at a much less price than that now demanded. A company has been formed in New York having for its purpose the irrigating of the great valley upon the plan devised by Mr. Sears, and the work will be begun at once. It is thougnt that in two years from the present time a much larger production of the cotton will be realized. Mr. Sears is only interested in the irrigation of the valley, and is not a producer of the cotton.

Scientists have endeavored to ascertain the cause of the different shades of color in this peculiar fibre, and have come to the conclusion that, inasmuch as it grows nowhere else but in the valley of Piura, it must be something in the chemical properties of the soil in that locality.

HOW WORSTEDS ARE MADE.

Worsteds are generally classed under the head of wool goods, without any distinction as to their special construction. The manipulation of the wool to make a piece of worsted differs very much from that necessary for the production of woolens; although both are composed of wool, they are really two different materials.

The cloth obtains its name from the description of yarn used in its production, for in making worsted cloth the yarn must be what is known as a worsted yarn, which is very different from any other kinds of yarn made from wool used in making worsted fabrics. A worsted yarn is made entirely of pure wool direct from the sheep's back, and must be of sufficient length to permit of being combed. This is a very important distinction, for other wool yarns may be made from wool that has before seen service in a garment and been reconverted into a wool substance called shoddy, and being mixed with a greater or less amount of pure wool, according to the yarn desired to be produced, is again converted into a yarn, which is known to the trade under the name of woolen yarn. Worsted yarn is made not only of wool in its first stage from the sheep's back, but from wools sufficiently long in staple to permit of being combed.

After the wool is taken from the sheep's back it is passed on to men trained in ascertaining the various qualities of wool, and by them sorted into the several grades that the fleece contains. The number of qualities or grades of fineness of the fibre in a fleece varies according to the breed of the sheep. Some classes of wool contain as many as fifteen distinct varieties. By the quality of wool is meant its adaptability to produce so many yards of thread to a given weight.

In the making of a piece of cloth all the weft or filling threads must be of an even and regular thickness, as well as those of the warp or chain threads. After being sorted, the desired quality of wool to produce a certain yarn is taken into the mill and thoroughly washed by a machine in warm water and soft soap. All the grease and dirt are removed by this process, and it is then passed on to what is termed a carding machine; this opens out the fibres of the fleece and places them perfectly straight, so that a continuous rope of wool is run off the machine.

The fibres of the wool vary in length, some being long enough for a worsted yarn, while others are not. In the process of washing and the natural growth of the wool, some of these fibres become worked into little balls or pin-head specs, which, if permitted to pass into the yarn, would make a specked effect in the cloth. These must be removed, and in order to do this the wool is combed.

A wool comb is of various constructions, but the principle of all is the same, in that the wool is drawn through fine steel pins, which permit the straight and clear rope of wool to pass through rollers, while the short, knotty bits of wool are carried into another receptacle. The long and combed wool is known to the trade as tops, while the short knotty portion is called noils. The former alone is used to produce worsted yarn, and the latter is used for making a woolen yarn chiefly to be employed in the construction of blankets, although it is equally serviceable for making woolen cloth, or woolen dress goods.

After the wool tops leave the comb they are passed through a series of machines fitted up with movable rows of fine steel pins, and drawn out by rollers, so that by continually mixing a regular and even rope of wool is produced, which is passed from one process of drawing out to another, and gradually reduced in thickness. Each process will reduce the weight of wool in a given length entering the machine from four to twelve times, so that in the last process of yarn making—that of spinning—a perfectly even and fine thread is produced and wound upon bobbins.

The process of spinning is now completed, and the next thing to be considered is the design and color of the cloth. If the finished piece is intended to be all one solid color, the yarn is kept in its natural color until the piece is woven, and then it is dyed the proper shade; but as fancy worsteds have more that one color in a piece, these different colors are obtained by different colored yarns, which are either dyed the required color as soon as they leave the comb or after the yarn is spun.

The color has a great deal to do not only with the beauty of the garment, but with its wear. Some colors are fleeting; indeed it is almost impossible to get a color to resist the power of the sun, except by the use of indigo in the process of dyeing in one way or another. Goods that have indigo bottoms, or are solid indigo dyes, are as fast as any natural color.

In a piece of fancy worsted the effect is obtained by the arrangement of the colored yarn in the warp or chain, and in the weft or filling. The arrangement of the design in the warp or chain is done by the man who prepares it for the loom. Knowing the pattern that is wanted, he counts the requisite number of threads in one color, and places them in their proper position in the mechanism of the loom, and the proper number of threads of the other color, until he has counted and arranged the whole number of threads across the breadth of the piece. The warp or chain is then put in the loom, and the length design of the cloth is shown.