adjustment of 'tension' and so forth, which make some of the older workers as unwilling to let their unskilled daughters practise on it as a musical virtuoso would be to entrust his 'Cremona' to a 'scraper.'

DYEING AND 'WAUKING.'

The next process is dyeing, and whether this is done 'in the wool' or 'in the thread,'

much, and will do more, to improve this. Mineral dyes are now being used in conjunction with those of vegetable origin. Among the most useful plants and herbs for producing colors are alder-tree bark and dock-root for black, bilberry and elder for blue, rock-lichen and rue-root for red, broom, furze bark and heather for green, and St. John's wort, sundew and bog-myrtle for yellow.

The dyed thread, washed in salt water if blue, or in fresh if of any other color, is next woven into a web at the cottage hand-loom. Then comes the process of 'felting' or thickening, called 'wauking' in the north, probably from its being chiefly effected by the feet. The microscopic projections on the fiber interlock when the web is beaten wet, and as the 'wauk-mill' is apt to overdo the work, turning out a texture hard, stiff and heavy, the old process is still preserved in the Highlands of Scotland, and secures a fabric soft, supple, and sufficiently dense to be wind-and-weather-proof.

The following description is taken from a paper read before the Gaelic Society in 1885:

'In the Highland districts women make use of their feet to produce the same result (felting), and a picturesque sight it is to see a dozen or more Highland lassies sit in two rows facing each other. The web of cloth is passed round in a damp state, each one pressing it and pitching it with a dash to her next neighbor, and so the cloth is handled, pushed, crushed and welded so as to become close and even in texture. The process is slow and tedious, but the women know how to beguile the time, and the song is passed round, each one taking up the verse in turn, and all joining in the chorus. The effect is very peculiar, and often very pleasing, and

and inferior in quality, the wheel can only use the best, and this is, in the end, the cheapest.

The commercial and practical side of the question is, of course, the important side, and that is still unsettled. For some time it will undoubtedly be an up-hill struggle to find an adequate market for the cloth. Many a poor spinner has been turned away with clouded brow to carry the result of the toil of weeks to her cabin because the supply is exceeding the demand; but the enthusiasm which people who really appreciate artistic handiwork, combined with the best wearing qualities,—above all, the interest which visiting Americans have manifested, and the considerable orders for these goods which have already come from America,—encourages those who are promoting the enterprise to believe that, in time, financial success will come also.

To Help Pay.

(A true story, by the Rev. John D. Rumsey, in 'S.S. Times.')

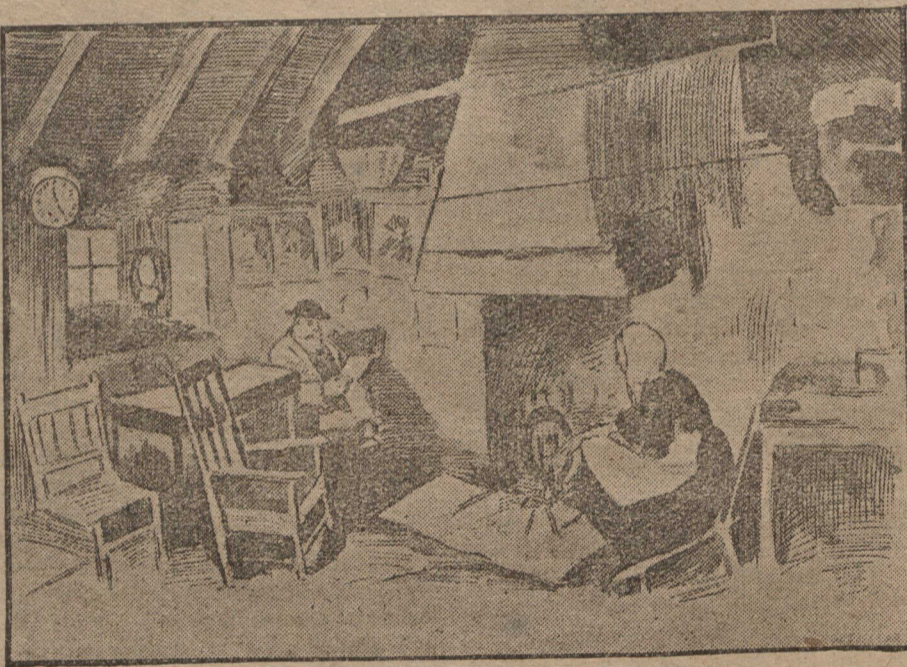
The northern part of Minnesota has been until, within a few years, almost an unknown country. But its resources could not be hid. Settlers have been pouring in, and it is now called 'The New Minnesota.' With the settlers have gone the home missionaries. And their work is real missionary labor. In this new country among settlers just starting homes, the missionary has to endure many privations, but in his work he finds consecrated unselfish people, and meets with experiences that make his life blessed. In the spring of 1897, a district missionary of a leading denomination started preaching services among the homesteaders in a certain section of this new country. Among the interested ones was a little girl of eleven years. Her family was so poor that toys, ribbons, dolls, and candy, were almost unknown to her. The best shoes she had, or could get, were broken entirely across the soles. But shoes she must have to attend the services, so, with an old fork for an awl, and a store string for thread, she patiently sewed the broken parts together. Later a church was organized, and she became one of the most faithful members.

During the past summer of 1898, she earned fifty cents,—twenty-five by doing a big washing for a neighbor, and the remainder by picking berries and carrying them four miles to sell. One day she asked of the missionary the privilege of riding into town with him. On the way she took out the hard-earned money, and timidly offered it to the preacher, saying, 'It is for you.' He, having been previously told how she had earned the money, declined to take it. At his refusal, tears ran down her cheeks, and, sobbing, she said, 'I want you to come and preach for us another year. You can't come for nothing, and this is to help pay you.' For the peace of the child he took the money, and his heart was full as he realized the self-sacrificing spirit of this little one, who, 'of her want,' had given 'all' that her neighborhood might hear the gospel.

Who can say missionary work does not pay? Who can declare that the spirit of self-denial and sacrifice no longer exists? May this incident stir our hearts, to give as the Lord would have us, that good may be done all about us, and that his name may be carried to the 'regions beyond.'

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INTERIOR OF ONE OF THE COTTAGES.

there is a final treatment in an ammoniacal liquid, called by the Highlanders 'fual,' which removes the last traces of oleaginous matter, and prepares the wool for receiving and retaining the dyes. The securing of uniformity of tint or shade has hitherto presented some difficulty, and this is partly due to the imperfection of the apparatus in common use, and to the usual habit of measuring the dyeing material merely by the handful. The ordinary dye-pot holds but a few hanks, and when the next batch of wool or thread is passed through a new decoction, and the tint tested by merely raising the streaming mass for a moment on the end of a stick, the effect in the web is often disappointing.

Technical instruction, however, has done

the wauking songs are very popular in all the collections.'

DURABILITY OF THE WORK.

While to this method of 'felting' the web something of the softness of the genuine homespun is due, it is also worthy of mention that the longer-stapled wools are less liable to become matted and hard under the thickening process, of whatever kind, than those which are of shorter fiber.

Now it is only with the longer-fibered wool that the Highland wheel can work. Its very imperfection, then, as an instrument, or rather machine, becomes of advantage as a guarantee of durability, as well as of comfort in connection with the work which it turns out, for whereas the mill can use up almost any sort of wool, however short in the fiber