

are now unable to compete with machinery that can knit 50 dozen of hose in a day at a cost of 5 cents per dozen.

A firm of knitting machine mfrs doing business in Toronto, is advertising that it supplies hand-knitting machines upon which some operators can make a pair of hose in 30 minutes, at \$15. The firm states in its circulars: "We have many persons now in our employ who can knit from 25 to 30 pairs of socks or stockings per day: and where the family is devoted to the work, you can readily see that \$15 to \$20 per week can be easily earned. We furnish our workers all the materials," the circular states, "yarn, etc., free and every thing that is necessary for the work." "There is no limit to the trade of this class of work," to resume the quotation, "Our readers can depend upon it year after year, and if you engage with us (whole or spare time) we will keep you supplied with yarn as long as you knit it into salable goods for us and return it promptly."

We do not wish to make any comment on these facts, merely to express surprise that industrial enterprises conducted on principles so widely separated could compete successfully in the same market.

#### THE SOLUTION THEORY OF DYEING

A very interesting hypothesis has been advanced by Witt, which forms a connecting link between the chemical and mechanical theories of dyeing. He believes that dyeing is due to a "phenomenon of solution." The general idea of a solution is that a solid or a gas can only be dissolved in a liquid, says the *Textile Mercury*, but Witt extends this general idea, and assumes that it is possible for one solid to be dissolved in another. He considers dyeing analogous to the solution of colored metallic oxides in glass. It necessarily follows from his views that all coloring matters are soluble to a greater or less extent in the constituents of the various fibers, otherwise, all coloring matters could be easily washed off. Even cotton steeped in a solution of magenta, for which it has no direct affinity, cannot be entirely freed from the last traces of color by merely washing. The coloring matters capable of fixing themselves on the fiber directly are those which are more soluble in the substance of the fiber than in water, and consequently the fiber is able to draw them from their aqueous solutions.

Dyeing then, according to this definition, is exactly analogous to the extraction of solid bodies in aqueous solution by some other solvent. Thus, if an aqueous solution of resorcin is shaken up with ether, the resorcin, being more soluble in ether than in water, is withdrawn by it. By this theory many hitherto unexplained facts have been partly solved. The reason why the dye bath cannot always be completely exhausted is indirectly explained by an analogy. If an aqueous solution of resorcin is shaken up with amyl alcohol, the latter absorbs resorcin, but when it has extracted a definite proportion an equilibrium is set up. Again, why do certain dyes (such as Congo red) dye a different color from their solution? Another analogy indirectly explains this, for the same reason that a brown aqueous

solution of iodine dissolves out violet or purple in chloroform. It is true that the reason for this has never been discovered, but Witt argues that when it is it will also apply in the case of these dyeing phenomena. In the case of dyeing with the adjective dyes, the mordant is first dissolved in the fiber, then fixes color within the fiber by combining with it.

#### THE CANADIAN MANUFACTURE OF CHEMICALS.

Canada possesses unlimited water power, salt, sulphur, and other necessities for carrying on the industry of manufacturing chemicals on a large and profitable scale. We can produce more cheaply in Canada than can the Germans and we will pay but little more in freights than they will. We should therefore have the trade. That the chemical industry is passing from the hands of the English manufacturers to the Germans is evident from this plaint in a recent issue of the *Dyer and Calico Printer*: "The chemical trade has also been poor," says our contemporary, one of the best informed publications on this subject. "It would appear that too great a proportion of our existing chemical plant is obsolete, and that the new electrical process works that have been in operation for some time on the continent, and to a less extent in this country, are driving out the older works from the business." The successful competition of late years carried on by German houses in this important trade, which was formerly in British hands to a large extent, is striking. This is precisely one of the cases, says the *London Times*, in which we should expect the superior technical and scientific education of the Germans to show unfavorable results for us.

#### ALL LINEN.

Much interest is at present taken in the question as to what extent it is lawful for goods composed of more than one fiber to be sold under the name of one only. The linen case in which a merchant was recently fined for selling a cotton and linen weave as "linen" is the first decision on the subject:

Referring to the recent linen prosecutions, the president of the Belfast Merchants' Association recently said that early in the year the attention of the council was called to certain aspersions against the trade, in which their merchants and manufacturers were accused of systematically palming off cottons as linen or union, and union as linen. A special general meeting was held to take the whole question into consideration, and the following resolution was passed:—"That in face of the reports published in trade journals that union goods are being sold as linens, and cotton goods as union or linens, the council of this association are hereby empowered to take such proceedings as may be necessary to prosecute persons so deceiving purchasers, and to make the requisite arrangements for carrying this motion into effect." The council immediately set about putting this resolution into effect, which left it open for them to proceed either against manufacturers or retail dealers. With regard to manufacturers, no evidence was brought on which any case could be founded, and in