

••HOW TO MAKE••

VENEERED

PANELS *for*

THE SCHOOL AND

HOME WORKSHOP

by

HERMAN HJORTH, M.S.

How To Make
VENEERED PANELS
for the
School and Home Workshop

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"Basic Woodworking Processes"
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INTRODUCTION

VENEERING on wood, although as old as civilization itself, is an art that is but little understood. Many consider veneering as a questionable, almost dishonest practice, while others regard it as an art requiring not only the highest degree of manual skill, but also a great deal of costly machinery, tools and appliances. Neither of these viewpoints is correct.

In the first place, veneering, when properly done, is much superior to solid wood, being both stronger and more beautiful. In the second place, although veneering is done by skilled workmen, it may easily be learned by a man of average mechanical ability and intelligence. Moreover, when done in a modern way, it requires only a few inexpensive tools and appliances.

With the development of cold water mix glues, described herein, all the elaborate, costly and cumbersome heating devices necessary when veneering with animal glue have been eliminated.

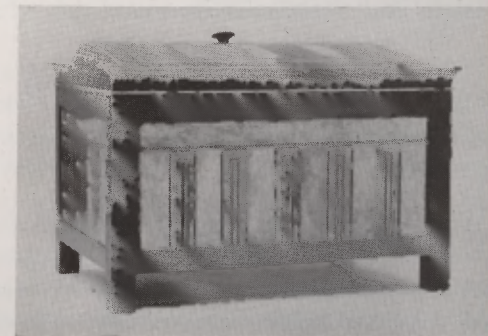
Important as this is to the large commercial woodworking plant in reducing production costs, it is vastly more interesting to the large number of home craftsmen, technical high school students and other hand-workers, because it has simplified the art of veneering, and thereby opened an entirely new, rich and fascinating field to them, both in creative art and craftsmanship.

HISTORY OF VENEERING

THE original meaning of the word "veneer" was to embellish or decorate a surface with costlier and more beautiful material such as wood, ivory, mother-of-pearl, tortoise shell, metals and even precious stones. It is in this manner that veneering was used in the earliest civilizations of which we have records: the Egyptian, Babylonian, Assyrian, Greek, and Roman.

In the tombs of the ancient kings of Egypt, pieces of furniture have been found, to which thin layers of wood have been glued more than 3500 years ago. But it is mainly from sculptured, painted and written records found by archaeologists, where once stood Thebes, Babylon, Nineveh, Athens, Rome and other centers of these civilizations, that we have our knowledge of the ancient art of veneering. Like so many other arts, veneering and inlaying were lost during the dark Middle Ages. But with the Italian Renaissance (about 1500) came a return to the old Greek and Roman classicism modified by Byzantine and Oriental influences. Wood surfaces were again decorated mainly by "Intarsia," which is a form of inlaying resembling mosaic patterns. Woods of different color and shape are inserted into plain surfaces to form geometrical patterns, landscapes or other pictorial representations.

FIG. 1—Egyptian jewel box
inlaid with ivory and wood



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Marquetry, which came into use about 200 years later, differs from Intarsia in that the design, formed of varicolored veneers and other materials, is inlaid in a background of the same thickness forming a thin sheet, which is glued to solid wood.

During every succeeding art period, veneer and inlay were used in one form or another on all fine furniture. One of the most notable exponents of this art was the French master André Charles Boulle (1642—1732), who enjoyed the patronage of Louis XIV.



FIG. 2—Veneered highboy, American, 1725-1750

The art of cutting and matching veneers, so that the natural figure of the wood forms patterns of rare beauty, was first discovered and utilized during the Eighteenth Century (Fig. 2). This method of veneering, which is the one in vogue today, was employed extensively by the great English cabinet makers Chippendale, Hepplewhite and Sheraton, and also by our own famous Duncan Phyfe and his contemporaries. The phase of the Colonial Period, which was known as the American Empire and characterized both by excellent designs and craftsmanship, ended about 1830.

During the latter half of the Nineteenth Century, it seems as if all forms of artistic expressions declined and died everywhere. In this country this period is sometimes referred to as "the dark ages of black walnut" because of the conspicuous lack of artistic production of any kind and because black walnut was used extensively for the atrocious furniture produced.

The gingerbread decorations of black walnut were later superseded by the golden oak mission monstrosities. Practically no veneer was used during this time because of the mistaken public notion that the wood should be "solid."

ADVANTAGES OF VENEERING

THE penchant for solid wood has caused an odium to be attached to veneered work. Even to this day some people consider veneered work as not quite genuine, as something that will wear off or tarnish like plated metal, while the fact is that modern veneered furniture is practically the only kind that will not warp, crack or fall to pieces in present-day steam-heated homes.

STRUCTURAL FEATURES. As described more fully in the next chapter, a piece of veneer is a very thin sheet of wood, usually about 1/28" in thickness. One sheet is a "single-ply veneer." When several sheets or plies are glued together at right angles to each other we have what is called plywood. A plywood board is many times stronger than a solid board of the same thickness, and less likely to split by nails driven into it, or broken under blows or stress. Hence, plywood construction may be made thinner than solid construction with consequent economy in material. The natural tendency of wood to absorb or give off moisture, according to the varying moisture content of the air (see Chapter VI), is largely eliminated in plywood construction, because the tendency of any layer to contract or expand is offset or defeated by other layers glued at right angles to it.

Although this scientific way of utilizing veneer was not developed until the beginning of the present century, the plywood industry is now a large and important one. In the furniture industry this scientific knowledge of veneering combined with its older, decorative values has enabled the manufacturer to create a product that is greatly superior to solid wood, both structurally and artistically.

As a matter of fact, it would be impossible to construct a piece of furniture of such highly figured wood as, for example, burl walnut, because the grain of such wood is produced by disease or accident, is structurally weak and would split and warp all out of shape. Other woods, particularly tropical varieties as ebony, are so dense, that if a piece of furniture were constructed from the solid wood, it would

be so heavy as to be practically immovable. Moreover, the combination of such pieces of solid wood into patterns similar to those obtainable with veneer would be a physical impossibility.

It therefore stands to reason that straight-grained lumber must be used for strength and highly figured wood for decoration. This combination is only possible in veneered work, where the core or inside part is made of plywood or a straight-grained and not too heavy wood. To further prevent warping, a solid wood core is glued together of narrow strips. The core is veneered with straight-grained wood on both sides and at right angles to the grain (Fig. 3). These veneers, which are plain and inexpensive are called crossbands, because they are glued at right angles or across the core, thereby binding it more closely together. The face veneer, usually selected from rare and costly woods, is then glued to the outside surface and a plainer veneer to the back or inside surface. The grain of these veneers runs in the same direction as that of the core and at right angles to the crossbands. (See also Chapters VI and VII).

This construction is not necessarily cheap. In the finest type of mahogany furniture produced, both core and crossbands are made of straight-grained mahogany. While this costs considerably less than

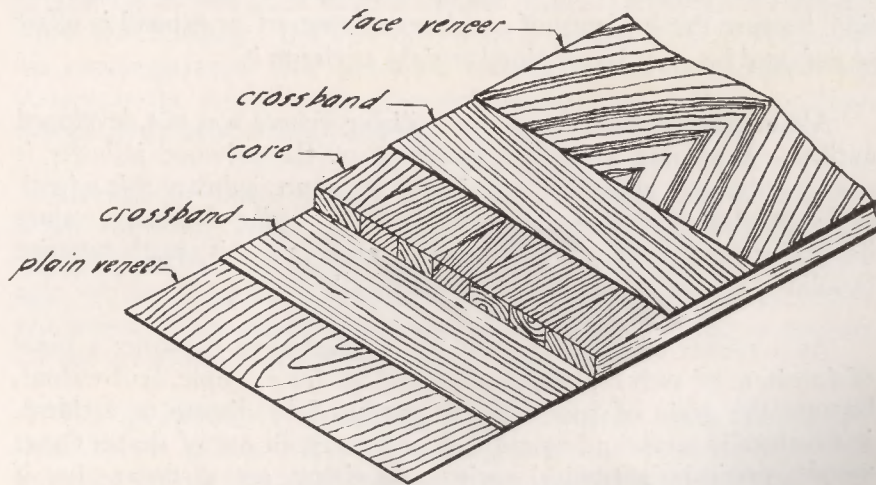


FIG. 3—Core, crossbands, face and back veneers

highly figured mahogany, the labor costs of producing the veneered construction offset the saving effected in the purchase of wood.

On the other hand, cores that are just as good and strong may be made of much cheaper kinds of wood or even of wood unsuitable for other purposes on account of blemishes, worm holes or other defects. In such cases a considerable saving may be effected, especially by home craftsmen or students who need not take labor costs into consideration.

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METHODS OF PRODUCING VENEERS

MOST face veneers used on fine furniture are cut from tropical woods. Anyone who has visited the tropics, whether in this hemisphere or the Eastern, readily understands the well-high insurmountable difficulties of felling and transporting huge and exceedingly heavy trees growing in a dense tropical forest. The inaccessibility of the forests, the lack of transportation facilities, the problem of primitive labor, the constant danger from wild and poisonous animals and the threat to health from tropical diseases are just a few of these.

Once the tree is felled, the branches are removed and the trunk cut into lengths. Sometimes these are roughly squared (Fig. 4) and sometimes left in the round. They are then floated down rivers or streams or dragged by oxen or man power over land to the coast, where they are loaded on steamers and transported to sawmills often thousands of miles distant. Arrived at the sawmill, the logs are



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FIG. 4—"Squaring" mahogany logs in the bush. The man at the left with the two "machetes" is beating the time, and the men on opposite sides of the log are supposed to work in unison



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FIG. 5—Opening up an African mahogany log