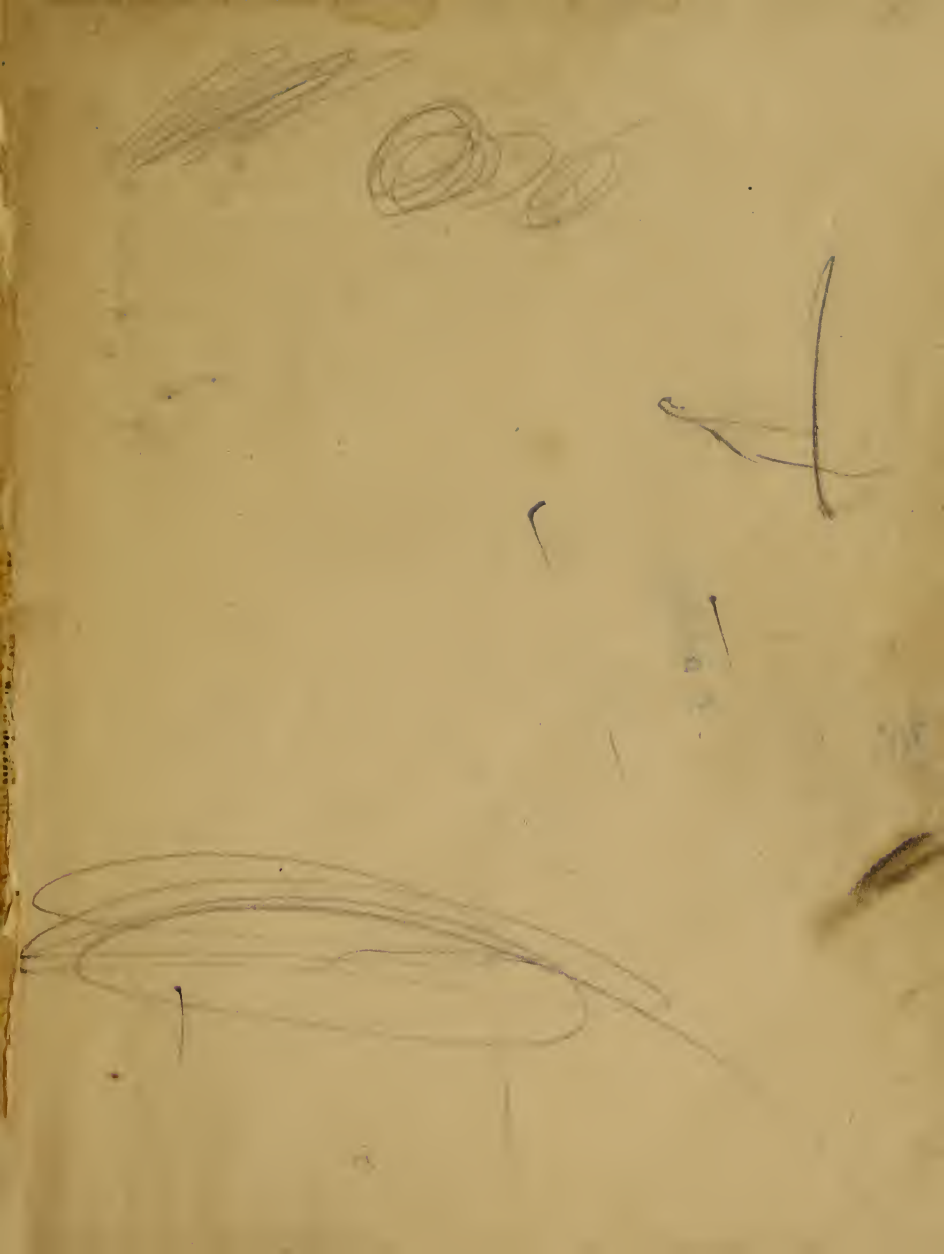


**THE
DYER'S PRACTICAL GUIDE**

**BY
FRANK SHERRY**

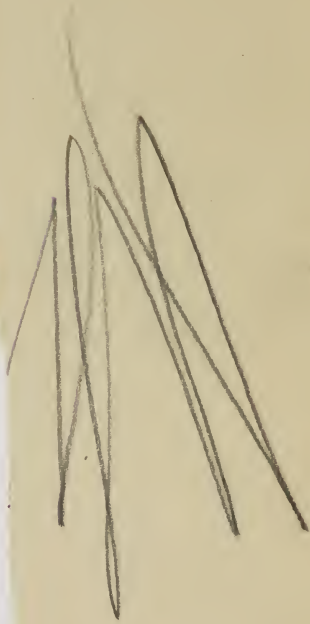
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— THE —
DYER'S PRACTICAL GUIDE,

A TREATISE ON THE ART OF

DYEING WOOL, SHODDY AND COTTON,

EMBRACING IN ALL OVER

Two Hundred and Fifty Practical Receipts,

ACCOMPANIED WITH OVER

TWO HUNDRED AND FIFTY DYED SAMPLES.

ALSO CONTAINS A FULL DESCRIPTION OF THE DYE-
STUFFS AND CHEMICALS USED IN DYEING, AND
THE EXTRACTING OF COTTON FROM WOOL.

BY FRANK SHERRY,
PRACTICAL DYER OF 30 YEARS' EXPERIENCE.

FRANKLIN, MASS. :
FRANKLIN STEAM PRINTING HOUSE,
Cotton's Block, Depot Street.
1884.



INTRODUCTION.

Having been urged by manufacturers and by many whose taste drifts to the mysterious art of dyeing, to impart my practical knowledge of thirty years' experience in all branches of dyeing, and to produce it in the most simple manner, so it can be understood by any wishing information on the subject. I do not propose to waste my time and expense in filling up this work with chemistry, nor in filling its pages with receipts written by chemists, with no practical work about them, as it would be only a waste of time.

All the dyer, and those who are interested in dyeing, require, is a straightforward and practical receipt to get the color right. All the receipts given in this book are practical and my latest improvements. A treatise on this particular branch of dyeing of cotton, wool and shoddy, has at no time been more imperatively called for than at present. When the introduction of more or less shoddy into almost all kind of woollen goods has become everything but universal, a dyer, in coloring such stock, has a great deal to contend with in obtaining even colors

from the various mixtures of shoddy, to match with colors from white wool, and to resist fulling of the same. These are great obstacles and have confined many manufacturers to using less colors on such stock, owing to the lack of practice of some dyers in obtaining the required shades. To overcome these difficulties is the intention of this work. I think dyers and manufacturers will find it to their advantage to examine the contents of this book. I do not pretend to say that this book will make any manufacturer his own dyer, by any means. If that was so they would all have books and do their own coloring. It requires a lifetime of practice and anxiety to become a good dyer.

FRANK SHERRY.

MORDANTS.

Should each dye-drug impart its own color to cloth, and if there existed a sufficient variety of these drugs for the various shades of colors, dyeing would be a very simple art, as it would only be necessary to dissolve the dyestuff and impregnate the goods. But so far from this being the case, if we except indigo, there is scarcely a dyestuff that imparts its own color to goods; nay, the most part of the dye-drugs used, have so weak an affinity for cotton goods, especially that they impart no color sufficiently permanent to deserve the name of a dye. These circumstances render dyeing sufficiently intricate and makes it more dependent upon science. Indeed, it is only by the nicest arrangement of a few chemical laws that the dyer is enabled to turn to advantage the various coloring matter of which he is in possession. When the dyer finds that there is no affinity between the goods and any coloring substance which is put into his possession, he endeavors to find a third substance which has a mutual attraction for the cloth and coloring matter, so that by combining this substance with the cloth, and then passing the cloth through the dyeing solution, the coloring matter combines with the substance which is upon the goods and constitutes a dye.

Dyestuffs and Chemicals.

PICRIC ACID.

This substance is also known as carbazotic acid, or *trinitrophenylic* acid. This acid is obtained by the oxidation of carbolic acid and by nitric acid. It is a yellow crystallized substance which is readily dissolved in hot water, but difficult in cold water. It is also soluble in alcohol. It is used for dyeing silk and wool yellow, and also for green, with sulphate and extract of indigo.

In France there are over one hundred tons manufactured annually, but the greater part is used in making picrate gunpowder used for the needle gun.

ORCHIL, or ARCHIL.

This article comes to the dyer in casks containing a crimson-colored liquor and a large amount of weed. This weed is called by botanists *lichen rocella*, and is found in Sweden, Ireland, Wales and Cape de Verd Islands. The best is from the latter place.

It is made as follows: The lichen or weed is first dried and ground to a pulp. The pulp is then placed in

wooden troughs with close fitting covers to them. The pulp is then sprinkled with ammonia, lime and wine, which causes fermentation. It is stirred up at intervals, and more ammonia is added. It requires from six to eight days to develop the color; it is then put up in casks and ready for use.

CUDBEAR.

This is Archil in a dry, powdered state, and is of a reddish color. Although the colors given by it are fugitive, still it is used considerably ~~in woollen~~ dyeing for giving logwood blue the indigo shade, and in doing lavender on wool. It is used with camwood as a bottom for indigo blues. Cudbear works with the same re-agents as Archil.

Cudbear should be mixed with water into a paste before putting it into the dye-bath, or else it would float on the surface. It requires no boiling to dissolve it.

ANNOTTO.

Annotto is a shrub which was originally a native plant of South America, but is now cultivated in the East Indies and St. Domingo, and called by botanists *bix orrellana*. It grows to the height of eight feet. The leaves are divided by fibres of a brownish-red hue, are about four inches long, having a broad base terminating in a sharp point. The shrub bears an oblong pod resembling a chestnut burr. At their first formation they are a beautiful rose color, and as they ripen they become a dark brown, and then burst open, showing a crimson pulp which contains three or four

seeds similar to raisin stones. The pod is then taken, stripped of its husks—the seeds are rubbed together in water, which deprives them of all impure matters contained in the seed. The coloring matter is then allowed to settle and the supernatant liquor is drawn off, and the coloring principle, or annotto left to dry, when it will change to a dark brown color, having no taste, but a disagreeable smell when brought into market.

BRAZIL-WOOD, or HYPERNIC.

There are several varieties of this wood, and they are distinguished from each other by the name of the place from which they are obtained, such as Pernambuco, Japan and Nicaragua. The last named wood is sometimes called Santa Martha wood. They all give a good red, and in relation to dyeing are considered as only different names for dyestuffs that produce similar coloring effects. The hypernic wood gives a more blue tint to the red than the other kinds. The hypernic wood is the best for coloring garnets, rubies and maroons on wool, on account of its not being such a decided red as the other woods.

BARWOOD.

This wood is brought principally, from Sierra Leone and the regions of Africa. It is a hard resinous wood, and is considered by some chemists, to be the same as Sanders, or Sanders wood. This dyestuff is always received by the dyer in a ground state, as it would be almost impossible to extract its coloring matter by boiling in

water if it was used in chip. The wood is of a bright red color, and imparts but a very slight color to the saliva. Its coloring principles are similar to camwood and sanders; but the color given by it has a bluer cast, yet it yields a coloring matter that is permanent, with or without a mordant. Barwood requires more boiling than other woods, to bring into solution all its coloring principles.

CAMWOOD.

This is another species of red woods, and grows in Sierra Leone and the countries adjacent to the Bight of Berrin, and has chemical properties and nature very similar to barwood and sanders, and is called by botanists *bois rouge*, *santal rouge*. It contains more coloring matter or principle than sanders or barwood, and has a more permanent color. It comes to the dyer in a ground state the same as barwood and sanders. It is more extensively used in woollen dyeing than either of the other red woods, for the reason given above, and is similar to barwood. It will give a permanent color with or without a mordant. Camwood gives out its color with great reluctance.

CATECHU, or CUTCH.

This is a dry extract prepared from a sensitive plant called *terra japonico*, and contains a large amount of tannin. It grows in the mountainous districts of Hindoostan, and grows to about twelve feet in height. The trunk is about one foot in diameter and is covered with a thick, dark brown bark.

The extract is obtained in the following manner: The plant is cut down and all the exterior white wood cut into chips. These chips are put into unglazed pots and enough water added to cover them. Heat is then applied and when half the water is evaporated the decoction is poured into a shallow earthen vessel and reduced two-thirds by boiling. It is then set away to cool for one or two days; then afterwards evaporated by the heat of the sun, it being stirred occasionally during that process. After it is reduced to a certain thickness, it is spread upon mats that are sprinkled with the ashes of cow-dung. Strings are laid so as to divide this mass into quadrangular pieces. It is then completely dried in the sun, after which it is ready for the market and for the dye-house.

.ALUM.

This is an earthy salt and is extensively used in dyeing and calico printing, in combination with other substances. In cotton-yarn dyeing it is used in the form of an acetate of alumnia, or the so-called red liquor. In woollen dyeing it is used as a mordant, or preparation for nearly all the different shades, along with tartar. Alum is what chemists denominate a double salt, it being composed of two sulphates, the sulphate of alumnia and sulphate of potash. This salt has been known and in general use among dyers since the earliest accounts we have of their processes, but the true nature of its composition was not known until the present century.

AMMONIA.

Ammonia occurs in the atmosphere. Ammonical salts are met with in a few minerals and in volcanic districts, but the greater part of ammonia and ammonial salts used industrially, are obtained from the dry distillation of coals, bones and animal substances; also by the distillation of stale urine (lant) and from water-gas, or more properly speaking, water which coal-gas has passed through. Ammonia is composed of one part nitrogen and three parts hydrogen condensed to two volumes of ammonia gas, which is colorless and has a peculiar and well-known odor, with a sharp, biting taste. Another method of preparing or manufacturing aqua ammonia is by decomposing caustic lime with sal-ammoniac or sulphate of ammonia. Ammonical gas is set free and then is absorbed by water, care being taken that the lime is in excess.

Sal-ammoniac of commerce we find either in a crystalina state, or as a compact, fibrous, sublimed material, exhibiting the appearance of having been formed in layers.

Sal-ammoniac is used in the woollen dye-house for scouring wool, and with logwood in dyeing some particular shades of purples, violets and dahlias.

COCHINEAL.

This coloring material is a small insect called *coccus cacti* found on small species of the cactus plant, but more especially upon the nopal plant and *cactus opuntia*. This insect, as well as the plant on which it feeds, is cultivated

in Mexico, Java, Algeria and Central America. The male insect is of no value as a coloring material, and he is winged, while the female is wingless. The female insects are collected twice a year, immediately after they have been fecundated and have laid eggs for the reproduction of young. They are then collected by shaking them from the plant on cotton sheets, and are killed either by steam or by the heat of an oven, but usually by the last method. Two varieties are known to the trade, the black and silver colored cochineal.

CARMINE.

Carmine is made by boiling out the color from the cochineal, then filtering the solution, and to this filtered solution alum is added, after which it is left to settle. Another method is to boil the ground cochineal in a solution of carbonate of soda. White of eggs is then added to the solution in order to clarify it, and after this the solution is precipitated with an acid, then washed. The washed precipitate is then dried at 30 degrees.

FUSTIC.

This dyestuff is manufactured from the dyer's mulberry tree, botanically termed *morus tinctoria*. It is imported from Cuba, St. Domingo, and Hayti, that from Cuba being the best. It is found growing spontaneously in the Brazils. It is uncertain when it was first introduced as a dye drug, but mention is made of it as early as 1692. This wood is the color of sulphur with orange-colored veins, and in

some parts a reddish color. This wood has been long employed for coloring yellows and greens, but for these colors it is almost-superseded by flavine or quer-citron bark, especially on cotton yarns, light cotton fabrics, muslin, etc.

FLAVINE.

This is a coloring matter that has not been used in the woollen dye-house until within the last twenty years. It is made from quer-citron bark, which is the inner bark of the black oak, called *quercus nigra*, and by some botanists, *quercus tinctoria*. The manner of manufacturing flavine is first to grind the quer-citron bark into a fine powder; it is then called quer-citrine. The color of it is a strong and bright yellow, and it contains tannic acid with the addition of a yellow pigment. This powdered bark then goes through a process of exhaustion of soda, and afterward is precipitated by diluted acids, or is made a garancine by precipitating it with oil vitriol. It is then dried and is ready for the market or dyer's use. Flavine is the chief yellow dye used along with picric acid for yellows, at the present time, that is, where fastness is not required. Flavine is now used in dye-houses in place of quer-citron bark, it being far superior to the bark, both in the amount of coloring matter it contains, and the clearness of yellow it imparts to the wool, one pound of flavine being equal to ten pounds of the bark, and to thirty pounds of fustic. In using flavine it has to be made into a paste before adding it to the dye-tub; and after it is thus prepared it should be used soon, as, if allowed to stand over night it will pre-

precipitate and deposit a brownish yellow mass in consequence of its not being all completely soluble in water. Even if boiled in distilled water and allowed to stand for twenty-four hours it will form the same deposits.

TUMERIC.

This coloring substance is manufactured from the root of the *crucuma langa*, a plant that grows in the Indies and on the island of Java. The root is found in egg-shaped tubers, and in flattened lumps, and is of a dirty, yellow color. Its pure coloring matter is called curcumine. It is ground into a powder and resembles ginger. The solutions of it have a peculiar smell and it has a bitter taste. The color given by it is very fugitive, there being no proper mordant for it that will make it a permanent color. It is used for test-paper to detect alkalies and boracic acid, by which the paper will be turned to a red brown.

MADDER.

This plant or shrub is termed *rubia tinctorium*, and is cultivated in France, Holland and the Levant, besides in the Southern, Western and central parts of Europe. The East Indies also furnish a large amount of it. The coloring matter of this shrub rivals indigo as a vegetable dye, both in beauty and brilliancy of colors given by it, as well as the numerous shades that can be dyed from it. Madder should be kept in a dry place, as it easily absorbs moisture, which is an injury to it. When kept dry it will improve by age, and its age is ascertained by the appearance of the

head of the cask. If it is two years old, or more, it will swell so as to bulge the head of the cask out.

LOGWOOD.

This dyeing material was first discovered by the Spaniards in 1662, and was brought to Europe shortly afterward. They called it campechia, but it is known to botanists as *hæmatoxylon campeachianum*. Its nature and the art of using it as a coloring agent, seem to have been but little understood in Queen Elizabeth's time, as we find an act of Parliament prohibiting and abolishing its use in her domain, imposing a penalty of imprisonment and the pillory upon any dyer who should use it. Upwards of one hundred years elapsed before the virtues of this dye-wood were known and acknowledged; and at the present time there is no other wood so universally used, or so useful as logwood; but like other valuable dyestuffs it was used for a long time before its true coloring principle were known.

QUER-CITRON BARK.

This drug is the inside bark of the black oak. It is a native tree of North America and termed *quercus nigra*. It was formerly used for yellow, orange, and other colors wherein the yellow is predominant; but it is now superseded by flavine. It is very rich in coloring matter, and water just below the point will extract the color more abundantly than if boiled; and by boiling it you extract the tannin and gallic acid, of which it contains a large amount. A strong solution of this bark, when it is evapo-

rated, will leave a resinous substance of a cinnamon color, which is called quercitrine.

RED SANDERS, or SAUNDERS.

This is the wood of the *pterocarpus santalinus*, and is a native of India, and attains its greatest perfection in the mountainous districts, especially in the mountains of Coromandel. It is a very large tree with alternate branches and has petiolate, ternate leaves, each simple leaf being ovate, blunt and somewhat notched at the apex. They are entire veined, smooth on the upper surface and hoary underneath. The flowers are yellow colored. They stand erect and are somewhat reflexed at the sides, being toothed and waved, spreading with their edges apparently toothed; and the carina is oblong, short and somewhat inflated. The wood comes in roundish or angular billets. For the dyer's use it is ground up into a coarse powder.

YELLOW CHROME.

Chrome iron after being ground and sifted is mixed with dried nitrate and carbonate of potash. This mixture is put into a reverberating furnace and a powerful heat applied. It is stirred occasionally, and when perfectly calcined the mass is raked out and dissolved in water. It is then boiled for some hours. After it has done boiling it is allowed to settle and the solution is decanted. This is evaporated and leaves the yellow chromate of potash crystalized.

BI-CHROMATE OF POTASH, or CHROME.

Bi-chromate is obtained from the yellow salt described before by the addition of acetic and sulphuric acid to a concentrated solution of yellow chromate. The last named acid is not as well adapted for the purpose, as the sulphate of potash formed by the sulphuric acid is very difficult to separate from the chromate, and is a very serious adulteration; for which reason sulphuric acid is not used now as much as formerly. Acetic acid is the best, and as a general rule employed.

SUMAC.

This shrub is a native of Syria, and called by botanists *rhuscoriaria*. It is cultivated in Spain, Portugal, Italy and Sicily. It is known in the market as the Sicily, Malaga and Verona Sumac. The first named is considered the best kind. Sumac grows to the height of from six to eight feet. When this shrub is used for dyeing purposes it is cut down every year, then dried and ground into powder. This powder is of a yellow or bluish green color when received by the dyer. Sumac has superseded nutgalls in cotton dyeing, as cotton dyers at the present time use it for bottoming their reds, browns, blacks, and other shades.

COPPERAS.

This substance is manufactured in various ways and from various substances. The original method was lixiviation of iron pyrites, or iron containing minerals. These min-

erals are collected and placed in layers on inclined platforms; then water is sprinkled over the layers from time to time. As this water drains through the pyrites they become soluble, and part of their substance is carried off, and is slowly oxidized by atmospheric agency. The water, after draining through, is received into stone cisterns and taken from the cisterns to the evaporating pans where it crystalizes. There is in the market a number of brands of copperas such as the English, Vermont, Keystone and the Pillar Copperas, which is the best.

SULPHURIC ACID, or OIL VITRIOL.

The production of sulphuric acid from sulphur and nitre may be well illustrated by means of a glass globe with a stoppered hole at its side, and four bent glass tubes inserted into a leaden cap at its upper orifice. The first tube is to be connected with a heated matrass, disengaging sulphurous acid from copper filings and sulphuric acid, the second with a retort disengaging more slowly dinitoxide of azote, (nitric oxide) from copper filings and nitric acid, the third with a vessel for furnishing steam in a moderate current towards the end of the process, when no water has been previously added into the balloon. The fourth tube may be upright and terminate in a small funnel. Through the opening in the side of the globe atmospherical air is to be admitted from time to time, by removing the stopper, after which the residuary lighter azote may be allowed to escape by the funnel orifice.

NITRIC ACID.

Nitric acid is made as follows: The nitrate of potash or soda is placed in an iron retort and heat is applied, and sulphuric acid is added to it by means of a tunnel connected with the retort and the acid vapors are allowed to distill over through earthen pipes into glazed earthen flasks or jars, which are called receivers. It is then re-distilled in glass retorts and placed in a sand-bath, with heat applied under the sand-bath.

OXALIC ACID.

This acid was formerly known as salts of sorrel, and was obtained from a plant, but now it is prepared from sugar and starch, by the action of nitric acid on these two articles. To obtain this acid one part of sugar, two parts of starch, four parts of nitric acid, and two parts of water are put into a retort, when a violent action takes place. The nitric acid decomposes and oxidates the sugar and starch; red fumes are emitted which show the presence of nitrous acid. The solution in the retort is then evaporated to about two-thirds of the original amount. The crystals form as the solution cools; they are white. These crystals are again dissolved and evaporated the second time.

SULPHATE OF COPPER. (Blue Vitriol.)

The method of making this is to heat sheets of copper in a reverberatory furnace to the boiling point of sulphur (420 deg. Fahr.), there is then a quantity of the sulphur

thrown into the furnace, the openings and flues of the furnace being closed. The result is the formation of sulphide of copper. This sulphide is converted by a low heat and the action of the oxygen of the air into the sulphate of copper. The mass is then placed in stone troughs and oil vitriol is added in sufficient quantity to saturate the oxide of copper. The clear solution is taken out and set aside for crystalization. There are three or four other ways of making sulphate of copper, besides the above.

MURIATIC, or HYDROCHLORIC ACID.

This acid is extracted from sea-salt by the action of sulphuric acid and a moderate heat. The acid gas which exhales, is rapidly condensed by water. One hundred cubic inches of water are capable of absorbing no less than 48,000 cubic inches of the acid gas, whereby the liquid acquires a specific gravity of 12.109, and a volume of 142 cubic inches. This vast condensation is accompanied with a great production of heat, whence it becomes necessary to apply artificial refrigeration, especially if so strong an acid as the above is to be prepared. In general, the muriatic acid of commerce has a specific gravity varying from 1.15 to 1.20, and contains, for the most part, considerably less than 40 parts by weight of acid gas to the hundred.

SODA-ASH.

Soda-ash is prepared as follows: First, the common salt is converted into sulphate of soda by throwing 600 lbs. of

the salt into the chamber of a reverberatory furnace already well heated, and running down upon it from an opening in the roof, an equal weight of sulphuric acid, density of 1.600 (150 deg. twaddle), in a moderate stream. Hydrochloric acid (muriatic acid) is disengaged and carried up the chimney, and the conversion of salt into sulphate of soda is completed in four hours. Second, the sulphate thus prepared is reduced to powder, and mixed with an equal weight of ground chalk, and half its weight of coal ground and sifted. This mixture is introduced into a very hot reverberatory furnace, about 200 weight at a time. It is frequently stirred until it is uniformly heated. In about an hour it fuses; it is then well stirred for about five minutes and drawn out with a rake into a cast-iron trough, in which it is allowed to cool and solidify.

MURIATE OF TIN.

To make this solution take two parts by weight of muriatic acid and one part of tin. Some dyers give as much tin as the acid will eat, let it be more or less. After the tin is all dissolved and has a few days age, it will have an agreeable and fragrant smell and a sparkling, glistening appearance. This is caused by a portion of the solution having crystalized, and the crystals are floating in the solution.

SCOURING.

I wish to give here a few remarks on wool scouring, for the benefit of young dyers, and to those interested in the mysterious art of dyeing.

All the works published on dyeing, that I have seen, have all omitted an important subject — that on wool scouring, for it is a very important point for a dyer to have his wool well scoured and cleansed before coloring, in order to obtain bright and even colors. For should there be any animal grease or gum left in the wool, and the scour not thoroughly rinsed from it, some shades on such wool will take more drugs by one-fifth to get the required shade in resisting the dirt in it, and you will not obtain that brilliancy as from clean wool, as it will lose considerable in fulling and will also give trouble by gumming up the cards. From my long experience of thirty years on coloring all grades of wool and seeing to the scouring of it, I will give here a few methods on scouring the different grades.

Beginning with American fleece, of which the fine quali-

ties of this wool contain a great deal of grease. Boil up in a barrel of water 30 lbs. soda-ash, 10 lbs. rock salt. When well dissolved, add to a scour-tub holding 100 gallons, 5 or 6 pails of the above scour, according to the amount of grease in the wool and heat the scour-tub to 130 or 135 deg. F., no hotter, and do not crowd the scour-tub. Handle wool in the tub well, for 5 or 10 minutes, then rinse in clean water. After scouring 200 pounds or so, recruit up with 1 pail of scour; then this should run off another 100 pounds of wool, and when your tub has lowered one-half, fill it up again with water, and add 2 or 3 pails more of the scour, and then proceed as before.

The next will be on pulled wool scouring, which requires a different treatment on account of the process it has been through previously, in the lime vats, because when once the carbon in lime is discharged, it is very difficult to scour the wool clean after it, for light colors. Also, there is a wide difference in the qualities of pulled wool. Of course the fine grade is the most difficult, as this requires a stronger scour than fleece or any other wool.

Boil up in a barrel of water 30 lbs. soda-ash, 15 lbs. sal-soda, and 1 lb. carbonate of ammonia; also 10 lbs. salt. Add to your scour-tub from 5 to 6 pails of this scour, and manipulate the same as for fleece wool.

Next will be on California wool. As a general thing this grade of wool does not need a very strong scour, but requires a good rinsing after scouring, on account of the amount of sand in the wool. To scour this wool clean use about half the quantity of scour as you would for fleece

wool, and manipulate exactly the same. After scouring about 1,000 pounds of California wool, let off and clean out your scouring tub, because after that amount has been scoured, the scour liquor becomes thick, and does not clean the wool as well.

The scouring of Texas wool is manipulated exactly the same way as for fleece wool, but does not require quite so much alkali in discharging the grease. Should you have the scour-tub, for any grade of wool, hotter than 130 or 135 deg. F., the grease in the wool will begin to set and change in color to a yellowish appearance, or if an over-supply of alkali is given to the scour it will also set the grease. Also if the wool lays longer in the scour than the limited time it will also change the wool. When fleece wool, or any wool, is well scoured and cleansed, you can tell when the grease is thoroughly discharged by taking up a handful of it, and holding it tight in the hand, then suddenly opening it, and if it is well scoured and cleansed it will spring apart quickly. Always be sure and have the wool well rinsed after scouring, so as to obtain bright and even colors.

The scour for fleece wool, when in good working order, should be run three or four days without letting off, by skimming the grease off the top every morning before starting. In that case you would be using much less scouring liquor and would have less trouble in getting a new liquor balanced right. If these methods which I give here are adhered to, and strict attention paid to it, there will be no trouble in having clean wool. On some streams

water is pregnated with iron and it is very difficult to scour with it, in the summer time in particular; but to obviate it use some aqua ammonia with the scour, which relieves the alkali in discharging the grease.

Extracting Cotton from Wool.

This is a process which very few thoroughly understand, and one which should not be omitted in a work of this kind, for the benefit of dyers and manufacturers in this line of business.

The extracting of cotton from wool with oil vitriol, is as follows: Have the acid-tub to test 18 deg. by No. 1 Twaddle, for Delaines, with 60 per cent cotton. Enter the stock, soak 1 hour, keeping under the liquor all the time; lift and drain, then whiz (about one-half the liquor out), then dry.

Have the acid-tub to test 15 deg. by No. 1 Twaddle, for Merino Seams or Merino, with 30 to 40 per cent cotton. Enter the stock, soak 40 minutes; lift and drain. (Keep tub at the above test for the standard), and proceed as above. Should the stock be very black after running 800 pounds, the tub will test on the Twaddle from 4 to 6 deg., but will be no stronger in acid, so better allow for it.

The principal point is in drying. Have the stock dried quick and thoroughly, as it is one-half the destruction of cotton.

REMARKS

ON RECEIPTS FOR WOOL DYEING.

The number of pounds given in each receipt is for clean wool, (that is, wool that is scoured). The wool, in all cases, should be well poled before the steam is turned on, and during the time it is boiling, it is a very good plan to shift the position of it in the tub, by using the pole once or more during the ebullition.

The dye-woods must be boiled one and a half hours before entering the wool, and the same time for the wool unless otherwise stated in receipt. All the ground woods should be thrown into the tub loose, except camwood, sanders and barwood, if in large quantities, and must be sprinkled upon the wool before it is thrown into the tub. When coloring yellow, drab and other light shades, enter the wool cool, say at 130 or 140 deg., and be very particular to have the tub thoroughly cleaned and everything connected with the dyeing of them perfectly clean. After preparing the colors always shake the wool up to the tub before entering, that is, tease the big lumps that may happen to be in it.

Receipts for Wool.

No. 1.—Flesh Color.

200 lbs. clean California wool :

- 5 oz. Camwood,
- 5 Madder,
- 5 Ground Logwood.

Enter the wool at 150 deg. and boil 1 1-2 hours, or to shade.

No. 2.—Golden Brown.

78 lbs. clean California wool :

Prepare with

- 2 1-2 lbs. Chrome,
- 1 gill Oil Vitriol,
- 2 lbs. Tartar.

Boil wool 1 1-2 hours.

Finish with

- 16 lbs. Ground Fustic,
- 7 Madder,
- 5 Camwood,

4 oz. Ground Logwood.

Enter wool at 150 deg. and boil 1 1-2 hours, then lay 2 hours and draw off.

No. 3.—Cinnamon Brown.

350 lbs. clean California wool :

Prepare with

1 1-2 lbs. Chrome,

2 lbs. Alum.

Boil wool 1 1-2 hours.

Finish with

150 lbs. Chip Fustic,

32 Madder,

13 Camwood.

Enter wool at 150 deg. and boil 1 hour ; lay in dye 1 hour and draw off.

No. 4.—Seal Brown.

250 lbs. clean California wool :

Prepare with

7 lbs. Chrome,

3 Tartar,

6 Oil Vitriol.

Boil wool 1 1-2 hours.

Finish with

130 lbs. Chip Fustic,

9 Chip Hypernic,

55 Camwood,

30 Madder,

8 lbs. Ground Logwood.

Enter the wool at 150 deg. and boil 1 1-2 hours; lay 2 hours; draw off.

No. 5.—Brown.

350 lbs. clean California wool :

Prepare with

4 lbs. Chrome,

2 1-2 lbs. Argols,

1 1-2 Alum.

Boil wool 1 1-2 hours.

Finish with

120 lbs. Chip Fustic,

4 1-2 lbs. Chip Logwood,

Boil bags 1 1-2 hours; take out; add

12 lbs. Camwood,

18 Madder,

Enter wool at 150 deg. and boil 1 1-2 hours; draw off.

No. 6.—Olive.

300 lbs. clean California wool :

Prepare with

3 1-2 lbs. Chrome,

2 lbs. Argols,

1 Alum.

Boil wool 1 1-2 hours.

Finish with

120 lbs. Chip Fustic,

6 Ground Logwood.

Boil bags 1 1-2 hours ; take out ; add

6 lbs. Camwood,

15 Madder.

Enter wool and boil 1 1-2 hours ; lay 1 hour ; draw off.

No. 7.—Brown Olive.

270 lbs. clean California wool :

Prepare with

4 1-2 lbs. Chrome,

3 1-2 Oil Vitriol,

1 1-2 Tartar.

Boil wool 1 1-2 hours ; lay 2 hours.

Finish with

40 lbs. Chip Fustic.

Boil bags 1 1-2 hours ; take out ; add

5 1-2 lbs. Camwood,

1 1-2 Ground Logwood.

Enter wool at 150 deg. and boil 1 1-2 hours ; lay 1 hour ; draw off and it will redden up to shade.

No. 8.—Mulberry.

300 lbs. clean California wool :

Prepare with

3 lbs. 6 oz. Chrome,

2 Alum,

3-4 lb. Argols,

1 1-2 Pint Muriate Tin.

Boil wool 1 1-2 hours ; lay 2 hours.

Finish with

84 lbs. Chip Hypernic,

12 Chip Logwood.

Boil bags 1 1-2 hours; take out; add

18 lbs. Camwood,

7 1-2 lbs. Cudbear.

Enter wool and boil 1 1-2 hours; draw off.

No. 9.—Scarlet.

40 lbs. clean California wool :

4 Cochineal,

2 White Argols,

4 1-2 lbs. Muriate Tin,

10 oz. Flavine.

Boil 1 1-4 hours; lay in liquor 2 hours; draw off.

No. 10.—Dark Green Olive.

270 lbs. clean California wool :

Prepare with

7 1-2 lbs. Chrome,

1 Quart Oil Vitriol,

3 lbs. Tartar.

Boil 1 1-2 hours; lay 5 hours.

Finish with

125 lbs. Chip Fustic,

22 Chip Logwood.

Boil bags 1 1-2 hours; take out; add

17 lbs. Camwood,

38 lbs. Madder.

Enter wool and boil 1 1-2 hours; lay 2 hours; draw off.

No. 11.—Light Olive.

104 lbs. clean California wool :

Prepare with

2 1-2 lbs. Chrome,

3 1-2 Alum,

2 lbs. Muriate Tin,

1 1-4 lbs. Tartar.

Finish with

40 lbs. Chip Fustic.

Boil bags 1 1-2 hours ; take out ; add

3 lbs. Madder.

Enter wool at 150 deg. and boil 1 hour.

No. 12.—Rose.

300 lbs. clean California wool :

1 1-2 lbs. Ground Fustic,

2 1-4 Madder,

2 1-4 Cudbear,

6 oz. Copperas,

1 1-4 lbs. Argols.

Boil 1 1-2 hours, or to shade ; draw off.

No. 13.—Drab.

350 lbs. clean California wool :

1 lb. 10 oz. Logwood,

3 1-4 lbs. Madder,

10 oz. Cudbear,

7 oz. Alum,

9 Copperas,

Enter wool at 150 deg. and boil 1 1-2 hours ; draw off.

No. 14.—Slate Drab.

300 lbs. clean California wool :

3 lbs. Ground Logwood,

9 oz. Madder,

1-4 lb. Nutgalls,

7 oz. Ground Fustic.

Boil wool 1 1-2 hours, then

Sadden with

7 oz. Alum,

7 Copperas.

Boil 1-2 hour ; draw off.

No. 15.—Dark Flesh.

50 lbs clean California wool :

Prepare with

3 1-2 oz. Chrome,

1 oz. Argols,

1 1-2 oz. Muriate Tin.

Boil 1 1-2 hours ; then

Finish with

5 oz. Camwood,

2 Ground Fustic,

1 Madder.

Boil 1 hour or to shade ; draw off.

No. 16.— Blue Drab.

300 lbs. clean California wool :

Prepare with

1 3-4 lbs. Chrome,

1 3-4 Argols,

3 lbs. Alum ; then

Finish with

3 1-2 lbs. Ground Logwood,

1 1-2 Cudbear.

Boil 1 1-2 hours ; draw off.

No. 17.— Silver Drab.

180 lbs. clean California wool :

3 3-4 lbs. Ground Logwood,

9 oz. Madder,

1 1-4 lbs. Camwood,

1-2 Fustic,

9 oz. Copperas,

9 Argols.

Boil 1 hour ; draw off.

No. 18.— Light Silver Drab.

225 lbs. clean California wool :

2 3-4 lbs. Ground Logwood,

1 1-2 Nutgalls,

1 oz. Cudbear,

3 Copperas.

Sadden with
 3 oz. Copperas.
 Boil 1 hour; draw off.

No. 19.—Blue Slate.

100 lbs. clean California wool :
 Prepare with
 3 lbs. Chrome,
 3 Alum,
 2 Tartar.
 Boil wool 1 1-2 hours.
 Finish with
 3 lbs. Oil Vitriol,
 10 Extract of Indigo.
 Enter wool and boil 1 1-2 hours; draw off.

No. 20.—Drab.

180 lbs. clean California wool :
 2 Ground Logwood,
 3-4 lb. Ground Fustic,
 1 lb. Camwood.
 Enter wool and boil 1 1-2 hours.
 Sadden with
 9 oz. Copperas,
 9 Argols.
 Boil wool 1-2 hour longer; draw off.

No. 21.—Red Flesh Color.

50 lbs. clean California wool :

3 1-2 oz. Ground Logwood,
2 1-2 Alum,
2 1-2 Tartar,
3 oz. Cudbear,
5 Ground Fustic.

Enter wool at 150 deg. and boil 1 hour ; draw off.

No. 22.—Blue Drab.

185 lbs. clean California wool :

Prepare with

1 lb. Chrome,

2 1-2 lbs. Alum,

4 oz. Oxalic Acid ; then

Finish with

2 lbs. 6 oz. Ground Logwood,

1 1-2 lb. Cudbear.

Enter wool at 150 deg. and boil 1 hour ; draw off.

No. 23.—Drab.

300 lbs. clean California wool :

1 1-2 lbs. Ground Fustic,

1 1-2 Madder,

1 1-2 Camwood.

Boil 1 hour ; then

Sadden with

6 oz. Copperas,

6 Argols.

Boil 1-2 hour ; draw off.

No. 24.—Brown.

300 lbs. clean California wool :

Prepare with

4 1-2 lbs. Chrome,

2 lbs. Alum,

1 Oil Vitriol.

Boil 1 1-2 hours.

Finish with

10 lbs. Ground Fustic,

2 3-4 lbs. Ground Logwood,

10 lbs. Madder,

21 Camwood.

Enter wool and boil 1 1-2 hours ; draw off.

No. 25.—Drab.

180 lbs. clean California wool :

1 1-4 lbs. Ground Logwood,

1 1-4 Nutgalls,

1 1-2 Ground Fustic,

1 3-4 Red Sanders.

Boil wool 1 1-4 hours ; then

Sadden with

7 oz. Copperas,

3 Alum.

Boil 1-2 hour ; draw off.

No. 26.—Yellow Orange.

100 lbs. coarse Texas wool :

Prepare with

15 lbs. Alum,
5 Tartar.
Boil 1 1-2 hours; then
Finish with
7 lbs. Flavine,
4 Cochineal,
9 pints Muriate Tin.
Boil 1 hour; draw off.

No. 27.—Aniline Red.

100 lbs. coarse Texas wool:
1 1-2 lbs. Aniline Red, 4 B. (Blue shade),
3 lbs. Oil Vitriol.
Enter wool at 130 deg.; then heat up to a boil, and boil
1 1-2 hours; lay 2 hours; draw off.

No. 28.—Dark Mouse.

350 lbs. coarse Texas wool:
Prepare with
4 lbs. Chrome,
2 Tartar.
Boil 1 1-2 hours; then
Finish with
7 lbs. Ground Logwood,
7 Ground Fustic,
7 1-2 lbs. Cudbear,
2 lbs. Madder.
Boil 1 1-2 hours; draw off.

No. 29.—Light Olive.

200 lbs. clean California wool :

Prepare with

3 1-4 lbs. Chrome,

3 1-2 Alum,

1 lb. Tartar.

Boil 1 1-2 hours ; then

Finish with

56 lbs. Chip Fustic,

12 3-4 lbs. Chip Hypernic.

Boil bags 1 1-2 hours ; take out ; add

17 lbs. Madder,

1 lb. 2 oz. Ground Logwood.

Boil 1 hour ; draw off.

No. 30.—Red Brown.

275 lbs. coarse Texas wool :

Prepare with

8 1-2 lbs. Chrome,

3 1-2 Oil Vitriol,

Boil 1 1-2 hours ; then

Finish with

60 lbs. Chip Hypernic,

70 Chip Fustic.

Boil bags 1 1-2 hours ; take out ; add

20 lbs. Camwood,

20 Madder,

5 Ground Logwood.

Sadden with
3 lbs. Copperas,
1 Blue Vitriol.
Boil 1-2 hour ; draw off.

No. 31.—Scarlet.

100 lbs. clean California wool :
Prepare with
10 lbs. Alum,
5 Tartar,
1 pint Muriate Tin,
2 lbs. Oxalic Acid.
Boil 1 hour ; lay 24 hours.
Finish with
45 lbs. Madder,
5 Cochineal.
Boil 2 hours ; draw off.

No. 32.—Drab.

200 lbs. clean California wool :
1 Nutgalls,
2 Madder,
3 Ground Fustic,
6 oz. Camwood.
Boil wool 1 hour.
Sadden with
1 oz. Copperas,
3 1-2 oz. Tartar.
Boil 1-2 hour longer ; draw off.

No. 33.—Light Prussian Blue.

100 lbs. clean California wool :

Prepare with

4 1-2 lbs. Red Prussiate of Potash.

5 1-2 Oil Vitriol,

Enter wool at 100 deg.; then bring slowly to a boil.

Take up the wool and add to the dye

6 lbs. Chip Logwood, which has been previously boiled in a barrel for 1 hour,

2 lbs. Muriate Tin, or 14 oz. Tin Crystals.

Enter the wool at 150 deg. again, for 1-4 of hour; then bring to a boil and boil to shade. Draw off and wash well.

No. 34.--Dark Prussian Blue.

100 lbs. clean California wool :

Prepare with

6 1-2 lbs. Red Prussiate of Potash,

8 lbs. Oil Vitriol.

Enter wool at 100 deg., and then bring slowly to a boil.

Take up the wool and add to the dye,

8 lbs. Chip Logwood, which has previously boiled in a barrel for 1 hour.

2 lbs. Muriate of Tin, or 14 oz. Tin Crystals.

Enter the wool at 150 deg. again, for 1-4 hour; then bring to a boil and boil to shade. Draw off and wash well.

No. 35.--Drab.

100 lbs. clean California wool :

Prepare with

1 1-2 lbs. Chrome,

1 1-2 Tartar,

1 lb. Alum.

Enter wool and boil 1 1-2 hours.

Finish with

3 lbs. Madder,

3 Ground Fustic,

1 1-2 lbs. Camwood.

Enter the wool and boil 1 1-2 hours.

Sadden with

6 oz. Copperas.

Boil wool 1-2 hour longer ; draw off.

No. 36.--Peacock Blue.

200 lbs. coarse Texas wool :

7 oz. Nicholson Blue. 6 B.,

3 lbs. Salsoda.

Enter wool and boil 1 1-2 hours.

Sour with

5 lbs. Oil Vitriol.

Enter wool and lay 1-2 hour at 130 deg. ; then draw off.

No. 37.--Light Blue.

60 lbs. clean California wool :

Prepare with

1-2 Gill Oil Vitriol.

Enter wool at 160 deg. and lay 1-2 hour.

Finish with

6 oz. Nicholson Blue. BBB,

1 lb. Alum.

Enter wool and boil 1 1-2 hours.

Sadden with

8 lbs. Alum.

Boil wool 1-2 hour longer and draw off.

No. 38.--Dark Smoke.

270 lbs. clean California wool :

Prepare with

4 lbs. Chrome,

2 Alum,

2 1-4 lbs. Tartar.

Enter and boil 1 1-2 hours.

Finish with

46 lbs. Chip Fustic,

20 Chip Logwood,

32 Chip Hypernic.

Boil bags 1 1-2 hours; take out; add

11 lbs. Camwood.

Enter the wool and boil 1 1-2 hours.

Sadden with

1 1-2 lbs. Copperas.

Boil wool 1-2 hour longer and draw off.

No. 39.--Dark Green Olive.

50 lbs. clean California wool :

Prepare with

1 lb. Chrome,
1 Alum,
7 oz. Muriate Tin.

Boil 1-2 hour.

Finish with

8 lbs. Ground Fustic,
3 Ground Logwood,
2 Ground Hypernic,
1 Camwood.

Enter wool and boil 1 1-2 hours; draw off.

No. 40.-- Peacock Green.

60 lbs. clean California wool :

Prepare with

1-2 gill Oil Vitriol.

Enter wool at 160 deg. 1-2 hour; draw off.

Finish with

6 oz. Nicholson Blue. 3 B.,
1 lb. Alum.

Enter wool and boil 1 1-4 hours.

Sadden with

8 lbs. Alum,
17 Ground Fustic,

Boil wool 1-2 hour longer; draw off.

No. 41.-- Sage.

190 lbs. clean California wool :

Prepare with

1 lb. Chrome,

10 oz. Alum,
8 Tartar.
Boil wool 1 1-2 hours.
Finish with
1 1-4 lbs. Madder,
1 1-2 Ground Logwood,
14 oz. Ground Fustic,
Enter wool and boil 1 1-2 hours ; draw off.

No. 42.--Flesh Color.

50 lbs. clean California wool :
Prepare with
3 oz. Chrome,
4 Alum,
1-2 oz. Muriate Tin.
Boil wool 1 hour.
Finish with
4 oz. Madder,
4 Ground Fustic,
9 Camwood.
Enter the wool and boil 1 1-2 hours ; draw off.

No. 43.--Navy Blue.

300 lbs. clean California wool :
Prepare with
16 lbs. Alum,
5 1-2 lbs. Oxalic Acid.
Boil wool 1 1-2 hours.

Finish with

100 lbs. Chip Logwood.

Boil bags 1 1-2 hours; take out; add

3 lbs. Aqua Ammonia, F F F.

Enter wool at 130 deg.; then heat up slowly to a boil, and boil 1 1-2 hours; lay 6 hours; draw off.

No. 44.—Blue Green.

200 lbs. clean California wool:

Prepare with

9 lbs. Chrome,

1 Tin Crystals,

12 Alum,

12 Oil Vitriol.

Boil 1 1-2 hours; lay 6 hours; draw off.

Finish with

82 lbs. Extract Indigo,

13 Ground Fustic.

6 Ground Logwood,

13 Salt.

Enter wool and boil 1 1-2 hours; lay 6 hours; draw off.

No. 45.—Sage.

200 lbs. clean California wool:

Prepare with

2 lbs. Chrome.

2 3-4 lbs. Alum,

2 lbs. Tartar.

Boil wool 1 1-2 hours.

Finish with

4 lbs. Ground Logwood,

3 1-2 lbs. Ground Fustic,

3 lbs. Madder,

11 oz. Nutgalls,

13 Cudbear.

Enter wool and boil 1 1-2 hours; draw off.

No. 46.—Cinnamon Brown.

160 lbs. clean California wool:

Prepare with

3 1-2 lbs. Chrome,

3 lbs. Oil Vitriol,

1 Tartar.

Boil wool 1 1-2 hours; lay 6 hours.

Finish with

70 lbs. Chip Fustic,

7 1-2 lbs. Chip Hypernic.

Boil bags 1 1-2 hours; take out; add

3 1-2 lbs. Ground Logwood,

28 lbs. Madder.

16 Camwood.

Enter the wool and boil 1 1-2 hours.

Sadden with

1 lb. Copperas.

Boil wool 1-2 hour longer and draw off.

No. 47.—Drab.

200 lbs. clean California wool :

Prepare with

2 1-2 lbs. Chrome,

1 1-2 . Tartar.

Boil wool 1 1-2 hours.

Finish with

7 1-4 lbs. Ground Fustic,

2 lbs. Camwood.

1 1-2 lbs. Nutgalls,

4 1-4 lbs. Madder.

Enter wool at 150 deg. and boil 1 1-2 hours ; draw off.

No. 48.—Brown.

300 lbs. clean California wool :

Prepare with

3 3-4 lb. Chrome,

2 lbs. Argols,

3 lbs. Alum.

Boil wool 1 1-2 hours.

Finish with

25 lbs. Ground Fustic,

5 Ground Logwood,

8 Madder,

12 Camwood.

Enter wool and boil 1 1-2 hours ; lay 2 hours ; draw off.

No. 49.—Aniline Blue.

200 lbs. clean California wool :

Prepare with

5 lbs. Chrome,

2 Tartar.

Boil wool 1 1-2 hours.

Finish with

2 lbs. Methyline Blue. 5 O's.

Enter wool at 130 deg. and boil 1 1-4 hours.

No. 50.—Blue Green.

200 lbs. clean California wool :

First rinse the wool in a tub of water at 160 deg., containing 2 quarts Oil Vitriol, for 1-2 hour ; draw off.

Prepare with

5 lbs. Chrome,

13 1-2 lbs. Oil Vitriol,

2 lbs. Tin Crystals,

12 Alum.

Boil wool 1 1-2 hours ; lay 6 hours.

Finish with

50 lbs. Extract Indigo.

4 Ground Fustic,

12 Salt,

4 Alum.

Enter wool at 100 deg. and boil slowly for 2 hours ; lay 6 hours ; draw off.

No. 51.—Blue Sage.

200 lbs. clean California wool :

Prepare with

1 lb. Chrome,

12 oz. Alum,

8 Tartar.

Boil wool 1 1-2 hours.

Finish with

1 3-4 lbs. Ground Fustic,

2 lbs. Ground Logwood,

1 1-2 lbs. Madder.

Enter the wool and boil 1 1-2 hours ; draw off.

No. 52.— Buff.

150 lbs. clean California wool :

Prepare with

1 1-4 lbs. Chrome,

1 lb. Tin Crystals,

1-2 lb. Tartar.

Boil wool 1 1-4 hours ; lay 1 hour.

Finish with

1 3-4 lbs. Madder,

1 1-2 lbs. Ground Fustic.

Enter wool at 150 deg. and boil 1 1-4 hours ; lay 1 hour ; draw off.

No. 53.-- Green Olive.

200 lbs. clean California wool :

Prepare with

2 1-2 lbs. Chrome.

2 1-2 Alum,

2 1-2 Tartar.

Boil wool 1 1-2 hours ; then

Finish with

25 lbs. Ground Fustic.

11 Madder,

5 Ground Logwood.

Boil 1 1-2 hours ; draw off.

No. 54.--Dark Brown.

250 lbs. clean California wool :

Prepare with

7 lbs. Chrome.

3 Tartar,

3 Oil Vitriol.

Boil wool 1 1-2 hours ; lay 2 hours.

Finish with

110 lbs. Chip Fustic.

30 Chip Hypernic,

13 Chip Logwood.

Boil bags 1 1-2 hours ; take out ; add

30 lbs. Madder.

Boil wool 1 1-2 hours.

Sadden with

2 lbs. Copperas.

1 1-2 lbs. Blue Vitriol.

Boil wool 1-2 hour longer ; lay 2 hours ; draw off and smoor 6 hours.

No. 55.—Light Brown.

168 lbs. clean California wool :

Prepare with

3 lbs. Chrome,

1 1-2 lbs. Half-refined Tartar,

1 1-2 Alum,

1 Gill Oil Vitriol.

Boil 1 1-2 hours : then

Finish with

22 lbs. Chip Fustic.

Boil bags 1 1-2 hours ; take out ; add

4 lbs. Camwood.

9 Madder.

10 oz. Ground Logwood.

Boil 1 1-2 hours ; lay 2 hours ; draw off.

No. 56.—Lavender.

185 lbs. clean California wool :

Prepare with

1 lb. Chrome,

2 1-2 lbs. Alum,

4 oz. Oxalic Acid ; then

Boil wool 1 1-2 hours.

Finish with

1 1-2 lbs. Cudbear,

2 1-2 Ground Logwood.

Enter wool at 130 deg. and boil 1 hour ; draw off.

No. 57.—Brown.

200 lbs. clean California wool :

Prepare with

5 lbs. Chrome,

3 1-2 lbs. Oil Vitriol,

1 lb. Tartar.

Boil 1 1-2 hours ; lay 2 hours.

Finish with

40 lbs. Chip Fustic,

4 Chip Hypernic.

Boil bags 1 1-2 hours ; take out ; add

30 lbs. Madder,

28 Camwood.

Enter wool and boil 1 1-2 hours ; lay 6 hours ; draw off.

No. 58.—Blue.

75 lbs clean California wool :

Prepare with

1 lb. Chrome,

3 lbs. Alum ;

6 oz. Oxalic Acid.

Boil wool 1 1-2 hours.

Finish with

6 1-2 lbs. Extract of Indigo,

1-2 lb. Oil Vitriol,

3 lbs. Ground Logwood.

Enter wool at 150 deg. and boil 1 hour ; draw off.

No. 59.—Mustard.

50 lbs. clean California wool :

Prepare with

7 oz. Chrome,

4 Tartar,

1 lb. Alum.

Boil wool 1 1-2 hours.

Finish with

4 lbs. Ground Fustic,

3 1-2 lbs. Ground Logwood,

2 oz. Madder.

Enter wool and boil 1 1-2 hours : draw off.

No. 60.—Tan Drab.

230 lbs. clean California wool :

Prepare with

3 1-2 lbs. Chrome,

3 lbs. Argols,

2 3-4 lbs. Muriate Tin.

Boil 1 1-2 hours ; lay 2 hours : then

Finish with

8 lbs. Madder,

5 Ground Fustic,

2 oz. Ground Logwood.

Boil 1-2 hour ; draw off.

No. 61.—Olive.

270 lbs. clean California wool :

Prepare with

5 lbs. Chrome,
 4 Oil Vitriol,
 1 1-2 lbs. Half-refined Tartar.
 Boil wool 1 1-2 hours ; lay 2 hours ;
 Finish with
 50 lbs. Chip Fustic.
 Boil bags 1 1-2 hours ; take out ; add
 20 lbs. Madder,
 6 Camwood,
 2 Ground Logwood,
 Boil wool 1-2 hour ; draw off.

No. 62.—Drab.

250 lbs. clean California wool :
 9 1-2 lbs. Ground Fustic.
 1 1-2 Nutgalls,
 2 lbs. Camwood,
 5 Madder.
 Enter wool at 165 deg. and boil 1 1-4 hours.
 Sadden with
 8 1-2 oz. Copperas,
 8 1-2 Half-refined Tartar.
 Boil 20 minutes longer ; draw off.

No. 63.—Drab.

270 lbs. clean California wool :
 Prepare with
 2 1-2 lbs. Chrome,

1 1-4 lbs. Tartar,
 8 oz. Muriate Tin.
 Boil wool 1 1-4 hours.
 Finish with
 3 3-4 lbs. Madder,
 3 1-2 Ground Fustic,
 1 1-4 Nutmalls,
 1 1-2 Camwood.
 Enter wool at 160 deg. and boil 1 1-4 hours.
 Sadden with
 10 oz. Copperas.
 Boil 1-2 hour longer : draw off.

No. 64.—Light Flesh.

50 lbs. clean California wool :
 Prepare with
 2 1-2 lbs. Chrome,
 1 oz. Tin Crystals.
 Boil wool 1 1-2 hours.
 Finish with
 3 oz. Camwood,
 1 Madder,
 1 Ground Fustic.
 Enter wool at 150 deg. and boil 1 hour ; draw off.

No. 65.—Drab.

350 lbs. clean American fleece wool :
 4 1-2 lbs. Ground Fustic,
 3 1-2 Madder.

Enter wool at 150 deg. and boil 1 hour.

Sadden with

2 lbs. Argols,

1-2 lb. Tartar.

Boil wool 1-2 hour longer ; draw off.

No. 66.— Drab.

150 lbs. clean California wool :

3 1-2 lbs. Madder,

1 1-4 Nutgalls,

1 1-4 Camwood.

Boil wool 1 1-2 hours.

Sadden with

10 oz. Copperas,

10 Tartar.

Boil 1-2 hour longer ; draw off.

No. 67.-- Flesh Color.

50 lbs. clean California wool :

Prepare with

1 1-4 oz. Chrome,

1 oz. Tartar,

1 1-2 oz. Muriate Tin.

Boil wool 1 1-2 hours.

Finish with

5 oz. Camwood,

2 Ground Fustic,

1 oz. Madder.

Boil wool 1 1-2 hours ; draw off.

No. 68.--Corn Color.

50 lbs. clean California wool :

Prepare with

4 oz. Chrome,

2 Tartar,

1 Alum,

1 Muriate Tin.

Boil wool 1 1-2 hours.

Finish with

2 lbs. Ground Fustic,

2 oz. Madder.

Boil wool 1 1-2 hours ; draw off.

No. 69.--Sage Drab.

229 lbs. clean California wool :

Prepare with

1 lb. Chrome,

10 oz. Alum,

8 Tartar.

Boil wool 1 1-2 hours.

Finish with

1 lb. Madder,

1 1-2 lbs. Ground Logwood,

14 oz. Ground Fustic.

Boil wool 1 1-2 hours ; draw off.

No. 70.—Blue Stain.

70 lbs. clean California wool :

First rinse the wool in a tub of water, at 160 deg., for 1-2 hour, with

1-2 gill Oil Vitriol ; draw off.

Finish with

1 3-4 oz. Nicholson Blue. 3 B.,

1-2 lb. Alum.

Enter wool and boil 1 hour.

Sadden with

3 lbs. Alum.

Boil 1-4 hour longer ; draw off.

No. 71.—Scarlet.

40 lbs. clean American fleece wool :

4 lbs. Cochineal,

2 Argols,

5 Muriate Tin,

10 oz. Flavine,

8 Oxalic Acid.

Enter wool and boil 1 1-2 hours ; lay 2 hours ; draw off.

No. 72.—Munjeet Red.

200 lbs. clean California wool :

Prepare with

60 lbs. Alum,

8 Tartar,

5 Tin Crystals.

Enter wool and boil 2 hours ; lay 6 hours ; draw off.

Finish with

225 lbs. Madder,
 150 Munjeet,
 3 Tin Crystals,
 2 Tartar,
 1 Bushel of Beans.

Enter the wool at 150 deg. ; boil 2 hours ; lay 6 hours ; draw off.

The above Red will stand all the milling that can be given to it.

No. 73.—Drab.

250 lbs. clean California wool :

7 Ground Fustic,
 2 Camwood,
 5 Madder,
 1 1-2 lbs. Nutgalls.

Enter wool and boil 1 1-2 hours.

Sadden with

8 oz. Copperas,
 8 Tartar.

Boil 1-2 hour longer ; lay 6 hours ; draw off.

No. 74.—Light Blue Green.

60 lbs. clean California wool :

First rinse in a tub of water at 160 deg., for 1-2 hour, with 1-2 gill of Oil Vitriol. Draw off.

Finish with

2 1-4 oz. Nicholson Blue. 3 B.

1-2 lb. Alum.

Enter wool and boil 1 1-4 hours.

Sadden with

3 lbs. Alum,

4 Ground Fustic.

Boil 1-2 hour longer ; lay 1 hour ; draw off.

No. 75.--Grass Green.

50 lbs. clean California wool :

First rinse in a tub of water at 160 deg., for 1-2 hour,
with 1-2 gill Oil Vitriol. Draw off.

Finish with

3 1-2 oz. Nicholson Blue. 3 B.

Enter the wool and boil 1 1-2 hours.

Sadden with

3 lbs. Alum,

10 Ground Fustic.

Boil 1-2 hour longer ; draw off.

No. 76.--Green Sage.

100 lbs. clean California wool :

Prepare with

2 lbs. Chrome.

3 1-2 lbs. Alum,

3 1-2 lbs. Oil Vitriol,

8 oz. Tin Crystals,

Enter wool and boil 1 1-2 hours ; lay 3 or 4 hours.

Finish with

7 1-2 lbs. Extract Indigo,

4 lbs. Salt,

1 1-2 lbs. Ground Fustic,

6 1-2 oz. Ground Logwood.

Enter wool and boil 1 1-2 hours ; lay 4 hours ; draw off.

No. 77.—Blue.

200 lbs. clean American fleece wool :

First rinse in a tub of water at 160 deg., for 1 hour,
with 2 quarts Oil Vitriol. Draw off.

Prepare with

12 lbs. Alum,

10 Oil Vitriol,

6 Chrome,

2 Tin Crystals.

Boil wool 1 1-2 hours.

Finish with

40 lbs. Extract Indigo,

3 Alum,

10 Salt.

Boil 1 1-2 hours ; lay 3 hours ; draw off.

No. 75.--Green Drab.

50 lbs. clean California wool :

Prepare with

4 oz. Chrome,
1 Tartar,
1 Muriate Tin.

Boil wool 1 1-2 hours.

Finish with

10 1-2 oz. Madder,
4 oz. Camwood,
2 Ground Logwood,
3 1-4 lbs. Ground Fustic.

Enter wool and boil 1 1-2 hours; lay 2 hours; draw off.

No. 79.--Green Sage.

60 lbs. clean California wool:

First rinse in a tub of water at 160 deg., for 1-2 hours,
with 1-2 gill of Oil Vitriol. Draw off.

Finish with

2 oz. Nicholson Blue. 3 B,
3 lbs. Alum.

Enter wool and boil 1 hour.

Sadden with

5 1-2 lbs. Ground Fustic,
6 lbs. Madder.

Boil 1-2 hour longer; lay 1-2 hour; draw off.

No. 80.--Dark Green.

325 lbs. clean California wool:

Prepare with

10 lbs. Chrome,

14 lbs. Alum,
5 Oxalic Acid.

Boil wool 1 1-2 hours; draw off.

Finish with

130 lbs. Chip Fustic,
80 Chip Logwood.

Boil bags 1 1-2 hours; take out.

Enter wool and boil 1 1-2 hours; lay 8 hours; draw off.

No. 81.— Black.

300 lbs. American fleece wool :

Prepare with

10 lbs. Chrome,
1 Oxalic Acid,
2 1-2 lbs. Half-refined Tartar.

Boil wool 1 1-2 hours; draw off.

Finish with

150 lbs. Ground Logwood.

Enter wool and boil 2 hours; lay 2 hours; draw off.

No. 82.— Carminé.

70 lbs. clean California wool :

Prepare with

1 1-4 lbs. Chrome,
1-2 Tartar,
1 gill Oil Vitriol.

Boil wool 1 1-2 hours.

Finish with

14 1-2 lbs. Camwood,

10 lbs. Madder,
 6 Ground Fustic,
 6 oz. Ground Logwood.

Enter wool and boil 1 1-2 hours; lay 6 hours; draw off and smoor to shade.

No. 83.--Brown.

200 lbs. clean California wool:

Prepare with
 5 lbs. Chrome,
 3 1-2 lbs. Oil Vitriol,
 1 lb. Argols.

Boil wool 1 1-2 hours; lay 2 hours.

Finish with

40 lbs. Chip Fustic,
 4 Chip Hypernic.

Boil bags 1 1-2 hours; take out; add

30 lbs. Madder,
 28 1-2 lbs. Camwood,
 2 1-4 Chip Logwood.

Enter wool at 150 deg. and boil 1 1-2 hours; lay 6 hours; draw off.

No. 84.—Bronze.

250 lbs. clean California wool:

Prepare with
 3 3-4 lbs. Chrome,
 1 3-4 Alum,
 2 lbs. Tartar.

Boil wool 1 1-2 hours ; lay 2 hours.

Finish with

70 lbs. Chip Fustic,
15 Chip Hypernic,
15 Chip Logwood.

Boil bags 1 1-2 hours ; take out ; add
10 lbs. Madder.

Enter wool at 170 deg. and boil 1 1-2 hours ; lay 2 hours ; draw off.

No. 85.— Yellow.

200 lbs. clean American fleece wool :

9 lbs. Extract Quer-citron Bark,
2 Madder,
1 Oxalic Acid,
5 quarts Muriate Tin.

Enter wool at 125 deg. ; then boil to shade, or 1 1-2 hours ; draw off and cool down.

No. 86.— Green.

200 lbs. clean California wool :

Prepare with

5 lbs. Chrome,
13 Alum,
12 Oil Vitriol,
1 3-4 lbs. Muriate Tin.

Enter wool at 180 deg. and boil 2 hours ; lay 3 hours ; draw off.

Finish with
60 lbs. Extract Indigo,
1 1-2 lbs. Ground Fustic,
12 lbs. Salt,
10 Alum.

Enter wool at 160 deg. and boil 2 hours; lay 2 hours,
or until even. Draw off.

No. 87.--Light Yellow.

200 lbs. clean California wool :
3 lbs. Extract Quer-citron Bark,
4 Extract Fustic,
2 quarts Muriate Tin.

Enter wool at 125 deg. and boil to shade, or 1 1-2 hours ;
draw off and cool down.

No. 88.—Stone Drab.

200 lbs. clean California wool :
Prepare with
2 lbs. Chrome,
2 Alum,
1 1-2 lbs. Tartar.

Boil wool 1 1-2 hours.

Finish with
9 1-2 lbs. Ground Fustic,
2 lbs. Ground Logwood,
7 1-2 lbs. Camwood,

9 lbs. Madder,
2 1-2 lbs. Nutgalls.

Enter the wool at 150 deg., and boil 2 hours.

Sadden with

10 oz. Copperas.

Boil wool 1-2 hour longer ; draw off.

No. 89.—China Blue.

70 lbs. clean California wool :

First rinse the wool in a tub of water, at 180 deg., for 1 hour, with

1 quart Oil Vitriol ; draw off.

Finish with

7 oz. Nicholson Blue. 3 B.,

8 lbs. Alum.

Enter the wool and boil 1 hour ; draw off.

No. 90.—Light Blue.

100 lbs. clean California wool :

Prepare with

1 lb. Nicholson Blue. 6 B,

2 lbs. Sal-soda.

Enter wool and boil 2 hours ; draw off.

Finish with, (or Sour Tub),

3 lbs. Oil Vitriol.

Enter wool and lay 1 hour at 130 deg. ; draw off.

No. 91.-- Yellow Green.

100 lbs. coarse Texas wool :

- 5 Extract Indigo,
- 12 oz. Picric Acid,
- 8 lbs. Alum,
- 1 pint Oil Vitriol.

Enter wool at 160 deg. and boil 1 hour ; - lay 1 hour ; draw off.

No. 92.—Dark Brown.

200 lbs. clean American fleece wool :

Prepare with

- 4 lbs. Chrome,
- 2 Tartar.

Boil wool 2 hours ; draw off.

Finish with

- 15 lbs. Brazil-wood,
- 25 Camwood.
- 25 Madder,
- 11 Ground Logwood,
- 20 Ground Fustic.

Boil wool 1 1-4 hours.

Sadden with

- 5 lbs. Copperas.

Boil 1-2 hour longer ; draw off.

No. 93.—Light Prussian Blue.

250 lbs. clean California wool :

Prepare with

14 lbs. Red Prussiate Potash,

15 Oil Vitriol.

Enter wool at 100 deg.; heat slowly to a boil, (don't boil), take wool up and add to the liquor

9 oz. Magenta Crystals,

8 lbs. Sal-soda.

Enter wool at 125 deg. and bring to a boil; lay 1-2 hour; draw off and wash well.

No. 94.—Sage.

300 lbs. clean California wool:

Prepare with

2 1-2 lbs. Chrome,

2 1-2 Alum,

2 1-2 Tartar.

Boil wool 1 1-2 hours; draw off.

Finish with

4 1-2 lbs. Ground Logwood,

4 1-2 Ground Fustic.

Enter wool and boil 2 hours; draw off.

No. 95.—Light Blue.

100 lbs. coarse Texas wool:

Prepare with

1 3-4 lbs. Alum,

1 1-4 Oxalic Acid,

1 1-2 Tartar,

1 lb. Chrome.

Boil 1 hour ; draw off.

Finish with

10 lbs. Chip Logwood.

Boil bags 1 1-2 hours ; take out ; add

1 pint Ammonia.

Enter wool at 150 deg. and boil 1 hour ; draw off.

No. 96.—Light Olive.

170 lbs. clean California wool :

Prepare with

3 lbs. Chrome,

1 1-2 lbs. Alum.

1 1-2 Tartar,

1 gill Oil Vitriol.

Boil wool 1 1-2 hours.

Finish with

22 lbs. Chip Fustic,

4 Camwood.

9 Madder,

10 oz. Ground Logwood.

Enter wool at 150 deg. and boil 2 hours ; draw off and it will smoor up to shade.

No. 97.—Cinnamon Brown.

225 lbs. Texas wool :

Prepare with

5 lbs. Chrome,

4 Alum,

2 lbs. Tartar.

Boil wool 1 1-2 hours.

Finish with

75 lbs. Chip Fustic,

Boil bags 1 1-2 hours; take out; add

30 lbs. Red Sanders.

25 Madder,

2 1-2 lbs. Ground Logwood.

Enter wool at 160 deg. and boil 1 1-2 hours; draw off.

No. 98.—Maroon.

100 lbs. clean Texas wool:

1 1-2 lbs. Acid Maroon,

1 1-2 Oil Vitriol.

Enter the wool at 140 deg.; boil 1 hour; draw off.

No. 99.—Dark Brown.

200 lbs. clean coarse Texas wool:

Prepare with

8 lbs. Chrome,

4 Argols,

1 quart Oil Vitriol.

Boil wool 1 1-2 hours.

Finish with

170 lbs. Chip Fustic,

108 Chip Hypernic.

Boil bags 1 1-2 hours; take out; add

50 lbs. Madder,

50 lbs. Camwood,
 15 Ground Logwood.
 Enter wool and boil 2 hours; lay 6 hours; draw off.

No. 100.—Red Brown.

250 lbs. clean coarse Texas wool:
 Prepare with
 4 lbs. Chrome,
 3 1-2 lbs. Alum,
 1-2 lb. Tartar.
 Boil wool 1 1-2 hours.
 Finish with
 45 lbs. Chip Fustic.
 Boil bags 1 1-2 hours; take out; add
 15 lbs. Madder,
 5 Red Sanders,
 1 Ground Logwood.
 Enter wool and boil 1 1-2 hours.
 Sadden with
 1 1-2 lbs. Copperas.
 Boil 1-2 hour longer; draw off.

No. 101.--Red Brown.

200 lbs. clean coarse Texas wool:
 Prepare with
 5 lbs. Chrome,
 3 1-2 lbs. Oil Vitriol,
 1 lb. Half-refined Tartar.

Boil 1 1-2 hours ; lay 2 hours.

Finish with

30 lbs. Madder,

23 Camwood,

2 1-2 lbs. Ground Logwood,

21 lbs. Chip Fustic.

Boil bags 1 1-2 hours ; take out.

Enter wool and boil 2 hours ; lay 5 hours ; draw off.

No. 102.—Dark Olive Brown.

365 lbs. clean coarse Texas wool :

Prepare with

7 3-4 lbs. Chrome,

3 1-2 Red Argols,

1 quart Oil Vitriol.

Boil 1 1-2 hours ; lay 4 hours.

Finish with

175 lbs. Chip Fustic,

160 Chip Hypernic,

14 Logwood.

Boil bags 1 1-2 hours ; take out ; add

5 lbs. Blue Vitriol.

Enter wool and boil 1 1-2 hours ; lay 2 hours ; draw off.

No. 103.—Drab.

400 lbs. clean coarse Texas wool :

Prepare with

20 lbs. Ground Logwood,

4 1-2 lbs. Camwood,
 1 3-4 Alum,
 1 1-2 Ground Fustic,
 2 lbs. Sicily Sumac,
 6 Madder.

Enter wool and boil 1 hour.

Sadden with

2 3-4 lbs. Copperas.

Boil wool 1-4 hour longer ; draw off.

No. 104.— Brown.

275 lbs. coarse Texas wool :

90 lbs. Chip Fustic,

22 Chip Logwood,

Boil bags 1 1-2 hours ; take out ; add

65 lbs. Red Sanders,

10 Camwood,

10 Madder.

Enter wool and boil 2 hours.

Sadden with

3 1-2 lbs. Copperas,

1-2 Blue Vitriol.

Boil wool 1 1-2 hour longer ; lay 4 hours ; draw off.

No. 105.— Violet.

200 lbs. coarse Texas wool :

Prepare with

15 1-4 lbs. Alum,

5 lbs. Argols,
 1 1-2 lbs. Chrome,
 4 1-2 Muriate Tin.

Boil wool 1 1-2 hours; draw off.

Finish with

2 lbs. Hoffman Violet. 2 B.

Enter wool at 160 deg. and boil 1 1-2 hours; lay 8 hours; draw off.

No. 106.—Black Brown.

400 lbs. coarse Texas wool:

170 Chip Logwood,

200 Chip Fustic,

Boil bags 1 1-2 hours; take out; add

42 lbs. Camwood,

28 Madder.

Enter wool and boil 1 1-2 hours.

Sadden with

30 lbs. Copperas.

Boil 1-2 hour longer; draw off.

No. 107.—Green Olive.

180 lbs. clean coarse Texas wool:

Prepare with

4 1-2 lbs. Chrome,

3 lbs. Argols,

3 Alum.

Boil wool 2 hours.

Finish with
50 lbs. Chip Fustic,
13 1-2 lbs. Chip Logwood.
Boil bags 1 1-2 hours; take out; add
10 lbs. Red Sanders,
10 Madder.
Enter wool and boil 2 hours; lay 2 hours; draw off.

No. 108.—Blue Mulberry.

300 lbs. clean coarse Texas wool:
Prepare with
10 lbs. Chrome,
20 Alum,
5 Tartar.
Boil wool 1 1-2 hours.
Finish with
230 lbs. Chip Hypernic,
65 Chip Logwood.
Enter wool and boil 2 hours; lay 2 hours; draw off.

No. 109.—Light Mulberry.

300 lbs. clean coarse Texas wool:
Prepare with
4 1-2 lbs. Oxalic Acid,
15 lbs. Alum.
Boil wool 1 1-2 hours.
Finish with
66 lbs. Chip Logwood.

Boil bags 1 1-2 hours ; take out.

Enter wool and boil 2 hours ; lay 2 hours ; draw off.

No. 110.—Blue Mulberry.

300 lbs. clean coarse Texas wool :

Prepare with

4 1-2 lbs. Chrome,

12 lbs. Alum,

4 oz. Tin Crystals,

2 lbs. Tartar.

Boil wool 1 1-2 hours.

Finish with

96 lbs. Chip Hypernic,

35 Chip Logwood.

Boil bags 1 1-2 hours ; take out ; add

16 lbs. Cudbear.

Enter wool and boil 1 1-2 hours ; lay 4 hours ; draw off.

No. 111.--Slate Drab.

250 lbs. clean coarse Texas wool :

3 lbs. Ground Fustic,

19 Ground Logwood,

2 Camwood,

6 Madder.

Enter wool and boil 1 1-2 hours.

Sadden with

1-2 lb. Alum,

1-2 lb. Copperas.

Boil wool 1-2 hour longer ; draw off.

No. 112.—Light Mulberry.

250 lbs. clean coarse Texas wool :

2 1-4 lbs. Cudbear,

1 1-4 Alum,

11 1-4 Ground Logwood.

Enter wool and boil 1 hour.

Sadden with

3 lbs. Copperas.

Boil 1-4 hour longer ; draw off.

No. 113.—Prussian Blue.

100 lbs. clean coarse Texas wool :

Prepare with

5 1-2 lbs. Red Prussiate Potash,

6 1-2 lbs. Oil Vitriol.

Enter wool at 100 deg. and bring slowly to a boil ; take the wool up and add to the dye

8 lbs. Chip Logwood, which has been previously boiled in a barrel for 1 hour,

2 1-2 lbs. Muriate Tin,

1 1-2 oz. Acid Magenta.

Enter wool at 150 deg. for 15 minutes ; then bring to a boil and boil to shade ; draw off and wash well.

No. 114.—Aniline Blue.

100 lbs. clean coarse Texas wool :

1 1-4 lbs. Nicholson Blue. 3 B,

3 lbs. Sal-soda.

Enter wool and boil 1 hour ; lay 2 hours ; draw off.

Finish with

7 oz. 4 B Hoffman Violet,

5 lbs. Aqua Ammonia. 3 F.

Enter wool at 130 deg. and lay 1 hour ; heat to 160 deg. ; draw off.

This blue will stand any amount of fulling.

No. 115.—Light Mulberry.

300 lbs. clean coarse Texas wool :

Prepare with

4 lbs. Chrome,

10 Alum,

2 Tartar.

Boil wool 1 1-2 hours ; draw off.

Finish with

130 lbs. Chip Hypernic,

28 Chip Logwood.

Boil bags 1 1-2 hours ; take out ; add

20 Cudbear.

Enter the wool and boil 2 hours ; draw off.

No. 116.—Dark Mulberry.

275 lbs. clean coarse Texas wool :

Prepare with

7 lbs. Chrome,

10 Alum,

4 Tartar,

3 lbs. Muriate Tin.

Boil wool 1 1-2 hours ; lay 2 hours.

Finish with

200 lbs. Chip Hypernic,

60 Logwood.

Boil bags 1 1-2 hours ; take out.

Enter wool and boil 2 hours ; lay 6 hours ; draw off.

No. 117.—Prussian Blue.

100 lbs. coarse Texas wool :

Prepare with

6 lbs. Red Prussiate of Potash,

6 Oil Vitriol.

Enter wool at 100 deg. and bring slowly to a boil. Take the wool up and add to the dye

10 lbs. Chip Logwood, which has been previously boiled for 1 hour in a barrel,

3 lbs. Muriate Tin.

Enter wool at 125 deg. again for 1-4 of an hour, then bring to a boil and boil to shade ; draw off and wash well.

No. 118.—Green Olive.

150 lbs. clean coarse Texas wool :

Prepare with

2 1-2 lbs. Chrome,

1 1-4 Alum,

2 lbs. Tartar.

Boil wool 1 1-2 hours ; draw off.

Finish with
14 oz. Ground Logwood,
30 lbs. Ground Fustic,
2 Madder.
Enter wool and boil 1 1-2 hours; draw off.

No. 119.— Olive.

250 lbs. clean coarse Texas wool :
Prepare with
5 lbs. Chrome,
2 1-2 lbs. Tartar,
1 1-2 Alum.
Boil wool 1 1-2 hours; draw off.
Finish with
130 lbs. Chip Fustic,
3 3-4 lbs. Chip Logwood.
Boil bags 1 1-2 hours; take out; add
24 lbs. Madder,
10 Camwood.
Enter wool and boil 2 hours; draw off.

No. 120.— Seal Brown.

250 lbs. clean California wool :
98 Chip Fustic,
18 Camwood,
3 Ground Logwood,
16 Madder.
Enter wool and boil 2 hours; lay 3 hours.

Sadden with

3 1-2 lbs. Copperas,

3-4 Blue Vitriol.

Boil wool 1-2 hour longer ; draw off.

No. 121.—Tan Brown.

300 lbs. clean coarse Texas wool :

Prepare with

7 lbs. Chrome,

2 Red Argols,

1 quart Oil Vitriol.

Boil wool 1 1-2 hours ; draw off.

Finish with

100 lbs. Chip Fustic,

6 Chip Hypernic.

Boil bags 1 1-2 hours ; take out ; add

2 lbs. Ground Logwood,

4 Camwood,

20 Madder.

Enter wool and boil 2 hours ; lay 1 hour ; draw off.

REMARKS

ON SHODDY DYEING.

All the receipts herein given are practical and my own work. There is a great deal of ~~difference~~ sometimes in the stock, and of course in such cases, it requires judgment, as shoddy or rags vary in color; some are lighter and some darker.

Also when the stock is colored in the rag, the picking and carding change it sometimes, several shades, either lighter or darker, as the case may be; therefore great care must be taken before hand, and that is the reason shoddy or rag coloring is so bothersome. When coloring shoddy always pole well, as it generally lumps up when it gets to the dye.

Receipts for Shoddy.

X

No. 1.—Scarlet.

500 lbs. Red Rags :
 10 Cochineal,
 10 Muriate Tin,
 1 Flavine.

Enter rags and boil 1 1-2 hours ; draw off.

No. 2.—Olive. 3

500 lbs. Extracted Seams, not washed from²Acid :

Prepare with

28 lbs. Chrome,
 28 Oxalic Acid.

Enter stock and boil 1 hour ; draw off.

Finish with

2 lbs. Extract Fustic,
 2 Flavine,
 6 Muriate Tin,
 1 Tin Crystals.

Enter wool and boil 1 1-2 hours.

No. 3.—Sample of Shoddy. 3

Sample of Extract Merino (not very dark) that numbers 2, 6, 8, 10, 22, 52, 78, were colored on.

No. 4.—Navy Blue. (Indigo Test.)

500 lbs. dark sorted Merinos, not extracted, the Cotton only being sorted out :

Prepare with

12 lbs. Chrome,
40 Alum,
20 Oxalic Acid.

Enter stock and boil 1 1-2 hours.

Finish with

50 lbs. Chip Logwood.

Boil bags 1 1-2 hours ; take out ; add
125 lbs. Extract Indigo,
22 oz. Acid Magenta.

Enter stock at 170 deg. and boil 2 hours ; lay 6 hours ; draw off.

No. 5.—Olive. /

300 lbs. dark Extract Merino, washed :

115 lbs. Ground Tumeric,
60 Oxalic Acid,
2 gallons Nitric Acid.

Enter stock and boil 1 hour ; draw off.

No. 6.—Aniline Blue. }
}

100 lbs. Extract Seams, washed :

This stock was rather light.

Prepare with

9 lbs. Sal-soda,

1 2 oz. Nicholson Blue. 6 B.

Enter stock and boil 1 hour.

Sour with

5 lbs. Oil Vitriol.

Enter wool at 130 deg. ; lay 1-2 hour ; draw off.

No. 7.—Green.

250 lbs. dark Extract Merino :

This stock was not washed from acid.

Prepare with

5 lbs. Oxalic Acid,

18 Chrome,

10 Alum.

Enter stock and boil 1 1-4 hours.

Finish with

50 lbs. Extract Indigo,

17 Extract Fustic Liquor, 51 deg.,

10 Alum.

Enter stock and boil 2 hours ; draw off.

No. 8.—Acid Magenta. }
}

100 lbs. Extract Seams, not washed from acid, dark colors sorted out :

1 lb. Acid Magenta.

Enter stock and boil 1 hour; draw off.

NOTE.—If this stock had been washed after acid, it would take in coloring 3 lbs. Oil Vitriol with the Aniline.

No. 9.—Dark Acid Magenta. ~~X~~ ~~X~~

100 lbs. dark Extract Merino, not washed from the acid:

1 1-4 lbs. Acid Magenta.

Enter stock and boil 1 hour; draw off.

NOTE.—If this stock had been washed after the acid, it would take in coloring 3 lbs. Oil Vitriol with the Aniline.

No. 10.—Aniline Blue. 3

100 lbs. Extract Merino, not washed very well from the Acid:

1 1-4 lbs. Nicholson Blue. 6 B,

8 lbs. Sal-soda.

Enter stock and boil 2 hours; draw off.

Sour with

2 lbs. Oil Vitriol.

Enter stock at 130 deg. for 1 hour; draw off.

No. 11.—Brown Olive. /

250 lbs. Extract Seams, not very well washed from Acid:

Prepare with

12 lbs. Oxalic Acid,

12 Chrome.

Enter stock and boil 1 1-4 hours.

Finish with

6 1-2 lbs. Extract Fustic,

4 lbs. Camwood,

1 Madder,

4 Muriate Tin.

Enter stock and boil 1 1-2 hours ; draw off.



No. 12.-- Light Green.

100 lbs. Red Rags :

Prepare with

6 lbs. Chrome,

8 1-2 lbs. Oxalic Acid,

8 1-2 Oil Vitriol.

Enter stock and boil 1 1-2 hours.

Finish with

20 lbs. Extract Indigo.

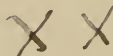
Enter stock and boil 1 hour ; take up ; add to the dye

30 oz. Picric Acid,

3 lbs. Oil Vitriol.

Enter stock again for 1-2 hour or more, (don't boil it) ; draw off.

No. 13.-- Brown.



125 lbs. dark Seams, 30 per cent cotton :

Prepare with

35 lbs. Cutch,

7 Extract Quer-citron Bark,

4 1-2 lbs. Extract Hypernic,
7 lbs. Blue Vitriol.

Enter stock at 150 deg. for 1 hour, then heat up slowly to 190 deg. ; lay at this heat 1 hour ; draw off and

Finish with

6 1-2 lbs. Chrome,
2 1-2 Blue Vitriol.

Enter stock at 160 deg. for 1-2 hour, then heat up to 190 deg. for 1-2 hour ; draw off.

No. 14.— Drab.

100 lbs. Red Rags, (picked) :

5 1-2 lbs. Chrome,
7 1-2 Oil Vitriol,
7 1-2 Oxalic Acid.

Enter stock and boil 1 hour ; draw off.

No. 15.— Guernsey Blue.

100 lbs. Red Rags :

2 Guernsey Blue,
5 Sal-soda.

Enter stock and boil 2 hours.

Sour with

3 lbs. Oil Vitriol.

Enter stock at 130 deg. for 1 hour ; draw off.

No. 16.— Brown.

125 lbs. dark Seams, 30 per cent cotton :

Prepare with

25 lbs. Cutch,
 8 Extract Hypernic,
 5 Extract Bark,
 7 Blue Vitriol.

Enter stock at 150 deg. for 1 hour, then heat up slowly to 190 deg. ; lay at this 1 hour ; draw off.

Finish with
 .7 lbs. Chrome,
 3 Blue Vitriol.

Enter stock at 160 deg. for 1-2 hour, then heat up to 190 deg. ; draw off.

No. 17.-- Brown.

200 lbs. dark sorted Merino, not extracted :

20 Gambier,
 6 Extract Hypernic,
 6 Extract Quer-çitron Bark,
 8 Extract Fustic Liquor, 51 deg.,
 7 Blue Vitriol.

While the stock is entering in the tub throw on
 35 lbs. Camwood,
 Enter stock and boil 2 hours ; lay 1 hour ; draw off.

No. 18.-- Blue. (Red Shade.)

250 lbs. Unextracted Dark Softs :
 2 3-4 lbs. Alkaline Blue. R. Extra,
 12 lbs. Sal-soda.


Enter stock and boil 1 1-2 hours ; draw off.

Finish with

6 oz. Acid Magenta,

10 lbs. Oil Vitriol.

Enter stock at 160 deg. for 1 hour ; draw off.

No. 19.—Seal Brown. (Red Shade.) 

500 lbs. Red Rags :

35 Extract Fustic,

30 Extract Logwood,

8 Extract Quer-citron Bark,

25 Gambier,

10 Blue Vitriol.

Enter stock and boil 1 1-2 hours ; draw off.

No. 20.-- Bleach.

100 lbs. Red Rags, (picked) :

Prepare with

5 1-2 lbs. Chrome,

7 1-2 Oxalic Acid,

7 1-2 Oil Vitriol.

Enter stock and boil 1 1-2 hours ; draw off.

Finish with

1 1-2 lbs. Extract Indigo.

Enter stock at 120 deg. and heat slowly to a boil ; draw off.

No. 21.—Light Olive.  

300 lbs. dark Extract Merino Shoddy :

Prepare with

17 lbs. Chrome,
15 Oxalic Acid.

Enter stock and boil 1 hour.

Finish with

60 lbs. Chip Fustic,

Boil bags 1 1-2 hours; take out; add

6 lbs. Madder,

5 Muriate Tin.

Enter stock and boil 1 1-2 hours; lay 2 hours; draw off.

No. 22.—Green. 3

100 lbs. Extracted Seams:

Prepare with

5 3-4 lbs. Chrome,

19 lbs. Oil Vitriol.

Enter stock and boil 15 minutes.

Finish with

10 lbs. Extract Indigo,

1 Picric Acid.

Enter stock at 125 deg. for 1-4 hour; then heat to a boil and draw off.

No. 23.—Light Smoke. X X

65 lbs. dark Extract Meriño Shoddy:

Prepare with

7 1-2 lbs. Chrome,

5 lbs. Oxalic Acid,

14 Alum,

10 lbs. Oil Vitriol.

Enter shoddy and boil 1 1-2 hours; draw off.

Finish with

8 lbs. Ground Fustic,

1-2 lb. Ground Logwood,

1 oz. Nicholson Blue. 3 B.

Enter stock and boil 1 1-2 hours; draw off.

No. 24.-- Black.

100 lbs. dark Seams, 35 per cent cotton:

17 Extract Logwood,

3 Extract Quer-citron Bark,

16 Cutch,

6 Blue Vitriol,

10 Aqua Ammonia. 3 F.

Enter stock at 150 deg. and lay 1 1-4 hours; heat up slowly to 195 deg.; lay at this heat for 1 hour and it is finished.

This dye can be kept for future use by reducing 1-4 on next 2 dips, and then keep at that for the standard.

No. 25.— Carmine.

50 lbs. dark Extract Merino Shoddy:

Prepare with

1 3-4 lbs. Chrome,

2 lbs. Oil Vitriol.

Enter stock and boil 1 1-4 hours; draw off.



Finish with



8 1-2 lbs. Camwood,
 4 lbs. Madder,
 2 Ground Fustic.

Enter stock and boil 1 1-2 hours ; draw off.

No. 26.—Bright Olive.

140 lbs. dark Extract Merino Shoddy :  



Prepare with
 20 lbs. Chrome,
 30 Oxalic Acid.

Enter stock and boil 1 hour ; draw off.

Finish with
 16 lbs. Ground Fustic,
 1 1-2 lbs. Camwood,
 3 1-4 Flavine,
 8 lbs. Muriate Tin.

Enter stock and boil 1 hour ; draw off.

No. 27.—Bronze.

264 lbs. dark Merino Extract Shoddy :  

Prepare with
 32 lbs. Chrome,
 40 Oxalic Acid.

Enter stock and boil 1 hour.

Finish with
 60 lbs. Chip Fustic,
 16 Chip Logwood.

Boil bags 1 1-2 hours ; take out.

Enter stock and boil 1 1-2 hours ; draw off.

No. 28.—Light Brown.

200 lbs. dark Extract Merino Shoddy :

Prepare with

25 lbs. Chrome,

25 Oxalic Acid.

Enter stock and boil 1 hour ; draw off.

Finish with

24 lbs. Ground Fustic,

6 Madder,

8 Camwood,

2 Flavine,

4 quarts Muriate Tin,

Enter shoddy and boil 1 1-2 hours ; draw off.

No. 29.—Navy Blue.

375 lbs. dark Extract Merino Rags :

Prepare with

3 1-2 lbs. Alkaline Blue. R. Extra,

12 lbs. Sal-soda.

Enter rags and boil 1 1-2 hours.

Finish with

25 lbs. Chip Logwood.

Boil bags 2 hours ; take out ; add

20 lbs. Alum.

Enter rags at 180 deg. ; lay 2 hours ; draw off.

No. 30.--Aniline Blue.

300 lbs. light colored Stockinets :

Prepare dye-bath with

3 lbs. Alkaline Blue. 3 B,
 15 Sal-soda.
 Enter stock and boil 1 1-2 hours.
 Sour with
 12 lbs. Oil Vitriol.

Enter stock at 140 deg. for 1 hour ; draw off.

No. 31.—Cardinal Red.

100 lbs. dark Delaine Extract :

Prepare with

Nitric Acid, testing 4 by No. 1 Twaddle, (test when cold.)

Enter stock boiling ; boil 1-4 hour ; take up and rinse well in cold water and whiz.

Finish with

1 1-4 lbs. Fast Red R. R., (double strength,) or

2 1-2 Fast Red R, and

1 1-2 Ox. Muriate Antimony.

Enter stock at 120 deg. ; lay 1-2 hour ; heat to 140 deg. ; draw off.

No. 32.—Aniline Blue.

250 lbs. Stockinets :

Prepare dye-bath with

2 1-4 lbs. Nicholson Blue. 3 B,

4 lbs. Sal-soda.

Enter stock and boil 2 hours.

Finish with

10 lbs. Oil Vitriol.

Enter stock at 140 deg. for 1 hour ; draw off.

No. 33.—Scarlet.

100 lbs. dark Delaine Extract :

Prepare with

Nitric Acid, testing (when cold) 4, by No. 1 Twaddle.

Enter stock boiling ; boil 1-4 hour ; take up and rinse well in cold water and whiz.

Finish with

14 oz. Fast Red R. R. (double strength,) or

28 Fast Red R, and

1 lb. Ox. Muriate Antimony.

Enter stock at 120 deg. ; lay 1-2 hour and heat to 140 deg. ; draw off.

No. 34.—Tan Brown.

100 lbs. dark Delaine Extract :

Prepare with

5 lbs. Chrome,

8 1-4 lbs. Oil Vitriol,

2 1-2 Oxalic Acid.

Enter stock and boil 1 1-2 hours ; draw off.

Finish with

12 lbs. Tumeric,

8 Camwood.

Enter stock and boil 1 1-2 hours ; draw off.

No. 35.—Golden Brown.

100 lbs. dark Delaine Extract :

Prepare with

2 lbs. Chrome,
8 1-2 lbs. Oxalic Acid.

Enter stock and boil 1 1-2 hours ; draw off.

Finish with

1 3-4 lbs. Flavine,
1 1-2 Cochineal,
6 lbs. Muriate Tin.

Enter stock and boil 1 1-2 hours ; draw off.

No. 36.—Dark Green Olive.

350 lbs. dark Woollen Clips :

Prepare with

20 lbs. Chrome,
40 Oxalic Acid,
25 Oil Vitriol.

Enter clips and boil 1 hour ; draw off.

Finish with

12 lbs. Extract Fustic,
4 Extract Hypernic,
4 Blue Vitriol.

Enter chips and boil 1 1-2 hours ; draw off.

No. 37.—Olive.

100 lbs. dark Delaine Extract :

Prepare with

4 lbs. Chrome,
12 Oxalic Acid.

Boil stock 1-2 hour ; draw off.

Finish with

2 lbs. Flavine,

1 1-4 lbs. Cochineal,

4 lbs. Muriate Tin.

Enter stock and boil 1 hour; draw off.

No. 38.—Light Brown.

100 lbs. dark Extract Merino Rags:

Prepare with

15 lbs. Oxalic Acid,

2 3-4 lbs. Chrome.

Enter rags and boil 1 1-2 hours; draw off.

Finish with

2 1-2 lbs. Flavine,

1 1-4 Cochineal,

8 lbs. Muriate Tin.

Enter rags and boil 1 hour; draw off.

No. 39.—Orange.

100 lbs. light Delaine Extract:

Prepare with

Nitric Acid, testing (when cold) 3 by No. 1 Twaddle.

Enter stock boiling; boil 1-4 hour; take up and rinse well in cold water and whiz.

Finish with

10 oz. Fast Red R. R., double strength, or

1 1-4 lbs. Fast Red R. and

12 oz. Ox. Muriate Antimony.

Enter stock at 120 deg. and lay 1 hour; heat up to 140; draw off.

No. 40.—Dark Brown.

480 lbs. dark Woollen Clips:

Prepare with

75 lbs. Oxalic Acid,

25 Chrome.

Enter clips and boil 1-2 hour; draw off.

Finish with

30 lbs. Extract Quer-citron Bark,

17 Extract Hypernic,

16 Blue Vitriol.

Enter clips and boil 1 hour; draw off.

No. 41.--Olive.

100 lbs. dark Extract Merino Rags:

Prepare with

12 lbs. Oxalic Acid,

7 1-2 lbs. Chrome.

Enter rags and boil 1 1-2 hours; draw off.

Finish with

5 lbs. Extract Fustic,

10 oz. Extract Logwood.

Enter rags and boil 1 1-4 hours; draw off.

No. 42.—Red Rags. (Picked.)

Sample of Red Rags that are picked and that numbers 1, 12, 14, 15, 19, 20, 49, 57, 69, and 71, were done from.

No. 43.--Fawn.

100 lbs. dark Extract Merino Rags: X X

Nitric Acid, testing (when cold) 1 1-2 by the No. 1
Twaddle.

Enter rags boiling and boil 1-4 of an hour; then take out and wash them in cold water and they are finished.

No. 44.--Brown.

850 lbs. dark Woollen Clips:

Prepare with

100 lbs. Oxalic Acid,

60 Chrome,

30 Oil Vitriol.

Enter clips and boil 1 1-2 hours.

Finish 425 lbs. of them with

28 lbs. Extract Fustic,

20 Extract Hypernic,

2 1-2 lbs. Extract Logwood,

12 lbs. Blue Vitriol.

Enter clips and boil 1 1-4 hours; draw off.

No. 45.—Olive.

100 lbs. dark Extract Merino Rags: X X

Prepare with

9 lbs. Oxalic Acid,

4 Chrome.

Enter rags and boil 1 1-4 hours.

Finish with
6 1-2 lbs. Extract Fustic,
3 lbs. Muriate Tin.
Enter rags and boil 1 1-4 hours; draw off.

No. 46.-- Blue.

100 lbs. dark Delaine Extract :
Prepare with
4 lbs. Sal-soda.
Enter stock and boil 1-2 hour; draw off.
Finish with
1 lb. Nicholson Blue. 3 B.
1 Sal-soda.
Enter stock and boil 1 1-2 hours; draw off.
Sour with
3 lbs. Oil Vitriol.
Enter stock at 140 deg.; lay 1 hour; draw off.

No. 47.-- Red Brown.

100 lbs. dark Delaine Extract :
Prepare with
6 lbs. Chrome,
8 Oil Vitriol.
Enter stock and boil 1 hour.
Finish with
15 lbs. Camwood,
13 Ground Fustic.
Enter stock and boil 1 hour; draw off.

No. 48.--Navy Blue. (Indigo Test.)

100 lbs. dark sorted Merinos, not extracted, the Cotton only being sorted out :

Prepare with

2 1-2 lbs. Chrome,

8 lbs. Alum.

Enter stock and boil 1 1-2 hours ; draw off.

Finish with

35 lbs. Extract Indigo,

4 1-2 oz. Acid Magenta.

Enter stock at 170 deg. and boil 2 hours ; lay 6 hours ; draw off.

No. 49.—Bleach.

250 lbs. Red Rags :

15 Chrome,

15 Oxalic Acid,

25 Oil Vitriol.

Enter rags and boil 1 hour, not any longer ; draw off and cool down.

No. 50.—Yellow.

125 lbs. dark Delaine Extract :

Nitric Acid, testing (when cold) 4 by No. 1 Twaddle.

Enter stock boiling ; boil 15 minutes ; then take out and wash in cold water and whiz, and it is finished.

No. 51.--Black. (One Dip.)

300 lbs. Silk and Wool Waste :

35 Extract Logwood,

10 Copperas,

6 Blue Vitriol.

Enter stock at 160 deg. ; lay 1 hour ; boil 1 hour ; draw off.

No. 52.--Olive Brown.

3

100 lbs. extract Merino, not very dark :

12 Gambier,

4 1-2 lbs. Blue Vitriol,

3 1-2 Extract Fustic,

3 1-2 Extract Quer-citron Bark,

3 1-2 Extract Hypernic,

3 1-2 Extract Logwood.

Enter stock ; boil 2 hours ; draw off.

No. 53.— Blue Black.

300 lbs. Dark Extract Merino Shoddy :

Prepare with

12 lbs. Chrome,

2 Oxalic Acid,

6 Rock Salt.

Enter shoddy ; boil 2 hours ; lay 2 hours ; draw off.

Finish with

150 lbs. Chip Logwood.

Boil bags 1 1-2 hours ; take out ; enter shoddy ; boil 2 hours ; draw off.

X X

No. 54.— Green.

50 lbs. Dark Extract Merino Shoddy :

Prepare with

4 lbs. Chrome,

3 1-2 lbs. Alum,

5 lbs. Oil Vitriol,

1 Tin Crystals.

Enter stock ; boil 1 1-4 hours ; draw off.

Finish with

10 lbs. Extract Indigo,

1 Oil Vitriol,

2 Rock Salt.

Enter stock ; boil 2 hours ; lay 6 hours ; draw off.

No. 55.— Dark Brown.

300 lbs. Dark Extract Merino Shoddy :

Prepare with

9 lbs. Chrome,

6 Oil Vitriol,

3 Tartar.

Enter stock ; boil 2 hours ; draw off.

Finish with

140 lbs. Chip Fustic,

26 Chip Logwood.

Boil bags 1 1-2 hours ; take out ; add

12 lbs. Camwood.

Enter stock ; boil 1 1-2 hours.

Sadden with

7 3-4 lbs. Copperas,
 1 1-2 Blue Vitriol.

Boil stock 1-2 hour longer ; lay 6 hours ; draw off and smoor, if needed, 2 hours.

No. 56.—Dark Brown.

775 lbs. Very Dark Extract Merino Rags ;

Prepare with

60 lbs. Oxalic Acid,

30 Chrome.

Enter stock ; boil 1 1-2 hours.

Finish 400 lbs. of them with

27 lbs. Extract Quer-citron Bark,

28 Extract Fustic,

4 Extract Hypernic.

Enter rags ; boil 2 hours ; draw off.

No. 57.—Tan Brown.

500 lbs. Red Rags :

Prepare with

40 lbs. Oxalic Acid,

30 Chrome.

Enter rags ; boil 1 hour ; draw off.

Finish with

3 lbs. Extract Hypernic,

4 Fustic,

3 1-2 lbs. Blue Vitriol.

Enter rags ; boil 1 1-2 hours ; draw off.

No. 58.—Seal Brown.

700 lbs. Dark Extract Merino Rags :
 25 lbs. Extract Quer-citron Bark,
 40 Extract Fustic,
 18 Extract Logwood,
 15 Blue Vitriol.



When putting in the stock, throw on
 76 lbs. Camwood.

Boil rags 2 hours ; lay 6 hours ; draw off.

No. 59.—Brown.

200 lbs. Dark Sorted Merinos, not extracted, cotton being
 sorted out :

20 lbs. Gambier,
 6 Extract Quer-citron Bark,
 5 Extract Fustic,
 8 Extract Hypernic,
 8 Blue Vitriol.

When putting in the rags throw on
 25 lbs. Camwood.

Boil rags 2 hours ; lay 2 hours ; draw off.

No. 60.—Light Blue Green.

50 lbs. Dark Extract Merino Shoddy :
 Prepare with
 4 lbs. Chrome,
 3 1-2 lbs. Alum,
 5 lbs. Oil Vitriol,



1 lb. Tin Crystals.

Enter stock ; boil 2 hours ; draw off.

Finish with

10 lbs. Extract Indigo,

1 1-4 lbs. Ground Fustic,

1 1-2 Alum,

2 lbs. Rock Salt.

Enter stock ; boil 2 hours ; lay 2 hours ; draw off.

No. 61.

Sample of Seams that are picked that numbers 79, 80, 82, 83, 84, 85, 87, and 90, were colored from.

No. 62.--Dark Blue Green.

200 lbs. Dark Extract Merino Shoddy :

Prepare with

7 lbs. Chrome,

7 Oxalic Acid,

10 Alum.

Enter stock ; boil 1 1-4 hours.

Finish with

36 lbs. Extract Indigo,

7 Ground Fustic,

2 Ground Logwood.

Enter stock ; boil 1 1-4 hours ; lay 2 hours ; draw off.

No. 63.--Green.

100 lbs. Dark Delaine Extract :

Prepare with

1 lb. Nicholson Blue. 3 B,

7 Sal-soda.

Enter stock ; boil 1 1-4 hours ; draw off.

Finish with

2 1-2 lbs. Picric Acid,

10 lbs. Oil Vitriol.

Enter stock ; boil 1 hour ; draw off.

No. 64.--Light Olive.

300 lbs. Dark Extract Merino Shoddy :

Prepare with

32 lbs. Chrome,

42 Oxalic Acid.

Enter stock ; boil 1 1-4 hours ; draw off.

Finish with

38 lbs. Chip Fustic.

Boil bags 1 1-2 hours ; take out ; add

4 lbs. Madder,

9 Camwood,

2 1-2 lbs. Flavine,

10 lbs. Muriate Tin.

Enter stock ; boil 1 1-2 hours ; lay 1 hour ; draw off.

No. 65.--Dark Smoke.

250 lbs. Dark Extract Merino Shoddy :

Prepare with

30 lbs. Chrome,

40 Oxalic Acid.

Enter stock ; boil 1 1-4 hours ; draw off.

Finish with
 40 lbs. Chip Fustic,
 30 Chip Logwood,
 6 Chip Hypernic.

Boil bags 1 1-2 hours ; take out.

Enter stock ; boil 1 1-2 hours ; lay 1 hour : draw off.

~~X~~ ~~X~~ **No. 66.—Sample of Shoddy.**

Sample of Dark Merino Rag Shoddy that numbers 9, 13, 16, 21, 23, 25, 26, 27, 28, 38, 41, 43, 45, 53, 54, 55, 58, 60, 62, 64, 65, 67, 76, 92 and 93 were colored from.

No. 67.—Olive.

550 lbs. Dark Extract Merino Rags :

Prepare with

70 lbs. Oxalic Acid,

40 Chrome.

Enter rags ; boil 1-4 hour ; draw off.

Finish with

56 lbs. Extract Fustic,

2 1-2 lbs. Extract Logwood.

Enter stock ; boil 1 1-2 hours ; lay 2 hours ; draw off.

No. 68.-- Green.

100 lbs. Dark Delaine Extract :

Prepare with

1 1-4 lbs. Nicholson Blue. 3 B.

6 lbs. Sal-soda.

Enter stock ; boil 1 1-2 hours ; draw off.

Finish with

13 lbs. Chip Fustic.

Boil bags 1 1-2 hours; take out; add

10 lbs. Alum.

Enter stock; boil 1 1-2 hours; lay 1 hour; draw off.

No. 69.—Seal Brown.

500 lbs. Red Rags :

45 Extract Fustic,

30 Extract Quer-citron Bark,

6 Extract Logwood,

25 Gambier,

20 Blue Vitriol.

Enter rags; boil 1 1-2 hours; lay 2 hours; draw off.



No. 70.--Seal Brown.

500 lbs. Dark Sorted Rags; no cotton in them; not extracted.

Prepare with

10 lbs. Chrome,

7 Oxalic Acid.

Enter rags; boil 1 1-2 hours.

Finish with

13 lbs. Extract Quer-citron Bark,

13 Extract Fustic,

15 Extract Hypernic,

10 Blue Vitriol.

Enter rags; boil 1 1-4 hours; draw off.

No. 71.—Scarlet.

500 lbs. Red Rags :
 10 . Cochineal,
 10 Muriate Tin,
 1-2 lb. Flavine.

Enter rags ; boil 1 hour ; draw off.

No. 72.—Brown.

100 lbs. Light Tailors' Clips, 28 per cent. cotton in them :

Prepare with

20 lbs. Extract Logwood,
 30 Sumac.

Enter stock at 140 deg. ; lay 2 hours ; draw off.

Finish with

12 lbs. Extract Hypernic,
 8 Extract Quer-citron Bark,
 8 Cutch,
 7 Blue Vitriol.

Enter stock at 150 deg. for 1 hour ; heat to 190 deg. ; lay 2 hours ; draw off.

No. 73.—Green.

250 lbs. Dark Unextracted Soft Rags :

Prepare with

20 lbs. Chrome,
 5 Oxalic Acid,
 10 Alum,
 10 Oil Vitriol.

Enter rags ; boil 1 1-2 hours ; draw off.

Finish with

- 45 lbs. Extract Indigo,
- 18 Extract Fustic Liquor 51 deg.,
- 8 Ground Logwood,
- 10 Alum.

Enter rags ; boil 1 1-2 hours ; lay 1 hour ; draw off.

No. 74.—Light Brown.

225 lbs. Dark Unextracted Soft Rags :

Prepare with

- 15 lbs. Chrome,
- 30 Oxalic Acid,
- 10 Oil Vitriol.

Enter stock ; boil 1 1-2 hours ; draw off.

Finish with

- 7 lbs. Extract Hypernic,
- 23 Extract Fustic Liquor, 51 deg.,
- 15 Camwood,
- 20 Alum,
- 30 Tumeric.

Enter stock ; boil 1 1-2 hours ; lay 2 hours ; draw off.

No. 75.—Blue.

250 lbs. Dark Unextracted Soft Rags :

Prepare with

- 2 3-4 lbs. Alkaline Blue R. extra,
- 12 lbs. Sal-soda.

Enter stock ; boil 2 hours ; draw off.

Sour with

10 lbs. Oil Vitriol.

Enter rags at 140 deg. ; lay 1 hour ; draw off.

No. 76.—Merrimac Brown.

325 lbs. Dark Extract Merino Rags. These rags were well rinsed.

22 lbs. Extract Fustic Liquor, 51 deg.,

10 Extract Hypernic,

2 Extract Logwood,

12 Blue Vitriol.



When putting in rags, throw on

20 lbs. Camwood.

Boil rags 1 1-4 hours ; lay 3 hours ; draw off.

No. 77.—Light Brown.

225 lbs. Dark Unextracted Soft Rags :

Prepare with

15 lbs. Chrome,

30 Oxalic Acid,

10 Oil Vitriol.

Enter stock ; boil 1 1-2 hours ; draw off.

Finish with

33 lbs. Extract Fustic Liquor, 51 deg.,

5 Extract Hypernic,

20 Alum,

15 Camwood,

2 Blue Vitriol,

30 Tumeric.

Enter rags; boil 1 1-2 hours; lay 1 hour; draw off.

No. 78.—Dark Blue. (Violet Shade.) 3

100 lbs. Extract Merino, not very dark:

Prepare with

14 oz. Alkaline Blue, 4 B.,

8 lbs. Sal-soda.

Enter stock; boil 2 hours; draw off.

Finish with

1 oz. Acid Magenta,

6 lbs. Oil Vitriol.

Enter stock at 140 deg.; lay 1 hour; heat to 160 deg.; draw off.

No. 79.—Bleach.

200 lbs. Extract Seams, not washed:

Prepare with

26 lbs. Sal-soda.

Enter stock; boil 1 hour; draw off.

Finish with

11 lbs. Chrome,

14 Alum,

15 Oil Vitriol.

Enter rags; boil 1 hour; draw off.

No. 80.—Brown.

100 lbs. Extract Seams, not washed:

8 1-2 lbs. Extract Fustic,

5 lbs. Extract Hypernic,
 2 1-2 lbs. Extract Logwood,
 4 1-2 Camwood,
 1 1-4 Soda-ash.

Enter rags ; boil 1 1-4 hours ; draw off.

No. 81.—Peacock Blue.

200 lbs. Old White Flannels that were picked before coloring and not extracted.

Prepare dye-bath with

8 oz. Nicholson Blue. 6 B.,

10 lbs. Sal-soda.

Enter stock ; boil 1 1-2 hours ; draw off.

Sour with

9 lbs. Oil Vitriol.

Enter stock at 140 deg. ; lay 1-2 hour ; draw off.

No. 82.—Prussian Blue.

100 lbs. Extract Seams, not washed :

Prepare with

5 lbs. Red Prussiate,

4 Oil Vitriol.

Enter rags at 120 deg., then heat up slowly to a boil ;
 take up rags.

Add to the dye

8 oz. Aqua Ammonia,

8 1-2 oz. London Methyl Violet. 4 B.

Enter rags again at 140 deg., then heat to 160 deg. ; lay
 1 hour ; draw off.

No. 83.—Blue Green.

100 lbs. Extract Seams, not washed :

Prepare with

18 oz. Nicholson Blue. 4 B.,

8 lbs. Sal-soda.

Enter stock ; boil 1 1-2 hours ; draw off.

Finish with

2 lbs. Picric Acid,

2 Oil Vitriol.

Enter stock at 160 deg ; lay 1 hour ; draw off.

No. 84.—Acid Maroon.

100 lbs. Extract Seams, not washed :

Prepare with

5 lbs. Chrome,

14 Oil Vitriol.

Enter rags and boil 1 hour ; draw off.

Finish with

1 1-4 lbs. Acid Maroon.

Enter stock and lay 1 hour at 160 deg. ; draw off.

No. 85.—Dark Yellow Green.

100 lbs. Extract Seams, not washed :

Prepare with

10 oz. Nicholson Blue. 4 B,

8 lbs. Sal-soda.

Enter stock and boil 2 hours ; draw off.

Finish with

2 1-4 lbs. Picric Acid,

1 1-2 Oil Vitriol.

Enter rags and lay at 150 deg. for 1 hour ; draw off.

No. 86.—Sample of Shoddy. ○

Sample of Merino Rag Extract, not washed from acid, that No. 7 was colored from.

No. 87.—Brown.

100 lbs. Extract Seams, not washed :

8 Extract Quer-citron Bark,

1 1-2 lbs. Extract Logwood,

10 lbs. Extract Fustic Liquor, 51 deg.,

4 Blue Vitriol.

When putting in stock, thrown on

15 lbs. Camwood.

Boil rags 1 1-2 hour ; lay 2 hours ; draw off.

No. 88.—Green. /

100 lbs. Extract Merino, not washed :

Prepare with

5 3-4 lbs. Chrome,

19 lbs. Oil Vitriol.

Enter rags and boil 1 1-2 hours ; draw off.

Finish with

9 lbs. Extract Indigo.

Enter rags at 150 deg. and lay 1 hour ; take up rags and add to the dye

1 lb. Picric Acid.

Enter stock again and lay 1-2 hour ; draw off.

No. 89.—Seal Brown.

600 lbs. Dark sorted Merino Rags, no cotton, not extracted :

Prepare with

10 lbs. Chrome,

7 Oxalic Acid.

Enter rags and boil 2 hours ; draw off.

Finish with

20 lbs. Extract Hypernic,

12 Extract Fustic.

12 Extract Quer-citron Bark.

12 Blue Vitriol.

Enter rags and boil 2 hours ; draw off.

No. 90.—Dark Blue. (Indigo Shade.)

100 lbs. Extract Seams, not washed :

Prepare with

18 oz. Nicholson Blue. 4 B,

10 lbs. Sal-soda.

Enter rags and boils 1 1-4 hours ; draw off.

Finish with

3 oz. Acid Magenta,

2 lbs. Oil Vitriol.

Enter stock at 150 deg. ; lay 1 hour ; draw off.

No. 91.—Shoddy. /

Sample of Extract Merino Rag Shoddy that numbers 5, 8, 11, 29, and 88 were colored from.

No. 92.—Olive.

100 lbs. Dark Extract Merino Rags: X X

26 Tumeric,

10 Oxalic Acid,

10 Nitric Acid.

Enter rags boiling and boil 1-2 hour, not any longer; draw off and cool down.

No. 93.—Olive.

300 lbs. Dark Extract Merino Rags: X X

60 Tumeric,

40 Oxalic Acid,

2 gallons Nitric Acid.

Enter rags boiling and boil 1-2 hour, not any longer; draw off and cool down.

REMARKS

ON COTTON DYEING.

Having colored with these receipts for some time, they can be fully relied on as practical.

You will find observations attached to such of them as will require any change from the usual way or mode of dyeing. In making up the liquors according to the receipts, care must, at all times be taken, to have all the solutions, when ready for the cotton, free from all ground or chipped dyestuffs and all undissolved coloring matter. The liquors must be clear, and all the solutions of the ingredients held in solution. If you have to use sumac or any ground dyestuffs, boil them out in a barrel or some convenient vessel, and add the clear solution to the dye-bath; but is more convenient to use the extracts as they contain more tannin, or astringent principle than the rough dyestuffs, which has a great affinity for cotton. In using the extract you can keep the dyeing liquors at about the same strength, and for a long time, by fishing out the cotton from the tub, after each dip. Always have the cotton well teased before entering.

NOTE.—All the shoddy and wool samples in the Pattern Book were not washed after carding, therefore care must be taken.

Receipts for Cotton.

No. 1.—Dark Brown.

150 lbs. Raw Cotton :

Prepare with

40 lbs. Chip Logwood,

30 Chip Hypernic.

Boil bags 1 1-2 hours ; take out ; add

50 lbs. Cutch,

6 1-2 lbs. Blue Vitriol.

Enter cotton ; boil 1 1-2 hours ; lay 6 hours ; take out.

Finish with

12 lbs. Chrome,

1 Soda-ash.

Enter cotton at 160 deg. ; boil 1 hour ; lay 2 hours ; draw off.

No. 2.—Brown.

150 lbs. Raw Cotton :

Prepare with

33 lbs. Chip Logwood,

40 Chip Hypernic.

Boil bags 1 1-2 hours ; take out ; add

50 lbs. Cutch,
6 Blue Vitriol.

Enter cotton ; boil 1 1-2 hours ; lay 3 hours.

Finish with

12 lbs. Chrome,
2 Soda-ash.

Enter cotton at 160 deg. ; boil 1 1-2 hours ; lay 2 hours ; draw off.

No. 3.--Light Brown.

166 lbs. Raw Cotton :

Prepare with

30 lbs. Chip Logwood,
30 Chip Hypernic.

Boil bags 1 1-2 hours ; take out ; add

55 lbs. Cutch,
6 Blue Vitriol.

Enter cotton ; boil 1 1-2 hours ; lay 6 hours ; take out.

Finish with

9 1-2 lbs. Chrome,
4 lbs. Soda-ash.

Enter cotton at 130 deg. ; boil 3-4 hour ; lay 2 hours ; draw off.

No. 4.--Fawn Drab.

50 lbs. Raw Cotton :

Prepare with

7 1-2 lbs. Cutch,
2 1-2 Blue Vitriol,

4 lbs. Chip Hypernic.

Enter cotton ; boil 1 1-2 hours ; lay all night or 5 hours ;
take out and whiz.

Finish with

1 1-4 lbs. Chrome,

Enter cotton at 130 deg. ; boil 1 hour ; lay 2 hours ; take
out ; draw off.

No. 5.--Seal Brown.

150 lbs. Raw Cotton :

Prepare with

50 lbs. Cutch,

6 Blue Vitriol,

40 Chip Logwood,

30 Chip Hypernic.

Boil bags 1 1-2 hours ; take out and throw in the Cutch
and Blue Vitriol.

Enter cotton ; boil 2 hours ; lay 6 hours ; take out.

Finish with

12 lbs. Chrome.

Enter cotton at 140 deg. ; boil 1 hour ; take out and
draw off.

No. 6.--Olive Brown.

250 lbs. Raw Cotton :

Prepare with

125 lbs. Cutch,

50 Extract Logwood.

25 Extract Quer-citron Bark,

10 lbs. Extract Hypernic,
7 Blue Vitriol.

Enter cotton; boil 2 hours; lay in 6 hours; take out.
Finish with

7 lbs. Chrome.

Enter cotton at 140 deg.; boil 2 hours; lay 2 hours; take out.

No. 7.--Drab.

100 lbs. Raw Cotton:

Prepare with

32 lbs. Chip Logwood,

8 Chip Fustic,

8 Sicily Sumac.

Boil bags 1 1-2 hours; take out; enter cotton; boil
1 1-2 hours, then

Sadden with

3 lbs. Copperas.

Boil 1-2 hour longer; take out.

No. 8.--Rose.

75 lbs. Raw Cotton:

Prepare with

16 lbs. Sumac,

2 Flavine.

Enter cotton; boil 2 hours; lay in all night; take out.

Acid with

6 lbs. Oxy. Mur. Antimony.

Enter cotton cold; lay 1 hour; take out; wash well and whiz.

Finish with

13 oz. Magenta Crystals.

Enter cotton at 120 deg.; lay in 1-2 hour; heat to 140 deg.; lay 3 hours; take out or draw off.

No. 9.-- Cardinal Red.

50 lbs. Raw Cotton:

Prepare with

15 lbs. Sumac.

Enter cotton; boil 1 1-2 hours; lay over night; take out.

Acid with

Oxy. Mur. Antimony at 2 1-2 deg. Twaddle.

Enter cotton at 170 deg.; lay 1 hour; take out, wash, and whiz.

Finish with

1 lb. Saffranine.

Enter cotton at 130 deg.; lay 1 1-2 hours; take out; whiz.

No. 10.--Scarlet.

50 lbs. Raw Cotton:

Prepare with

15 lbs. Sumac,

3 Tumeric.

Enter cotton; boil 1 1-2 hours; lay over night; take out.

Acid with

Oxy. Muriate Antimony at 2 1-2 deg. Twaddle.

Enter cotton at 170 deg. ; lay 1-2 hour ; take out, wash,
and whiz.

Finish with

11 oz. Saffranine,

5 . Chrysoidine.

Enter cotton at 130 deg. ; lay 1-2 hour ; take out ; whiz.

No. 11.--Dark Fawn.

400 lbs. Raw Cotton :

14 Sumac,

6 Extract Fustic,

4 3-4 lbs. Flavine,

10 lbs. Cutch,

3 3-4 lbs. Blue Vitriol.

Enter cotton ; boil 1 hour ; lay over night ; whiz next day.

No. 12.--Fawn.

400 lbs. Raw Cotton :

10 Sumac,

3 1-2 lbs. Extract Fustic,

3 1-2 Flavine,

10 lbs. Cutch,

2 1-2 lbs. Blue Vitriol.

Enter cotton at a boil ; boil 1 1-2 hours ; lay over
night ; whiz next day.

No. 13.—Light Fawn.

400 lbs. Raw Cotton :
 10 Sumac,
 2 1-2 lbs. Extract Fustic,
 3 1-2 Flavine,
 9 lbs. Cutch,
 2 1-2 lbs. Blue Vitriol.

Enter cotton at boil and boil 1 1-2 hours ; lay over night ; whiz next day.

No. 14.—Drab.

400 lbs. Raw Cotton :
 8 Sumac,
 1 Extract Fustic,
 2 1-2 lbs. Flavine,
 5 lbs. Cutch,
 1 1-2 lbs. Blue Vitriol.

Enter cotton and boil 1 1-2 hours ; lay over night ; whiz next day.

No. 15.—Snuff Brown.

100 lbs. Raw Cotton :
 Prepare with
 20 lbs. Cutch,
 7 Extract Fustic,
 2 1-2 lbs. Blue Vitriol.

Enter cotton ; boil 1 1-2 hours ; lay 4 hours ; take out.
 Finish with
 4 lbs. Chrome.

Enter cotton and boil 1-2 hour ; lay 1 hour, take out and whiz.

No. 16.—Yellow Brown.

100 lbs. Raw Cotton :
3 Cutch,
10 Extract Quer-citron Bark,
2 1-2 lbs. Blue Vitriol.

Enter cotton ; boil 1 1-2 hours ; lay 4 hours ; take out.

Finish with

3 lbs. Chrome.

Enter cotton and boil 1-2 hour ; lay 1 1-2 hours, take out and whiz.

No. 17.—Tan Drab.

100 lbs. Raw Cotton :
3 3-4 lbs. Cutch,
7 lbs. Extract Quer-citron Bark,
2 Blue Vitriol.

Enter cotton ; boil 1 1-2 hours ; lay 4 hours ; take out.

Finish with

2 1-2 lbs. Chrome.

Enter cotton and boil 1 hour ; lay 1 1-2 hours ; take out and whiz.

No. 18.—Violet.

100 lbs. Raw Cotton :
Prepare with
20 lbs. Sumac.

Enter cotton boil 1 1-2 hours ; lay over night ; take out.

Acid with

Ox. Muriate Antimony, at 2 deg. Twaddle.

Enter cotton cold and lay 1-2 hour ; take out ; wash well and whiz.

Finish with

12 oz. Violet. 2 B.

Enter cotton at 100 deg. ; heat to 120 deg. ; lay 1 hour ; take out whiz.

No. 19.—Blue.

100 lbs. Raw Cotton :

Prepare with

20 lbs. Sumac.

Enter cotton and boil 1 1-2 hours ; lay over night ; take out.

Acid with

7 lbs. Oxy. Muriate Antimony.

Enter cotton cold ; lay 1-2 hour ; take out, wash well and whiz.

Finish with

14 oz. Methylen Blue. 3 O.

Enter cotton at 100 deg. ; heat to 120 deg. ; lay 1 hour ; take out and whiz.

No. 20.—Dark Green.

100 lbs. Raw Cotton :

First bath

3 1-2 lbs. Blue Vitriol.

Boil cotton 40 minutes.

Second bath

3 1-2 lbs. Extract Logwood,

7 lbs. Extract Fustic,

1 Soda-ash.

Boil cotton 1-2 hour; draw off and wash.

No. 21.—Light Yellow Green.

100 lbs. Cotton:

First bath

2 1-2 lbs. Blue Vitriol.

Boil cotton 40 minutes.

Second bath

12 oz. Extract Logwood,

6 lbs. Extract Fustic,

4 oz. Soda-ash.

Boil cotton 1-2 hour; draw off and wash.

No. 22.—Dark Blue.

300 lbs. Raw Cotton:

22 Extract Logwood,

6 Soda-ash,

4 Blue Vitriol.

Enter cotton and boil 1 1-2 hours; take out; air 1 hour and wash.

Finish with

3 lbs. Chrome,

1 Soda-ash.

Enter cotton at 100 deg. and lay 15 minutes; take out and whiz.

No. 23.--Dark Garnet.

100 lbs. Cotton :

Prepare with

15 lbs. Cutch,

3 Blue Vitriol.

Enter cotton and boil 1 hour; lay 4 hours.

Mordant with

3 lbs. Chrome.

Enter and boil 1-2 hour; take out.

Finish with

5 lbs. Extract Hypernic,

1 Blue Vitriol.

Enter cotton and boil 1 hour; lay 1-2 hour; take out.

If not red enough, give with the finishing dye 3 oz. of Magenta Crystals.

No. 24.—Light Garnet.

100 lbs. Raw Cotton :

Prepare with

7 1-2 lbs. Cutch,

2 lbs. Blue Vitriol.

Enter cotton and boil 1 hour; lay 2 hours.

Mordant with

2 lbs. Chrome.

Enter cotton and boil 1-2 hour; take out.

Finish with

2 1-2 lbs. Extract Hypernic,
8 oz. Blue Vitriol.

Enter cotton and boil 1 hour ; lay 1-2 hour ; take out.

No. 25.—Lavender.

100 lbs. Raw Cotton :

4 lbs. Extract Logwood.

Enter cotton and boil 1-2 hour.

Sadden with

3 1-2 lbs. Copperas,

2 3-4 Alum.

Boil 1-2 hour longer ; take out and whiz.

No. 26.--Dark Brown.

300 lbs. Raw Cotton :

Prepare with

100 lbs. Cutch,

9 Extract Logwood,

6 Blue Vitriol.

Enter cotton at 190 deg. and boil 2 hours ; lay 3 hours ; take out.

Mordant with

12 lbs. Chrome.

Enter cotton and boil 15 minutes ; lay 1 hour ; take out, wash and dry.

Finish 100 lbs. of the cotton with

7 lbs. Extract Logwood,

1-2 lb. Soda-ash.

Enter cotton and boil 1-2 hour ; lay 3 hours ; take out.

No. 27.— Blue.

50 lbs. Silk Noils :

Prepare with

16 quarts of good Soft Soap.

Enter silk and boil 1-2 hour ; take out and whiz.

Finish with

2 1-2 lbs. Nicholson Blue. 3 B,

4 lbs. Borax,

2 Sal-soda.

Enter silk at 130 deg. and lay 1-2 hour ; then boil 1 1-4 hours, take out and whiz.

Sour with

2 1-2 lbs. Oil Vitriol.

Enter silk at 125 deg. and lay 1-2 hour ; take out and draw off.

No. 28.— Orange.

50 lbs. Raw Cotton :

Steep the cotton over night in

10 lbs. Sumac.

Take out next morning ; whiz.

Enter cotton in

Oxy. Muriate Antimony, 2 deg. Twaddle.

Lay in 1 hour ; take out, wash and whiz.

Finish with

4 oz. Chrysoidine.

Enter at 120 deg. ; heat to 140 deg. ; lay 1-2 hour ; take out, whiz and dry.

No. 29.—Light Green.

50 lbs. Raw Cotton :

Steep the cotton over night with

10 lbs. Sumac,

2 Tumeric.

Take out next morning ; whiz.

Enter cotton in

Oxy. Muriate Antimony, 2 deg. Twaddle.

Lay in 1 hour ; take out, wash and whiz.

Finish with

8 oz. Brilliant Green.

Enter at 120 deg. ; heat to 140 deg. ; lay 1 hour ; take out, whiz and dry.

No. 30.—Peacock Blue.

100 lbs. Raw Cotton :

Dissolve

2 oz. Cotton Blue. 2 B.,

2 lbs. Alum,

1 1-4 lbs. Extract Fustic.

Enter cotton at a boil ; boil 1 hour ; draw off and wash.

No. 31.—Red.

100 lbs. Raw Cotton :

Steep the cotton over night with

25 lbs. Sumac.

Take out next morning ; whiz.

Enter cotton in

Oxy. Muriate Antimony, 2 deg. Twaddle.

Lay in 1 hour ; take out ; wash and whiz.

Finish with

2 lbs. Cotton Scarlet, (Blue Shade.)

Enter cotton at 140 deg. ; lay 1 1-2 hours ; take out and whiz.

No. 32.—Navy Blue.

100 lbs. Raw Cotton, (well teased :)

Dissolve

12 1-2 lbs. Extract Logwood.

Enter cotton ; boil 1 hour.

Sadden with

3 lbs. Copperas.

Boil 15 minutes longer ; then add in the same dye

4 oz. Violet. 4 B.,

1-2 lb. Oxalic Acid.

Boil for 15 minutes, then leave to cool in the bath ; wash and then done.

No. 33.—Olive.

100 lbs. Raw Cotton :

Prepare with

2 1-2 lbs. Blue Vitriol,

4 1-2 Gambier.

Enter cotton ; boil 1 1-2 hours ; draw off.

Finish with

1 lb. Extract Logwood,

6 lbs. Extract Fustic,

4 oz. Soda-ash.

Enter cotton at 140 deg. ; boil 1 hour ; lay 1 hour, take out and whiz.

No. 34.—Navy Blue. (Indigo Shade.)

100 lbs. Raw Cotton :

Lay over night in

20 lbs. Sumac.

Lift next morning and wring.

Enter cotton in

15 lbs. Oxy. Muriate Antimony.

Enter cotton cold ; lay 1 hour ; take out, wash and whiz.

Finish with

7 oz. Violet. 3 B.,

7 Diamond Green,

8 lbs. Glauber Salt,

2 quarts Acetic Acid.

Enter cotton at 100 deg. ; heat up rapidly to 180 deg. ; lay to shade ; take out and wash.

No. 35.—Slate Drab.

100 lbs. Cotton Waste :

Prepare with

8 lbs. Alum,

3 Blue Vitriol,

10 Chip Logwood, (boiled 1 1-2 hours.)

Enter cotton at 150 deg. ; boil 1 hour ; draw off ; take out.

Finish with

22 lbs. Chip Logwood.

Boil bags 1 1-2 hours; take out; add

2 lbs. Pearl-ash.

Enter cotton at 150 deg.; boil 1 1-2 hours; take out; whiz and dry.

No. 36.—Canary Yellow.

50 lbs. White Cotton Waste :

15 Sumac,

5 Tumeric.

Enter cotton and boil 1 1-2 hours; take out, whiz and dry.

No. 37.--Yellow Scarlet.

50 lbs. Cotton Waste :

Steep the cotton over night in Sumac, testing 2 deg.

Twaddle, cold.

Take out next morning; whiz.

Enter the cotton in

Oxy. Muriate Antimony, 2 deg. Twaddle.

Lay 1 hour; take out, wash and whiz.

Finish with

4 oz. Saffranine,

2 1-2 oz. Chrysoidine.

Enter cotton at 100 deg.; lay 1 1-2 hours; take out, whiz and dry.

No. 38.—Dark Navy Blue.

100 lbs. Raw Cotton, (well teased:)

Dissolve

20 lbs. Extract Logwood.

Enter cotton ; boil 1 1-2 hours.

Sadden with

6 lbs. Copperas.

Boil 1-2 hour longer ; then add to the same dye

6 oz. Violet, 4.B.,

10 Oxalic Acid.

Boil for 15 minutes ; leave to cool in the bath ; then wash and done.

No. 39.--Brown Olive.

100 lbs. Raw Cotton :

Prepare with

3 1-2 lbs. Blue Vitriol,

8 lbs. Gambier.

Enter cotton at 170 deg. ; boil 2 hours ; draw off.

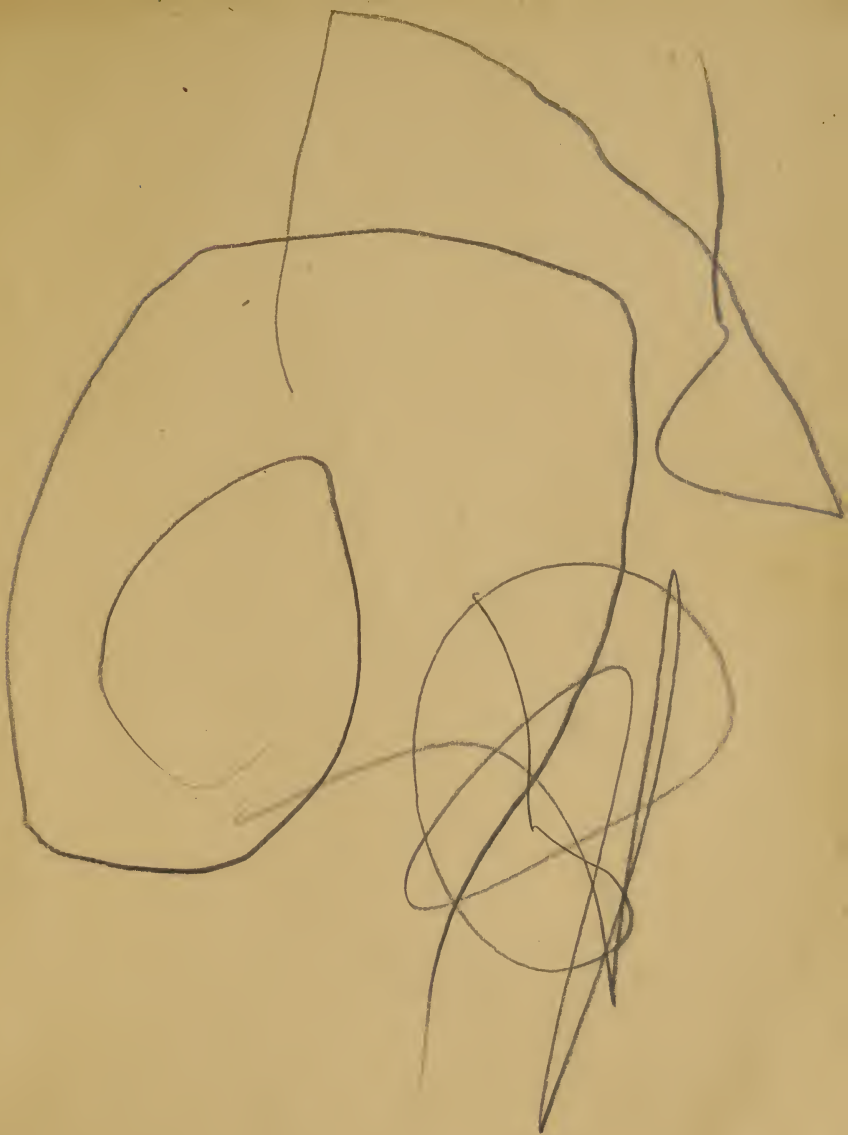
Finish with

3 1-2 lbs. Extract Logwood,

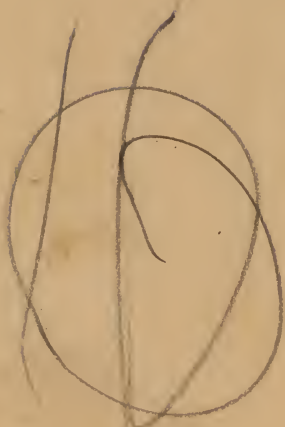
6 lbs. Extract Fustic,

1-2 lb. Soda-ash.

Enter cotton ; boil 2 hours ; draw off and wash.

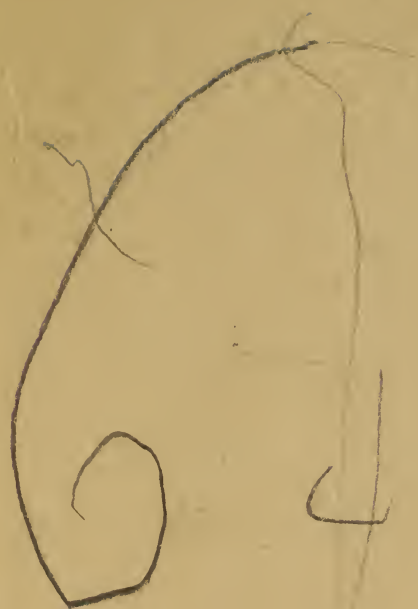


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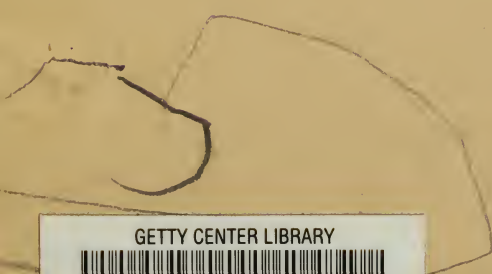


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