

Black Stain.—Brazil wood, 500 parts; water, 2,500 parts; boil, then add 15 per cent. of alum. For a very deep black use a weak solution of iron mordant; brush the wood over with the first, then apply the stain.

Yellow Stain.—Yellow stains vary greatly in composition, and most are somewhat fugitive. A fairly stable one consists of 500 parts of barberry wood in 1,000 parts of water, adding a little alum to the extract.—A. A. Kelly.

THE HANDLING OF GLUE.*

By H. A. Reinkensmeier.

It is a fact that very little attention is given by most glue manufacturers to the mechanical condition of glue; that is to say, glues made from the same grade of glue stock and of identically the same glue test, according to the glue manufacturers' method of testing, do at the same time work differently when put in use, owing to the fact that the mechanical condition in the case of flake glue is not the same, for one may have dried out thicker or thinner than the other, as the case may be; or the breaking may have been coarser, that is to say, a greater number of medium-sized or large pieces. Again, a variation in the cut, say thin, medium and thick cut; these three, as you will note, would bring about quite a difference in the measurement of flake glue. In ground glues these mechanical variations are not so great. However, there can be an abundance of fine ground with the coarser, or approximately equal parts of thin and coarse, or there may be an unusual quantity of thin and coarse, or there may be an unusual quantity of coarse ground. The latter condition, however, is seldom, if ever, found in ground glue.

With these variations in mechanical conditions in cases where glue is measured instead of weighed, uniform results in a solution can hardly be obtained by the user. I, of course, understand that the hydrometer is employed by quite a number, but this instrument is simply to prove the condition of the solution of glue, and is of little service after such solution is made up. Then again, the hydrometer readings are changed by variations of temperature, and with the general run of factory help very few can figure same to a correct basis. In fact, many of them look upon an instrument of this kind as a "fussy" proposition in their work. Personally, I do not disregard the use of the hydrometer for gaging the consistency of solution where ground glue is used, but owing to the inconsistency of flake glues, believe it to be less practical. Mechanical conditions should be a necessary quality stipulated by the user in purchasing this glue, that is to say, the user should specify a standard weight for a given volume of dry glue, such standard measure, if so selected, could be, for example, cubic foot or bushel measure. If this one point is demanded by the user he is certain of at least one uniform condition, and it affords a basis for determining results from any glue he handles; also for establishing a method of using his works.

It is, of course, possible to enlarge on this point by repeating what I have in the past casually observed, but believe the point has been made clear to you. If, then, a mechanical condition has been decided upon as above outlined, a further point in standardizing the use of glue could be brought about by establishing a standard for the measurement of water to be used in the solution. This can be accomplished by simply

providing a rod graduated to show say one-fourth, one-half, three-fourths and an entire day's requirements of glue. This is merely offered as an illustration, its application to your work depending, of course, upon the capacity of your glue-handling equipment.

To me a method of this kind would offer a means of obtaining an absolutely uniform solution of glue throughout the entire day and every day, which would be left to your practical workers entirely.

If a further check is thought desirable, such a check could be entrusted to someone higher in authority, and could be made by using an accurately standardizing hydrometer and thermometer. This, then, would provide an accurate gaging, and would, no doubt, enable you to check, any waste that might otherwise obtain, as well as give you the assurance that glue is being used in strict conformity with your instructions, which instructions, of course, will have been based on a scale of cost per square foot of surface glued, such scale obtained when deciding on the glue in use.

In this connection permit it to be said that should, for any reason, glue solution remain at the close of the day's work, draw it off in a stock receptacle, such as shallow pans, which will permit of it cooling off and allow same to be utilized next day, without in any way hazarding the quality of fresh glue made for the new day. Where this was not done we have known it to happen, and not infrequently, that a leaky valve permitted enough steam to enter the jacket to sour the glue contained therein, and when you add to this really decomposed substance good fresh glue the next morning, you do not and cannot hope to obtain the same desired satisfactory results that will be realized if the unused glue is drawn off as before mentioned.

Too much importance cannot be attached to this particular point, and I believe a good many of the manufacturers of glue appreciate this to be the prime cause of many complaints where all the blame is laid to the inferior quality of the glue.

Perhaps someone would suggest the introduction of a preservative. This, however, will positively deteriorate the adhesive properties of the solution, as well as encourage a tendency to foam or cause a chemical reaction even more damaging.

Let it be understood that manipulation on the part of the glue manufacturer to give extreme weight in a given volume, in order to meet the requirements, is impracticable, if not indeed impossible, where maximum body and adhesiveness and other working properties enter into consideration, as they of course must be adapted to veneer laying purposes.

It would, perhaps, not be amiss to mention at this point that there is positively no known standard system affecting scientific tests of glue for any purpose, and while we may have been placed in touch with many so-called glue scientists, we have yet to find one whose statements are not in themselves probably self-contradictory. It is the practical application of glue to a specific class of work that brings out both the good and the bad properties in the various glues, and the larger the number of the great faults eliminated and minor faults minimized is, in our opinion, the glue for the user to choose. And to decide these requirements no expert with greater capacities than those permitting of quick development in any one of you is necessary.

Temperature, too, is an important consideration that should be regulated, but must be done in conformity with conditions obtaining in each particular plant, for in each factory conditions prevail peculiar to itself. For a glue manufacturer to prescribe at what temperature his glue is to be

* Read at the meeting of the Veneer and Panel Manufacturers' Association, Chicago, Ill.