Finished Wood and You

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PREFACE

This report is designed for the restorer who, of necessity, must send damaged wood furniture to a refinisher. He may feel somewhat helpless or intimidated by the mysteries of wood finishes and inadequate to step into the wood finisher's world. And yet, as a restorer he must deal with the problems of damaged wood. With a serious effort and determination, the restorer can learn to identify the problems and, indeed, handle many of them himself.

This new found knowledge and ability can become valuable, not only to the restorer, but to the insurance adjuster and the property owner. The addition of a wood restoration department may become a logical and profitable way to expand the business. A starting point is to develop understanding and respect for the characteristics and problems associated with finished wood.

Insurance personnel must deal with wood problems all the time, yet they generally have little real knowledge of the problems involved. The homeowner is often un-informed or improperly informed about the problems. A furniture refinisher's remedy for a problem almost automatically will be to strip and refinish the piece, rather than restore the existing finish. Stripping and refinishing is costly for the insurance company and adds substantial time needed to return it to use for the owner. An informed restorer can intervene to the benefit of the insurance company and the owner by selecting out the pieces of furniture which do not require stripping and refinishing. Some restoring can be managed by existing

cleaning personnel, using existing space, materials and simple equipment. As skills increase, so do opportunities for handling more complex wood problems, be they to furniture or on location to cabinetry, trim, panelling, and architectural treatments.

Of nearly equal importance in dealing with finished wood are these key points:

The ability to recognize quality
The ability to recognize damage
A working knowledge of finishes
A keen interest in the subject

On a personal note, may I say that I have discovered that the more I learn, the more I appreciate and respect finished wood. To that end, the attempt here is to offer you a broad view of finished wood, some history, some general information and some specifics.

You may find that some of what you read here may, indeed, be appropriate to use in discussions with the insurance adjuster and the property owner.

Knowledge of some history of finished wood, for example, may set you apart from most wood finishers, while contributing to your creditability and acceptance.

Furthermore, in additon to providing some factual knowledge, it is hoped that your interest and curiosity in finished wood will be stimulated. Should this happen, it will almost certainly lead you to seek and find your own specific answers. They only await your discovery.

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IN THE BEGINNING

Nature sees fit to develop trees as she does children, each one a distinct individual. There is no certainty that two trees will have exactly the same color or figure, even though they sprouted from seeds of the same parent tree. The history of every tree is written in it's grain. Each part is distinctly different, section by section, wood by wood. Trees don't match.

The possession of a piece of skillfully chosen figured hardwood can give the sense of owning a rarity -- an original. The production line may turn out a hundred copies of the same table design, yet each top shows it's own pattern, it's own slight variation from the others.

The ancient Chinese developed veneering at an early date. The Egyptians brought their skill of veneering and it's related techniques, marquetry and inlay, to a highly refined art. A set of murals from the tomb of Pharoah of Exodus, shows the steps in making a veneered panel. Tombs have revealed priceless artistry and craftsmanship. Veneered boxes of ebony, inlaid with ivory and shell were deemed fit for the honor of being buried with Kings. The Greeks, too, knew veneer techniques and the Romans prized fine inlaid and veneered furniture as a status symbol equal to jewels.

The Romans are thought to have been the first to use plywood layering techniques with handsomely figured veneers for doors and wall panels.

The aesthetic reason for veneer has always been to produce a more beautiful or natural figured surface over a larger area than is possible from lumber planks. Each

slice of veneer, carries its own segment of the original log figure.

Stability and endurance are the basic elements of furniture made by the mid-20th century plywood wood principal. Stability comes from the old Roman idea of layers of veneer sandwiched with their grains at right angles to each other. The natural tendency of wood is to expand or contract across the grain. Modern water-proof adhesives, heat and pressure, produce a wood panel of great stability with weight usually less than solid lumber. By weight, plywood is stronger than steel. Furniture plywood is highly resistant to atmospheric changes.

WOOD IS GOOD

Wood is one of the most beautiful and satisfying materials used by man. It is strong and light, easily worked, and stands beside metals as a material that has shaped the very existence of mankind. For millennia, it has touched virtually every phase of life. Civilizations have risen and fallen based on its availability. Wood has provided fuel, housing, boats, vehicles, utensils and furniture.

Yet wood simply cut from a log is nothing more than lumber. A rough board is dull and non-descript; sometimes it is even difficult to identify the kind of wood. When wood is smoothed, the grain pattern becomes evident. But it is not until a finish of some kind is applied that wood achieves its fullest expression. In the same manner that a gemstone is little more than a rock with a potential until it is ground and polished, so too must wood be sanded and finished.

The finish is as much a part of furniture as the wood from which it was made and the craftsmanship with which that wood was assembled. An unfinished Chippendale chair or a fine Hepplewhite chest would have more kinship to the inexpensive pine sold in unfinished furniture stores than those impressive examples found in museums.

There is no such thing as a <u>natural</u> finish. The only time wood is natural is when it has no finish at all. As soon as anything is applied to the wood the color and texture change. Short of not applying any finish at all, the closest finished wood can come to "natural" is the application of a clear coating without any staining or filling. Some woods like walnut or mahogany, cherry or rosewood, can be so impressive in their own right that staining or filling may be an over-embellishment.

DEALING WITH ADJUSTER AND OWNER

Wood furniture from a residence that is in every day use, then damaged, faces the challenge of being restored to its original state. The problem is to identify those pieces which can be processed at a cost lower than the replacement cost. More specifically, to identify those pieces where simple repairs, spot refinishing and the restoring of the existing finish can be done versus complicated repairs, stripping and refinishing. Most anything can be achieved for a price.

When talking to a furniture repairer and refinisher, some general knowledge of the subject can be useful. One can bargain for better prices, can ask questions and can eliminate the high priced stripping and refinishing that seems to be almost automatic.

Before a careful examination, piece by piece, of the damaged furniture, it is necessary to pay close attention to what the owner is saying about each piece and what the adjuster is saying. If possible, arrange for the adjuster, the owner and yourself to view the pieces together. Time will be saved from having to inspect each piece when the adjuster and owner have agreed, for whatever reason, to eliminate some pieces.

Pay close attention to the statements made by the adjuster such as:

1. "Do anything, just make them happy"
2. "I have a limit on this claim"
3. "Use your judgement"
4. "What's it cost to replace"
5. "What's the cost to fix"
6. "What do you advise"

And variations of these questions and comments.

From the owner much can be learned when paying close attention to comments such as:

1. "I never did like that piece, anyway"
2. "It matches my other furniture. I sure would like to save it"
3. "My neighbor works in a furniture store and I'm going to see what he says"
4. "It's been in the family for 150 years. I want it fixed"
5. "I know it's not worth much, but it means much to me, do the best you can"
6. "Maybe you could answer a few questions but I want to do the work myself"

Plus variations of these questions and comments.

Once the pieces to be restored have been identified, it is a good idea to involve the parties, as needed, in a general inspection to establish the prior condition. Look for cracks, loose joints, points of wear, gouges, cuts, bubbles, delaminations, missing parts and general condition. You do not want to be held responsible for pre-existing conditions not of your making.

The basic decision of the adjuster is simple: Does it cost them less to replace it or fix it?

If the owner wants it fixed, it usually means that prior conditons should be included, but there must be a frank discussion which will produce a clear understanding. Without this discussion, a dispute will almost always center on the owner's expectations versus the work that was actually performed. A little time spent at the beginning can eliminate a time taking misunderstanding at the end.

There are many instances when a pre-existing defect can be corrected using very little time and cost, even though not included in the agreement. When you do this, point it out to

the owner, - " I thought you might appreciate having the scratches on this leg removed, Mrs. Jones, so I decided to do it for you without charge". When you are able to present the owner with this bonus, the owner will often present you with a bonus in the form of a good report to the adjuster. It is the very best and least expensive of all advertising. Always look for these special opportunities to help yourself while helping them.

If you, the owner and the adjuster are standing next to the problem piece or area, be careful of pitfalls. Be careful to avoid making quick value judgements. Show respect for the problem. Do not rush. Avoid statements such as, "Oh, that's no problem", "Good as new", "It's very simple" "Better than new", "Will have it ready for you right away", etc. Avoid explaining the details of how you are going to do it, as if to prove your point. The problem may be simple to you but not to the adjuster or the owner. You charge for what you know, for what you do for the value of the piece. In reverse, what may appear a simple problem to the adjuster or owner may, indeed, be quite involved and you must carefully explain. Ask questions, minimize comments, make notes and promise to report your findings promptly. You will need to identify the wood, construction, finish and test for results.

In your report to the adjuster --

Describe the piece
What are the problems
What are your recommendations
What is your price

RECOGNIZING QUALITY

It is interesting to note the unchanging characteristics of furniture construction. They are much the same today as they were three or four hundred years ago. If the frame of a chair or divan, made in 1650 or 1750 or 1850, were to be placed beside the frame of a similar piece made in 1950 or even later, there would be almost total uniformity in their construction details.

Contrary to much thinking, wood is in a constant state of change regardless of age - it expands and contracts with temperature and humidity changes and it reacts differently depending on the kind and part of the wood used.

Examine the wood closely and try to determine its species. If you are not especially good at identifying woods, carry a copy of a wood supply house mail order catalogue, which usually contains full color photographs of the most common wood species.

After a piece has been considered, in terms of its age characteristics, its condition and construction, attention should be directed to judging the piece, as to how representative it is in its period, in terms of its sytle, proportion, material and detail. Provenance is another major consideration. In evaluating a piece, emotion also plays an important role. Weighing these many considerations is an exercise and technique which will constantly improve with repetition and experience.

Aside from style and design, the value of furniture rests in the workmanship and the quality of the materials that went into the manufacture. Whatever the style, and however good the design, if the piece is poorly constructed from inferior wood, it is scarcely worth the work required to repair and refinish it.

Learning to identify the basic marks of quality is relatively simple. While techniques have changed, they have nothing to do with craftsmanship. There has always been well built furniture and poorly made furniture. In most cases, the better woods were used for better furniture. Some finely constructed furniture is made from pine and other softwoods, but generally, pieces made from softwoods tend to be more utilitarian and were not executed with the care of furniture made from hardwood.

This is not to say that inferior furniture has never been made from fine hardwoods, including cherry, walnut, mahogany, fruitwood, or teak, but it does hold true that hardwoods require more skill to work and produce a more valuable finished product. As a result the finer woods were used by the better craftsmen. An exception is the mass produced oak furniture made during the early part of this century. But even here, most of the utilitarian oak furniture was built for heavy use and is very durable, although simply designed and constructed.

Using this check list to evaluate a piece of furniture, be sure to make your inspections carefully. If it's in a dark corner, move it to the open where you can get a good look at it. Direct sunlight is the best aid in detecting faults and virtues. However the source, bright illumination is necessary. Wipe off as much as possible. Then proceed as follows:

- Look for missing parts
- If the piece has drawers, examine the joints where drawer sides meet the fronts. Well fitted dovetail or fingerlap joints are a sign of good workmanship and an indication that other joints in the rest of the piece are most likely well made

- Check for loose joints by wobbling the piece. This test will also help reveal legs of uneven length
- Splits and cracks and faulty repairs are often clearly visible when a piece is inverted. Checking the underside can also reveal whether it is solid lumber, veneered, or artifically grained. Veneering allows the furniture maker to achieve matching grain patterns and other attractive effects that are not always possible with solid lumber. Well executed veneers can add value to a piece. On the other hand, keep away from veneers that are blistering, cracking, peeling away or are chipping around edges and corners - unless you have the skill and inclination to make the needed repairs

The best way to spot craftsmanship in furniture is to examine a door, a drawer or an edge. A drawer can show a great deal about the quality of a piece. First, check to see if the drawers operate smoothly. If not, wear and warping may be responsible but, more likely than not, the glides were not carefully designed and constructed. A third glide in the center, put there to assure even operation, is a good indication of quality. Also, are there dust shields under the drawers? Dust shields form a bottom to the area occupied by the drawers. They show that the furniture maker was concerned about the function of the drawers - to keep things clean in storage -and chose not to cut corners where they would not show.

The construction of the drawer itself will also betray signs of quality workmanship. The most solid way to join the body of the drawer to the front is a dovetail joint. The least secure, but the easiest way, is simply to butt the sides of the drawer against the edges of the front and secure it with glue and nails. Dovetails from the back of the drawer to the sides are another mark of quality.

The same applies to doors. Raised panels are an indication of quality; joints mitered at a 45-degree angle in the frame of a panelled door are not. Also, note the care with which the door is mounted in its frame. On high quality furniture, doors will be equipped with stops that prevent infiltration of dust.

Although screws are frequently used to attach tops to tables, another indication of good craftsmanship is the use of glue blocks. These are usually small triangular blocks of wood that are placed in inside corners to brace the piece against lateral motion. The absence of glue blocks is usually a sign of poor workmanship. And the more glue blocks that are used, the better the piece should be. Each side of a piece should have at least 3 glue blocks. In the better furniture they are placed about 4 inches apart. In case goods - furniture such as chests and dressers - they should be located along the corners where the sides and back join the top and along the joint formed by the side and the back. On tables, they are placed along the edge of the top where it joins the skirt and are sometimes used to brace the legs against the skirt.

Today, most furniture is made from cabinet grade or lumber core plywood. The result is a building material that is much more resistant to warping and humidity changes than older furniture glued under much lower pressure in the craftsman's shop. Drawers and doors of furniture built with this material have much less tendency to stick in damp, warm weather, and are much less likely to come unglued during the dry, cold months.

What gave veneer its bad name was its wide use in low cost, mass produced furniture early in this century.

These pieces, however, are easy to spot. For one thing, they tend to be extremely light in weight, with panels that are little thicker than the veneer itself. If the piece is of poor quality, it is the fault of much more than the veneer. It will be thin and light and will lack any of the other signs of good workmanship.

When inspecting furniture, its a good idea to carry a small penknife, razor blade or coin. First, carefully scrape the old finish from a small obscure spot to examine the wood. Now, identify the wood and look to see if the piece is solid or veneered. On older furniture the veneers were cut by hand and are much thicker than those used now - up to 1/8th inch thick. Present veneers range from 1/28th to 1/64th inch thick. As a result, modern veneer is delicate. It cannot withstand years of hard wear, nor can it be heavily sanded without cutting all the way through.

Examine the existing finish. If its in good condition you may not have to remove it. Do not expect it to be perfect and do not try to achieve it. While it may be possible to remove an old finish and apply a mirror-smooth replacement finish, doing so may not be particularly appropriate. In most cases, a piece of old furniture may look better with a time-worn finish than with a brand new one. As long as the old finish is sound and still able to protect the piece it covers, one is better off leaving it alone.

What is a sound finish?

Usually a few scratches, an occasional burn mark or white ring here and there, even a faded, foggy appearance are all acceptable. Such minor defects can usually be repaired without much trouble. But, if the finish shows signs of alligatoring or checking - finishes that have dried out, leaving shallow or deep grooves that resemble the skin of an alligator or snake - or if it has darkened so much that you cannot see the wood beneath it, you will probably have to remove it.

Do not be fooled by overly dark finishes, however. Some are merely covered with years and years of dirt, wax and smoke residue and other accumulations that can be removed, revealing a good finish. Try cleaning first.

If you are in doubt about a finish, try saving it. Test. You must be able to report to the insurance adjuster and the owner what can be done. If you succeed you will have saved yourself a lot of work and also have achieved a more authentic restoration than you would get from total refinishing. Remember, the less you do to an old piece, the better. Over-restoration will remove a lot of character the piece has acquired over the years. If a piece is not disfigured, for instance, leave some indications of age, the marks of the cabinetmaker, some signs of wear. The proof that a piece is an antique, and its commercial value as well, often rest on these marks.

Much contemporary, low-end furniture is finished using processes unavailable until recent years. Typically, the piece is made up of pressed wood, particle wood, on which a print or photographic finish has been applied, in most cases to simulate finished wood grain. This simulated finish is widely found in low-end cabinets, paneling and millwork.

Positive identification is essential. Repair, refinish, restoration work is extremely limited. Some touch-up work can be performed with newly created materials. These include graining pencils, instant touch-up marker, ultra fine grainer, etc.

Positive identification can be made by gently scrapping an obscure area with the knife. Does the grain disappear? When you wet out the scrapped area, if the grain is still gone, the finish is not wood. If real veneer, the knife can probe the edges and reveal the veneer thickness.

Before starting any kind of work on any kind of furniture, there are a pair of key questions that should be asked:

1. Is this piece of furniture worth repairing?
2. How difficult and costly is the job going to be?

The answers will be guided by more than worth in terms of cash. The sentimental, as well as the intrinsic value of the piece needing fixing will certainly influence one's judgement. The sentimental or special value to the owner may far exceed the intrinsic value. Find out how attached the owner is to the piece. Perhaps it was purchased knowing that while the piece may not have a great deal of value when you inquired about it, there may be the anticipation of increase in worth with time - perhaps within a short time.

Any carefully and skillfully crafted piece of furniture in which good woods have been used and which reflects concientious workmanship has an excellent chance of being classed as an antique at some future date.

There are antiques and antiques, of course. The official standard applied by the Federal Government is that to be classified as antique, an object must be at least 100 years old.

FINISHES

The mass-produced furniture sold in stores most commonly has a sprayed-on lacquer finish. Stain is usually mixed with the first coat. Although the coats are few, the wood may become somewhat obscured. Lacquer can, of course, be used to make a very fine finish, but such finishes are found only on the most expensively crafted furniture. In defense of industrial finishing, it must be said that furniture would be prohibitively expensive without it. In fact, about the only place to see what a truly fine finish looks like is in the stores that sell extremely fine furniture or in museums. And the least costly way to own furniture with such fine finishes is to put them on yourself.

The one over-riding requirement is care. Each step should be as perfect as possible. Any rough areas, blotches or careless slips will be magnified by the final finish coats. The most serious mistake a finisher can make is to say to himself, "That will even-out later". or "I'll fix it at the next state". Dust can ruin hours of hard work when settling on wet finish. Dirt in brushes can leave cloudy smudged areas on an otherwise transparent finish.

OIL AND WAX FINISHES

Two of the oldest finishes for wood, as well as the easiest to maintain and most durable, are oil and wax finishes. Unlike shellac, varnish, lacquer and polyurethanes, wax finishes are virtually fail-safe. They can be applied in fits and starts, can be touched up anytime without showing repairs, and are as resistant to wear and damage as other common finishes.

What they have in common is that they require lots of elbow grease to apply. Coat after coat is rubbed into the wood until the finishing material has impregnated the fibers of the wood. But the work pays off in lustrous finishes that are among the most beautiful provided by any wood finishing technique.

The durability of both oil and wax finishes is the root of their one drawback. They are almost impossible to remove because of the depth to which they penetrate the wood. They are not touched by paint removers, although they could be removed by laborious sanding and would leave the surface considerably thinner than it was originally. Oil finishes, however, can be sanded slightly and coated with varnish. Wax finishes can be neither removed nor re-coated - the wax will prevent any finish from adhering to the wood.

In recent years, commercial finishes broadly called "oil finishes" have become popular and widely used. This wide use coincides with the popularity of Danish-type furniture and the demand among professional and amateur wood finishers for products that would produce what was popularely called a "Danish oil finish".

These finishes are based on a number of materials, including tung oil (a natural oil, derived from the Chinese tung tree, that is known for its hardness and penetrating ability) and synthetics such as urethanes. For the most part, they are similar to the extremely hard floor finishes developed for gymnasiums. As a class of finishes they have become known as penetrating wood sealers and many are good finishes for furniture. Nonetheless, the products sold as "oil finishes" are not oil finishes in the true sense. Rather, they are wood sealers that, unlike a traditional oil finish, usually produce a finish that is dead flat, leaving the texture of the wood completely exposed. While the application of several coats will begin to build up a satiny appearance, they will never equal the rich sheen of a hand rubbed oil finish.

They are, however, true wood finishes. They seal and protect the wood from damage. They harden the surface of the wood and are in many cases very resistant to heat and solvents, such as alcohol. They are washable, being very resistant to water, and can be re-coated at any time.

In addition to the traditional furniture finishes, there are several synthetic clear coatings used for furniture. Of these, the clear, oil modified urethanes, such as polyurethane are the most popular because they are highly resistant to abrasion, scratching, water, chemicals, grease, solvents, food stains, alcohol and oils.

Polyurethane finish may be applied to bare wood (new or wood with its oil finish removed) that is smooth and free of dust and grease, or over a varnish finish that has been cleaned and de-glossed. Do not apply over a shellac or lacquer finish, sanding sealer or a paste wood or liquid filler, unless especially formulated for polyurthane finishes. Adhesion problems can be avoided by following label directions to the letter.

As we know, wax by itself, is a finish. However, wax on a finish can contribute to the eventual softening of many finishes and can become gummy when it breaks down. Do not excessively wax a finish.

Silicone polishes are easy to apply, have relatively short useful life and repeated applications can produce a sticky film.

Lemon oil is useful to protect most finishes but moderation of use and good buffing are needed for best results.

For the removal of polishes and waxes, use mineral spirits and superfine steel wool with the grain, keep well lubricated and wipe off. Also effective are wood creme restorer cleaners or a good quality waterless hand cleaner.

For a good general approach to the work, until the level of expertise has been developed that is needed, enlist the help of a professional refinisher. Try several. Establish a rapport - you may be able to observe some details which will be useful to you. Try telling the refinisher what

you want as much as possible, rather than asking for his opinion. Be specific. For example, "Repair the chair or blisters or whatever only". If he accepts, the problem is then his. He could have said, "No", but now it is his problem. He owns it. If you do not like his answer, get another opinion and if its the same, you can take stock in it. Many refinishers are inclined to specify complete strip and refinish. If that is the case, ask for explanations. The more you know, the more he will try to accomodate your requests and the lower your estimate of repairs will be. Remember, the piece can be returned to the owner more rapidly when less work has to be done.

A good general approach to the work:

Test clean. If OK then polish, as needed
Identify construction
Identify finish
Identify needed repairs

Generally, a non-refinisher can successfully handle the following:

Minor scratches
White watermarks
Low level smoke stains
Lack of luster

With practice and some determination will come the experience that could lead to correction problems of damage that are more severe such as the following:

Gouges
Dents
Delaminations
Char
Deep smoke stains
Blisters
Cracks
Cuts
Warps

The basic steps are repairing and removing old finish (if the task is refinishing) sanding, staining, filling, sealing, applying finish coats, and rubbing and polishing to the desired luster. Each job will not require all the steps, and some, like staining, can be omitted according to the preference of the finisher.

Remember that lacquer can be applied over lacquer or shellac but never over varnish or paint. The solvents in lacquer will cause varnish to lift as surely as paint remover. Shellac or lacquer sealer should be applied over an existing finish.

TESTING FOR FINISH

Shellac and some lacquer finishes are the most easily restored because they can be re-dissolved with solvents. Many of the new finishes such as polyurethanes are impervious to solvents.

TESTING TO DETERMINE WHAT FINISH

Test for shellac

Apply a little denatured alcohol to some out of the way spot on the surface of the furniture to see if the old finish dissolves. If it does, it is shellac. The original finish of much furniture built before 1920 was shellac.

Test for lacquer

Apply lacquer thinner to a scuffed or worn spot on the surface to see if the finish dissolves. If it does, it is lacquer. Furniture built after 1920, unless custom made or previously refinished, usually has a lacquer finish.

Test for varnish

Once varnish finish has dried, it will not re-dissolve. Try softening the finish with lacquer or commercial paint

remover. If it cracks and raises from the surfaces, you will know it is varnish.

Varnish has never been widely used on commercially built furniture because it dries so slowly. However, you may find varnish on custom made, handmade, or previously refinished pieces. Widely used finishes, polyurethanes and catalatics, although commonplace now, were considered exotic just 20 years ago.

Test for polyurethanes

Apply lacquer thinner to obscure area. If nothing happens, the finish will be a polyurethane or catalatic finish. Lacquer thinner can now be used as an effective and fast cleaner. To remove the finish a stripper containing formic acid must be used. Most of them do, but read the label. Follow instructions carefully.

Test for catalatics

See test for polyurethanes. Also test with toluene or XYLOL.

Test for penetrating resins

Danish oils - If the finish has no sheen and no apparent film, it is likely to be a penetrating resin. To test, first remember that oil finish is in the wood. Take a razor blade and scrape or shave with the grain. If the dust is white, the finish is lacquer. If it is the same color as the wood, it is oil. Lacquer thinner leaves a white spot on oil finish. Paint thinner will soak in immediately. Test with paint thinner first.

Test for cleaness of any finish

Test for cleaness by taking your thumb pad or palm of your hand and rub sharply across the grain. If you feel a drag or hear a squeak, it is clean enough for re-coating. Test for quality of dry finish after the finish is clean. Apply masking tape. Allow to remain for 5 minutes, then sharply pull it off. The condition and tightness of the finish will be revealed by the evidence of finish adhering to the tape. If little or none, re-coating can be done. If not, stripping and refinishing will be necessary.

When inspecting furniture away from the shop, have a test kit available for testing to include:

- A small container of denatured alcohol to test for shellac
- A small container of lacquer thinner to test for lacquer, varnish and polyurthane
- A small container of acetone to test for catalized finishes
- A small container oftoluene or XYLOL to test for polyurthanes
- A small container of paint thinner to test for oil finishes

Get acquainted with the chemist of a finish manufacturer. Call him when there is a problem. Send him a thank you note. His knowledge will add to your wisdom. Do not over do it, but remember, all finishes are various modes of molecular construction. If is was done, it can be undone.

Training classes are available through Mohawk Finishing Porducts, Inc., and others. To find out who the local representative is, contact the best known furniture store. They most likely can tell you who to contact. In addition to training, specialized materials and equipment are available and are extremely useful.

HINT - Testing is always needed to produce the desired results. Just because a problem appearing to be the same was handled successfully, does not mean that the conditions are, in fact, exactly as before. Test, experiment and practice. Confidence and ability will follow.

CAUTION - Silicones. They cannot be visibly recognized. However, it is vital to successful restoring that they be totally removed from the finish to produce proper adhesion. It is a good idea to assume that the finish has been previously

coated with a silicone polish. Mohawk silicone wash is one of several effective products available.

BE SAFE - Remember to always read and follow directions on all product containers, not only for use, but safety. Ask yourself if the finish is adequately clean and ready for a successful re-coating.

Lacquer is incompatable with oil. A lacquer sealer is essential. If lacquer is applied directly over an oil it will "alligator".

Padding lacquers: Finishes called padding lacquers have recently been introduced on the market. They are not true lacquers and are compatable with varnish as well as shellac and other lacquers. If the surface is free of oil, grease, or wax, they bond well and produce an effective finish. They can be applied by spray, brush or wiped-on, to build up a finish. They are also very useful and simple to use in making spot repairs.

STAINING

Make a wet test for color to see whether a change in the bare wood will take place if a clear finish is applied. The test will show the approximate color the wood will take when a clear finish is applied.

Merely wet a finger tip with clean water or saliva and touch the surface. The drier and more porus the wood, the greater will be the change in color. The most pronounced difference in color from this test will be found in soft woods like pine, while the change will hardly be noticeable in unseasoned woods.

Woods with open pores, whether they are soft woods or hardwoods, darken more after an application of a clear finish than do those with closed pores.

Matching an existing color can be much more difficult than simply choosing a stain color of choice and using according to directions. There are manufacturers which specialize in products for furniture repair and restoration and are widely used by refinishers.

Take advantage of the special kits and written materials available from Mohawk Finishing Products, Inc., or some similar firm. Through their research and experience, they have succeeded in developing various touch-up procedures for new and damaged furniture. Due to these developments, far less time consuming effort is required to accomplish a perfect repair.

RUBBING AND POLISHING

The final step in finishing, particularly with the clear finishes, is rubbing and polishing the finish to remove minute surface imperfections and to leave the finish with whatever degree of gloss or luster that is desired. This is done by rubbing the surface with extremely fine abrasives, depending on the fineness of the abrasive, the finish can be brought up to a rich, satiny luster. Indeed, few things in wood finishing can compare to a hand-rubbed finish.

Both rubbing and polishing are essentially the same. The main difference is that rubbing requires more effort and generally reduces the gloss of the finish, while removing embedded dust and dirt from the surface and smoothing off tiny ridges left in the finish by its application. Polishing uses the finest possible abrasives and raises a finish dulled by rubbing to whatever level of gloss is required by the finisher. Polishing is easier. Less time is required and less pressure is used on the abrasive.

If the plan of refinishing is to rub and polish after the finish application, it would be necessary to use a clear gloss finish rather than a satin finish. While a satin finish used as a final coat will leave a dull surface, reminescent of a hand-rubbed finish, surface imperfections and foreign contamination cannot be removed and, since the finish has dried to a pre-determined gloss, the final effect cannot be controlled by the finisher. Furthermore, satin finishes are less transparent than gloss types, and thus obscures the grain of the wood beneath the finish. On the other hand, by working with clear gloss finishes and rubbing, the finisher has total control over the final

out come of the finish. If it is too glossy, it can be made duller. If rubbing reduces the gloss too much it can easily be polished up to any degree of gloss.

Rubbing techniques.

Where fine sanding requires the use of a sanding block, rubbing is done with a thick felt or cloth pad, the most convenient size being 3x5 inches and one inch thick. Smaller pads are used for covings and tight spaces. Rubbing pads are sold in paint and refinishing supply stores. As with sanding, rub with the grain, never across, and always use a straight motion with constant pressure, never a circular or figure eight pattern. Occasionally, especially where marqueting or covings have to be rubbed, a certain amount of cross grain rubbing is unavoidable. Take great care on corners and sharp edges to avoid cutting completely through the finish.

Before rubbing, be absolutely sure that the surface is completely hard and dry, otherwise particles will become embedded in the surface and the finish may have to be removed. Also, if rubbed too soon, hairline cracks and scratches may appear in the finish. Allow at least 30 days of good drying before rubbing varnish, 2 weeks for shellac and 48 hours for lacquer.

After the rubbing, all traces must be removed before polishing by washing. Clear water and soft cloths are usually adequate although some finishers prefer a solution of warm soapy water, rinsed and gently dried. Shellac will stand water only briefly, so quickly wash, rinse and dry. Finally, finish off with a good furniture polish.

Automotive rubbing compounds, such as DuPont #7, are easier to use and readily available. They substitute effectively for the harder to use and sometimes hard to find powdered pumice, rottenstone and parafin oil. Rubbing

compounds come in a number of grades, according to the fineness of the abrasive and the proper compound should be selected for flat, satin or polished surfaces.

In extreme cases, some finishes are too hard to be easily rubbed, even with rubbing compounds. These include the polyurethanes, spar varnishes and catalatics. Generally, the practical way to give the finished surface a final rubbing is to use sandpaper. These may be sanded with 400 or 500 grit wet or dry sandpaper, lubricated with rubbing oil which has been slightly thinned with mineral spirits.

Such techniques can also be used as shortcuts to rubbing or polishing. But these will never equal a hard rubbed finish. And if a finer finish is desired, hard rubbing is still necessary. A very high gloss finish can only be obtained with rottenstone and oil.

In all cases, when using sandpaper, avoid over-sanding and cutting too deeply into the finish. Sand only enough to produce a smooth satin finish - stop as soon as the surface is free of imperfections and irregularities.

Another short cut to rubbing is to sand the final coat with 400 grit paper without lubrication and then apply a good quality paste wax with 000 or 0000 steel wool. The wax impregnated steel wool will polish out the rough spots, leaving a smooth satin finish.

Rubbing compounds are recommended for rubbing and polishing lacquer finishes.

A BRIEF FINISH REVIEW AND A FEW NEW THOUGHTS, TOO

Generally speaking, checking and white on an old finish are signs of bad adhesion. Remember that a simple test of brittleness and adhesion is scratching an old finsih with the edge of a coin in an inconspicious place.

If you cannot scrape through to the wood with relative ease, you probably can get away with rejuvenation instead of removal.

TESTING WHAT KIND OF FINISH IT IS

It can be difficult to determine what kind of an old clear finish was used on a piece of furniture. It may be shellac, varnish, lacquer, wax or oil with no definite characteristic to indicate the finish that was used.

The following suggested clear finish procedures and remedies will generally cover most of the solid woods and genuine veneers. They are not the only procedures available which can provide successful results. In all cases, careful testing is essential. This requires some time, but it will save much more time and it will save money.

If the finish is in good condition, removal may not be needed. While it may be possible to remove an old finish and apply a mirror-smooth replacement finish, doing so may not be particularly appropriate. In many cases, a piece of furniture may look better with a time-worn finish than with a brand new one. As long as the old finish is sound and able to protect the piece it covers, leaving it alone may be a wiser choice.

What is a sound finish? Usually a few scratches and occasional burn mark or white ring here and there, even a faded, foggy appearance are all acceptable. But, if the

finish shows signs of allegatoring or checking, or if it has darkened so much you cannot see the wood beneath it, removal will probably be needed.

Do not be fooled by overly dark surfaces, however. As previously noted, some are merely covered with years of dirt, wax, smoke residue and other accumulations that can be removed, leaving a good finish behind. So try cleaning it before stripping it.

If there is doubt about a finish, try saving it. If not successful, stripping can always be done. All that would be lost is a little time, but if the desired results are produced a lot of time, work and cost will be eliminated.

Remember, the less done to an old piece, the better. Over-restoration will remove a lot of character the piece has acquired over the years.

If the piece needs repairs, yet has a good finish (one that needs a small touch-up), do the repairs first then the touching-up. By saving the touch-ups for last, it will be easy to correct any damage the repairs may cause such as clamp marks, new nail or screw holes, and to blend in any new pieces of wood that may have been added.

If the finish cannot be saved, go ahead and strip it. Then make any needed repairs and refinish. Stripping before repairing is the only logical sequence. Why? For one thing, stripping may loosen old joints or raise bits of veneer, which may need to be repaired. Stripping may also reveal mismatched or unsightly pieces of wood. After a piece is stripped, look it over carefully evaluating the type and attractiveness of the wood. This is the time to decide on the finish most appropriate to the wood and style. You may wish to have the owner see the piece and decide what is preferred. Of course, if the decision involved a great cost, an agreement must be made about the payment.

If stain is needed, use it wisely. Avoid the temptation to try to make one wood look like another. Pine looks best stained to look like old pine. Efforts to make it look like mahogany or walnut invariably fail. In some cases, one wood can be made to look like another, but only when the two species have similar grain structures. Staining can change only the color of the wood, not its grain patterns.

Very little in this report is going to endow you with greater skill in wood restoration, repairing and refinishing than you now have. Skill comes from practice. Get an assortment of furniture and cabinet pieces. When you practice you will develop a "feel" for what you are doing.

Quite often, your success in conquering a simple job will encourage you to take on others that are more difficult.