clear from the first that so costly a preparation, the production of which required only the purest of logwood dye-stuff, and many expensive operations, such as filtering, dyeing, etc., would not readily be adopted in practice. Watinne soon found many imitators in Belgium, England and Germany, but in most cases the precipitation of the logwood in a finely divided condition was entirely omitted. Operators were satisfied with both the fluid and solid logwood extracts, heated to the boiling point, and adding corresponding quantities of the ground sulphates of iron and copper. It is obvious that these preparations contained a quantity of insoluble constituents.

Why does not the wool dyer now make direct use of this method, which of itself gives fairly favorable results? In place of using a product which does not promise as well, it would be advisable to use Watinne's method, the direct dye-bath. For this purpose it is sufficient to add to the water bath a solution of good logwood extract, then a solution of sulphate of copper and proto-sulphate of iron, sufficient to cause a corresponding precipitate. Sulpate of iron alone gives a grey black, while a violet black is obtained with sulphate of copper. It is best, therefore, to use three parts of iron salts and one part of copper salt. For obtaining a dead black, of course, either quercitron or fustic extract is indispensable.

In order to obtain a full black, the following proportions will give the best results :—7 to 8 per cent. logwood extract at 30° B., 15 per cent. sulphate of iron, and 5 per cent. sulphate of copper. For a dead black one half per cent. of fustic extract is to be added. Stir carefully, and permit to settle partly, after which commence with the addition of acid—the best is oxalic acid. The precipitant dissolves very quickly. The addition of the acid naturally requires some experience, because if the bath be too acid at the outset, it no longer possesses the full dyeing capacity. A dark brownish yellow color of the bath indicates that the dye-stuff is dissolved completely. If, however, the color be bluish or bluish green, the precipitate has not yet dissolved fully. A light yellow brown or yellow color of the bath is a sign of an excess of acid. It is not advisable to dull the acid bath too much with alkalies. About one half per cent. oxalic acid—in crystals—may be used with ordinary water for the quantity of the logwood extracts. The colors obtained in this manner—with iron and copper sulphate—are fast against light and fulling. If bichromate combinations be employed, the blacks produced are not so fast against light.

Attempts have also been made to use these combinations of logwood and iron and copper salts for the dyeing of blue and green shades, but with very little success. For dyeing blue it was recommended to add blue shade methyl violet—best, 3 B—to the above mixture. The methyl violet changes to a green shade in the presence of free acid, but by neutralization it is at once re-converted into a blue violet. The metallic salts necessarily present in the dye preparations, however, appear barely to permit the satisfactory fixation of the aniline dye-stuff. This is also the case with acid green or with an undue addition of yellow dyeing stuff extracts—fustic or quercitron. It is true that blue or green shades are produced with such color products, but they will hardly comply with the demands made of such colors now-a-days.

The composition of the preparations for dyeing direct black on vegetable fibres is essentially different, being based generally upon the employment of chromic oxide, though the acetate of copper combination is also often used.

Returning to the previously mentioned indigo substitute of Rwgge, it may be stated that in place of the bichromate of potassium and hydrochloric acid, a soluble oxide is used to much greater advantage. The latter is easily produced by the solution of one part bichromate in two parts boiling water and five parts hydrochloric acid, at 22° B. After the complete solution of the bichromate a little glucose or molasses is added slowly, whereby a violent reaction takes place. The final result is a green fluid of a certain specific weight, which contains the chromic oxide in a dissolved state. A proper quantity of this solution is added to the solution of the logwood extract. The cotton is entered into this bath, and heat is applied. The writer would not recommend this method for producing black. The proper dye-stuff preparations are of a similar composition, and there is still another formula, which was at one time extensively employed: A solution of 20 parts bichromate of potassium and 55 parts hydrochloric acid at 21° B., is added to 400 parts of logwood extract at 25 B., with vigorous stirring. Another indigo substitute is made by mixing the logwood extract (previously prepared with a little acetic acid) with soluble chromic oxide. Fairly good colors may be obtained with these preparations, although the price is rated high, much of the logwood dye-stuff being lost as an insoluble lake. Much more rational methods have been adopted in the manufacture of the printing preparations based upon the same principles.

Many products for dyeing black direct on cotton are used at present, but these, in addition to the logwood extracts, contain only a copper and iron combination. The old well-known method with logwood, copper sulphate, and the previously mentioned patents of Dale and Caro, gave rise to these compositions, which are somewhat complicated to make, and it is therefore to be recommended that dyers buy them ready made.

Another old and well-known method may be mentioned, which, in case no undue demands are made as to its fastness against light, gives very favorable results. The bath is started with logwood extract, after which sufficient verdigris, acetate of alumina, and borax are added, and afterwards the cotton. It is handled for one and a half hours at 176° F., and in order to obtain a better oxidation the yarn must be withdrawn from the bath at last three times. By the use of quercitron or cutch, many shades may be produced. It is in the nature of things that the direct-black dyeing preparations should be employed much more extensively than the improved aniline-black dyeing methods.

The direct-yellow dyeing products are fairly extensively employed, the combinations of the quercitron dye-stuff with alumina being mostly used. But by the use of quercitron extract, logwood extract, and cutch, in combination with verdigris or sulphate of copper, in corresponding proportions, all shades of color, from the palest Nankeen yellow to the deepest velvet brown, may be produced. It is singular that in the dye-house so little use is made of this property of the quercitron to give direct colors in combination with alumina or tin mordants.

The dye products from the aloe have never been able to command attention in the dye-house: firstly, because all these preparations are too costly; and, secondly, because they have not been prepared well before delivering to the dyer. The author made exhaustive experiments about twenty years ago, to find a way to compound these aloe preparations by which they might be introduced into practical use. He arrived at the conclusion that the yed product obtained by the treatment of aloe with concentrated nitric acid is one that can be used for producing the brightest rose colors, as well as the darkest brown blacks, according to the metallic salts used. The colors are completely fast against air, light, and fulling. He would place such aloe preparations, by reason of the characteristics mentioned, in the same rank with the primuline, thiochromogene, or the chromotrope dye-stuff. The tar-color industry having been so largely developed since that time, it would not now be advisable to use these aloe dye-stuffs.

The so-called carmine dyes must be mentiontd as the most recent direct-dyeing color preparations, which serve for the direct dyeing of red, yellow, and blue, chiefly, perhaps, as color shadings, for which various dye-stuffs are necessarily used. The carmine dyes are produced by treating the different dyewood decoctions, as, for example, camwood, fustic, and logwood, with the suitable solution of metallic salts. For certain purposes, when it depends upon the softness of the yarn and the use of the direct method of dyeing, and when the price is not considered, the carmine colors give good results. But the writer does not believe they will remain in the dye-house permanently, as they are too costly and difficult of manipulation. Dark shades on cotton are out of the question, as the cotton would first have to be mordanted. These carmine dye-stuffs, however, are easily used in combination with the benzidines, and charming effects are produced when they are employed in this manner.

The Moncton *Times* says of the cotton mill there, that under the new management the works have been running steadily, and about $12,000 worth of additional machinery, some of it from Upper Canadian mills, has been set to work. The new owners are evidently well pleased with the facilities for manufacturing there.

A fire broke out the other day in the picking room of the Stormont cotton mill, and made considerable headway before being discovered. The fire station at the Town Hall was at once notified, and several streams of water were turned on from the mill hydrants by the hands, who had the blaze well under subjection when the hose reels arrived. Everything in connection with the engine was found to be in good working order, and after wetting everything within reach, it was taken back to the fire station. The fire is supposed so have originated in the pickers. The damage done is very slight.—*Cornwall Standard.*

The boiler of the Grand River Manufacturing Company's excelsior flax mill exploded last month. The fireman, Wm. Harris, was buried in the corner of the engine room, and when the debris was removed he was dead. He leaves a wife and several small children. The engine and boiler room were demolished, and considerable damage done to the building.

An agent of the Sanford Manufacturing Company, Hamilton, now traveling in Jamaica, is said to be very successful in opening up a trade in Canadian ready made clothing with that colony.

Mr. George Workman, late of Galt, is now running a cardigan jacket knitting factory at Streetsville, employing about half a dozen hands.