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THE SCIENTIFIC AMERICAN SUPPLEMENT,

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THE NEW ORLEANS EXPOSITION.

It is perhaps to be regretted that the managers of this great enterprise threw open the doors to the public while there was yet so much to do to place the Exposition in complete order. There was some excuse for this in the unexpected magnitude which the enterprise assumed, and then some exhibitors always will be tardy, no matter how much time is allowed them for completing their arrangements; besides, the railroads seem to have made very inefficient provision for handling the great quantities of freight. The incompleteness of the show at first was, however, probably less of a drawback than the weather, rain having fallen almost continuously for the first three weeks. With the getting of the display in perfect running order, and the advent of brighter skies, there is now a much larger attendance of visitors than there was at first, and the managers are looking confidently for a steady increase.

February will, according to all former experiences with the weather in New Orleans, be the most pleasant month in which to visit the great Exposition there. Ordinarily then the foliage is green, and there is an abundance of flowers and fruit, while the air is as balmy as that of a May day at the North. The Louisiana Jockey Club races commence January 20, and racing is announced for every intervening day for five or six weeks. A contract, it is said, has also been entered into for a series of Spanish bull fights, but this cruel sport, it is hoped, the managers will refuse to tolerate. In February, also, will occur the great Mardi Gras Carnival, a festival of Spanish origin, entirely unknown in the rest of our country, but which has always marked the season of greatest activity in the metropolis of the Southwest.

With all the last named attractions, added to those of the great Exposition, which should be at its best next month, New Orleans ought to be crowded with people from every part of our country, and likely it will be.

THE TAPER FIT.

This method of fitting holes has been used less than it should have been; it was too much trouble in the olden time. A straight hole and a straight plug was considered cheaper, and therefore better. It cost little skill or wages for a good workman to bore a straight hole and turn a straight plug; while to taper the hole and taper-turn the plug, and make a finish fit, required skill and time.

For some purposes there is nothing that will take the place of a taper fit. Recently a crosshead pin of crucible steel was noticed in a cast iron crosshead. It had two tapers, not on the same grade, one in one wing of the crosshead and the other in the other wing. The two tapers were not made by a single reamer with a uniform slant; they were different in diameter and in "slash," or degree of taper, and yet the fit was admirable. When the steel pin came to its bed, or home, it was secure without urgent persuasion; a slight tap of a soft metal mallet seated it. No keyway and spline was needed to hold this union as one, but a simple cross pin, only enough to prevent jar from starting the fit, was required.

These taper fits are useful when well made from their readiness of removal; a taper fit means that the parts do not fit at all until "they are home;" whereas a straight fit must "feel its way" its whole length, and sometimes—as when a steel plug fits an iron hole—it must partly cut its way and seat itself. It costs more to make taper fits than straight fits, but when the more perfect union of parts is assured, and the readiness of the parts to be separated on demand is considered, it is the best fit of cylinder to cylinder that is possible.

WOOD CARVING.

The hand carving of wood for house finish and interior decoration is becoming a distinct and permanent branch of industry. Much of this work has been done by amateurs as a pastime, but it has lately developed, to a considerable extent, into a "trade," industrially speaking. For fine furniture the carving of wood has for a long time had a place, but there appears to be a prospect that to the joiner's shop and work will be added those of the carver as a means of finishing interiors. Foreign workmen, at present, comprise the larger part of the workers in this industry, but the attention of our native workers has been directed to it, with the result of bringing it into general notice.

The idea that artistic hand work should be confined only to rare and costly material is hardly consistent with the demands of taste. In the woods there is scarcely one that will not be beautified by hand carving. So common a wood as white pine is susceptible of producing very fine effects even when the wood is left in its natural condition. When first worked, it is a creamy white well calculated to show the shadows of relief; and exposure to the air soon deepens its tint. A thin varnish of shellac will tone its whiteness without producing a shiny surface. White wood is also a wood well adapted to carving, and the yellow birch is even finer. To these light colored woods may be added the three varieties of maple and also beech. The darker woods admit of bolder work—greater relief—and when united with the lighter colored woods make a fine combination. Carved white wood as a cornice for a room, the figures only slightly cut in, with cherry for the projecting moulding, produces an elegant effect in a parlor. The only finish is a thin varnish of shellac dissolved in alcohol, no touch of sandpaper being allowed to subdue the sharp cuts of the carving tool. There is scarcely any limit to the possibilities of wood under the hands of a skillful carver; straight lines and sweeping curves are not alone among its capabilities; it may be fretted, diapered, dentaled, and stippled, and cut into fine cross-hatcheling, if the workman has good tools and knows how to use them. As this is written, there lies on the desk a piece of butternut wood six inches long and about one inch diameter, that is cut into a triple spiral, of about three turns, each spiral being round and about the size of a rye straw. This shows the capabilities of wood.

Wood carving is a pleasant occupation, combining the attraction of taste with the pleasure of work. In many instances the carver is his own designer; it is better so, and the business is incompletely learned where the carver cannot originate, or at least design, his own work. The designs for an elaborate job are usually two, a plan and a profile. The profile is drawn in differently colored lines to indicate the relative depth or projection of the parts. The business offers an attractive field for workers who are artistically inclined.

MAKING CHERRIES.

No allusion to horticulture is intended. "Cherries" are mills or reamers for cutting out—or rather for finishing—hollows of a cylindrical or ovate form; a familiar instance being the hollowed jaws of bullet moulds. These moulds are formed in steel or in tough iron, and are "made out of the solid." Sometimes they are drilled and then shaped by the cherry, but of late years they are forged in the drop die or at the anvil by sledge and round-nosed former. The office of the cherry is to perfect the crudely shaped cavity, and to finish its walls.

Usually these cherries are scored into flutings like those on the milling tool or the reamer, by means of a file, awkwardly worked over the curve of the cherry, particularly on the stem side, as there is no opportunity to pass the stem, unless the flutings are slashed (made diagonal) enough to pass the diameter of the stem. To diagonal flutings on any tool there are reasonable mechanical objections—straight flutings are always preferable. But it is difficult to form the flutings of a globular or an ovate cherry by means of a milling tool, even if it is mounted on a lathe arbor and fed by hand; the fluting of a cherry is essentially a hand job.

A tool maker ought to be able to use all sorts of tools; but there are few machinists who can use the graver. It is not to be expected that machinists should be experienced engravers, but it is well to know not only the object of hand tools, but also something of their method of being used. In this case of fluting cherries the graver is very useful; by its proper handling the flutings can be pushed, cleanly and evenly, over the rotundity of the cherry to the stem, making a clear cut. For this purpose a V-graver should be used, known to some workmen as a "routing tool."

It can be obtained at any engraver's supply store. There are many jobs where a deft use of the graver will be handy to the machinist tool maker. The writer owed a marked success in perfecting a peculiar tool in a machine shop to his acquaintance with the uses of the graver by an apprenticeship of four years in a shop of engraving for calico printing.

Jarrah Wood.

In the course of a recent lecture before the Society of Arts, London, by Mr. P. L. Simmonds, he spoke of the excellent qualities of the Australian tree known as the jarrah.

In the discussion which followed, Mr. Simpson said he was connected with the timber trade, having had thirty-two years' experience in Western Australia. The jarrah wood of that colony was acknowledged, by those who knew its qualities, to be about the next thing to everlasting, and he hoped that in the next year a few cargoes would come to England. Almost everything in Western Australia was made of this timber, workboxes, pianofortes, buildings, wharves, and jetties; it seemed to defy all known forms of decay, and was untouched by white ants and all other insects, so that ships built of it did not require to be coppered. It had been used above ground and below, in almost every situation in which timber could be placed, and was durable in all. On the table was a specimen from a tree cut thirty-two years ago, which had lain on the surface nearly all that time; it had been exposed to bush fires every two or three years, to the sun during the summer, to wind and rain during the wet season, and was as sound now as the day it was felled. Another piece he had cut from a small sapling used in a bridge at Bunbury, and so certified by the Government Resi-