

FRENCH POLISHING

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Throughout modern history one finish, French polish has gained an almost mystic reputation. "Oh yes this is a charming Regency table, Circa 1812, the original finish has been cleaned and rejuvenated, at great expense". Conversations like this go on at antique dealers everywhere, but very few dealers are likely to pay to restore old French polish. There are two reasons: first, few people know how, and second, those that do have difficulty getting paid for their time at market rates.

For the hobby and experienced woodworker alike, French polishing is an exercise that will challenge. However, "to those that persevere, go the rewards". Apparently, like apple pie everyone has a slightly different recipe on how to French polish. With at least 2 dozen variables which are in play at any time, only practice and many failures will eventually teach you how. A competition would be interesting, like a cake bake-off perhaps, to see who has the best formula with the winner's method finally recorded on video. Ah! but then the mystery and the reverence would be gone. What now follows is my way.

Where to begin? Well perhaps some biology or chemistry is in order. The principle ingredient in the process is lac, a resin-like substance excreted by the parasitic beetle, *Lacifer lacoa*, which lives in certain trees in India and other eastern countries. The resin is hand-picked and washed. At this stage it is known as seed lac. The lac is placed into canvas tubes and heated over a fire. The lac melts and is squeezed onto a cold surface to form approximately 3 inch discs that are left to harden. Purchased in this form it is referred to as button shellac. Further refinements of the lac are achieved by diluting and straining. The lac is then spread out very thinly and allowed to dry. In this form it is sold as orange shellac. In the past these flakes were sun bleached, but now they are chemically treated; the resulting flakes are sold as lemon shellac. With each of these treatments the shellac gets lighter, the lightest now being blond shellac. It is sold as either super fine or blond shellac flakes. With each process from button shellac to blond shellac, the flakes and subsequent finish become more transparent. The bleached shellac is mixed with alcohol and sold as white shellac.

If the surface has not been stained and you wish to show the natural colour, super fine or blond shellac flakes are the only logical choice. However you should know such flakes did not exist until recently and would not be appropriate for restoring that Circa 1812 table. Personally I prefer to mix my own shellac primarily because of its limited

shelf life (about 6 months). Commercially prepared white shellac is mixed (cut) in about a 5:1 ratio (5 parts alcohol to 1 part flakes) and it is not dated. As mixed shellac ages, it takes longer to dry and hence longer to body-up the surface (i.e. build up the finish's thickness). It is however suitable for resurfacing a previously polished surface.

PREPARATION

MIXING SHELLAC

There are various methods of measuring the mixture of alcohol and lac flakes. Commercially it is done by weight. I have found that mixing by volume works providing I crush the flakes in the same manner every time. I often use lemon shellac on old marquetry as it imparts an antique yellowish patina, but the flakes are bigger and thicker and so measurement by volume will give a different proportion than the same volume of blond flakes. Crushing the flakes to a granular consistency will enable the lac to dissolve quicker and will give a consistent measurement.

There are two basic applications of the shellac: first, the bodying-up, or the filling of the pores and smoothing of the surface, and second, finishing or polishing. It is quicker to use a thicker mixture at first. My mix is 4:1 crushed flakes and alcohol at the start and then 5:1 for finishing.

To crush the flakes, first put them in a ziploc-type bag or double a sandwich bag, and wrap the bag in a cotton rag. Whack the daylight out of it, with a flat piece of wood. After crushing the lac, measure by volume 1 part flakes and pour them into an old clean narrow-necked plastic 2 litre juice container. Using the same measuring device, pour in 4 parts methyl hydrate (wood alcohol). Put the cap on the container and shake well. It will take an hour or so to fully dissolve the lac flakes. Periodically inspect the solution and shake it vigorously. Screen out the lac that will not dissolve with a kitchen sieve, or better, buy a new one (the cook will not be amused). Remember to rinse the sieve with methyl hydrate after you use it.

Most hardware stores carry clear plastic containers for mustard and ketchup. Buy 2 of these, perhaps when you buy the sieve. Pour the shellac mixture into container #1, and mark it 4:1 mix. Into container #2 pour 1 portion of alcohol, measuring it in the original measuring container, then pour in 4 portions of the 4:1 mix. This is then your 5:1 mix. Mark this container 5:1 mix.

By mixing your own flakes, you will have removed one of the many variables, the age of the shellac. The older the mixture the longer it takes to dry so unless you intend to

use any leftover shellac within few months, throw it away. Shellac is environment friendly and will kill weeds by stopping photosynthesis in foliage.

If you have struggled with me so far, you are becoming aware of what I said initially, this is not a finish for the faint of heart.

SHELLAC RUBBER

You are now about half way to completing your supplies: next is the shellac rubber. You will need some heavy cotton rags, the thickness of cotton jeans. If you cannot find any, visit a material store and buy a yard of plain white cotton. Next you will need a package of cheesecloth; this is available at most automotive stores as polishing supplies. Cut two pieces of white cotton about 10 inches square. Place a folded pad of cheesecloth about the size of an egg in the centre of one side of one piece of cotton. Fold two sides of the cotton over the cheesecloth then roll everything into a tight pad. This is a shellac rubber. Make another rubber and place them both flat side down in plastic food savers. Charge them with shellac, (see below step 1A Bodying-up) one with the 4:1 mix, the other with the 5:1 mix. Put the lids on and seal them. The rubbers, should be conditioned after a couple of days soaking in small quantities of shellac. Make a third rubber using a 10 inch square piece of linen instead of the cotton. Use an old white pillow case, shirt or bed sheet. Into this third pad pour 6 caps full of methyl hydrate, assuming your caps are about 1 inch in diameter.

PONCE BAG

A ponce bag is a bag or pouch filled with pumice. The bag is made in the following manner. Cut an 8 inch square of linen. Pile about 6 tablespoons full of pumice powder in the centre. Fold the four corners to the centre and twist into a ball. Use a garbage bag tie to prevent the bag from unravelling. Put the ponce bag in a fourth food saver.

OLIVE OIL

The final ingredient is olive oil. This needs to be in a container that will allow you to dispense small quantities.

SHOPPING LIST

In the preceding paragraphs I have noted a series of supplies required. The following is a summary:

1. Blond or super fine lac flakes (lemon flakes for antiques).
2. Methyl hydrate.

3. 1 yard of heavy white cotton.
4. 2 square feet of fine linen.
5. 4 food savers approx. 4 inches in diameter.
6. 2 clear containers for shellac.
7. Kitchen sieve.
8. 1/4 pound of fine pumice.
9. Olive oil.
10. Disposable latex gloves.

You are now ready to begin. Do not start without all the ingredients as I have described. Here are a couple of useful tips:

1. To prevent your hands being covered in shellac, buy a box of disposable latex gloves.
2. Make sure the area has good lighting.
3. The piece to be polished should be at a comfortable height and solidly mounted.

FRENCH POLISHING PROCESS

There are usually only three basic steps attributed to French polishing:

STEP 1A (Bodying-up) This part of the process will use the 4:1 shellac mix and the rubber or brush to quickly coat the surface.

STEP 1B (Rubbing) This is done exclusively with a rubber, the 4:1 mix, olive oil, and the ponce bag.

STEP 2 (Polishing)

STEP 3 (Spiriting-off)

Sand the surface with 320 grit paper. Wipe the surface using a piece of clean linen and methyl hydrate. What you will notice being lifted from the surface is the sanding dust that had been trapped in the pores. Now leave to dry for half an hour. The previously smooth surface now feels rough: the wood fibre ends are now standing up. Stroke the surface lightly with fresh 320 paper in the general grain direction and wipe clean with a dry cloth.

STEP 1A (BODYING-UP)

Put on a pair of disposable latex gloves (put some powder inside the gloves to reduce perspiration from your hands). Remove the conditioned rubber from the 4:1 food saver. Open the rubber partially from the back. To charge the rubber, slowly feed it with 4:1 mix, allowing the enclosed cheese cloth to soak up the shellac mix. Do not put shellac directly on the rubber face. Do not over charge the rubber, too little is better than too much.

Pass the rubber over the surface in a left to right motion like a pendulum moving about 10 inches each time. While doing this, squeeze the shellac from the rubber. Do not be concerned with what appears to be very uneven spreading of the shellac. This will disappear as the shellac builds, cover the desired area once, then wait about 15 minutes between each additional rubbing. Start with initial applications of shellac as though you were brushing it on. The main objective is to fill most of the wood pores and to build an even coat. You can also at this stage use a brush. Whichever method you choose, alternate the direction of the application with each coat, this will insure complete coverage. Mistakes such as smudging occur when the shellac becomes tacky and you stop, leaving the rubber still on the surface. Such mistakes at this stage are easily covered with the next application.

After about 4 coats, leave it to dry for 24 hours, then sand the surface smooth with a power sander or sanding block using 180 grit and finish with 320 grit. Wipe the shellac dust clear with a dry cotton rag or use a vacuum and brush. The surface is now ready for rubbing.

STEP IB (RUBBING)

The most commonly described motion for French polishing is moving the rubber in a figure 8 covering an area 8" to 10" long by 3" to 4" wide. Personally I find this motion cumbersome and more prone to smudging. I prefer a circular or oval motion that enables me to quickly change the diameter of the circle, or move from area to area. This is where you finally start the process that has eluded and challenged wood finishers since its use on fine furniture. I have read many descriptions of this technique and in almost every case the description is inadequate. Perhaps it is impossible to adequately describe and interpret this process that has so many variables. I will say from the beginning that a degree of application flexibility with pressure, shellac, and oil is required.

ARE YOU READY ?

Holding a charged rubber in your right-hand squeeze 6 drops of olive oil onto the face with your right hand and spread it over the surface (reverse for lefties). Then do the following:

1. Move the rubber lightly over the surface in 4" overlapping circles.
2. After you have covered approximately a 16" area, lift the rubber in sweeping motion and return to the starting point. This time slightly increase the pressure squeezing the rubber to allow the shellac to flow.
3. Do not stop the circular motion with the rubber on the polished surface.
4. Do not recharge the rubber until the first charge has been laid and polished dry. This can be seen by observing the surface of the rubber: it should be smooth and shiny.
5. Repeat this procedure on the next area until you have covered the complete surface.

For obvious reasons your first attempt should be on a small piece not a board room. It might help you to visualize what is happening on the surface, when you are doing it right of course. When you French polish, you are trying to create one seamless layer of shellac not layered levels like other finishes. You do this by keeping the surface in a semi-liquid state and adding more shellac. The tacky state is isolated from the rubber with olive oil which is used continually as required. The rubber will slowly level and smooth each new charge of shellac. You can see from this that excess pressure, at the wrong time can tear out previously laid shellac.

Continue the coverage with the first charge in the rubber repeatedly on the same area. You will notice that at first the rubber makes a harsh swishing sound and it is difficult to move over the surface even when additional oil is applied. Work without stopping through this stage, applying oil as required. Slowly the surface tension will change as the shellac dries. If a problem area develops, move away from it and allow it to dry. Do not stop. Do not pause with the rubber on the surface.

1B.1 Levelling a smudge.

Smudging, at this stage, is easily repaired by one of the following methods:

1. 240 wet/dry paper and olive oil.
2. Dry or wet sand with medium Scotch brite.
3. Level with pumice powder by tapping the ponce bag on the smudged area and rubbing it with the 4:1 shellac/rubber and olive oil.

The traditional method of levelling a smudge is method #3, however I only use this during the bodying-up stage, as it is helpful in quickly filling large open pores. Note these techniques as you will need all of them before you finish.

1B.2 Clouding.

You will notice as the surface begins to smooth out and the shine slowly appears that the rubber leaves a cloudy trail behind. Ignore it at this time; you will take care of it later. The cloud trail is the oil rising to the surface: some oil mixes with the shellac but most stays on the surface. When the cloud trails appear, extend the diameter of the circles, changing to an oval stroke, and eventually cover the widest part being worked. Finally make long wide strokes lifting the rubber at the end of the stroke, placing it back on the return.

1B.3 Filling grain, pores, and defects.

There are three methods used in French polishing to fill grain, pores, and defects. (Although having said that there have probably been many new filling products on the market since the invention of French polish.)

Shellac sticks.

These sticks have been used for centuries to seal official documents often with the seal of the sender pressed into it. Various dyes are added to match the wood colour. These sticks are available in various colours including clear, from various mail order and quality finishing suppliers.

There are specific tools available for this process: an electric burn-in knife, or a manual curve-bladed knife, and an alcohol lamp are the latest toys. Some of you will be familiar with the tablespoon and candle method. The handle is held over the candle flame, and the hot spoon handle is then used to melt the shellac stick.

This method is only suitable for filling small wood defects and is not practical for large areas.

Pumice and 4:1 mix.

Originally pumice was grated over the area to be filled and the shellac worked over it. This method most probably is still in use today on large pieces of dark furniture. However I always use the ponce bag: the linen will only allow the finest pumice powder to screen through.

Tap the ponce bag on the area to be filled to lightly cover it with pumice powder. Now with a freshly charged rubber begin lightly rubbing, in a circular motion, the area. You will soon notice that the shellac and pumice combine to fill the pores, although you have not yet achieved a very deep coating. Be careful to avoid drag-out. The added abrasive capability of the pumice increases this possibility. Wait at least 30 minutes before repeating the procedure on the same area.

4:1 shellac mix only.

This is my choice for most of the bodying-up process. If you wish, you can dab obvious spots using the 4:1 mix and a brush. Leave these areas to dry over night. Sand the filled areas smooth. Afterwards you can recharge the rubber and continue bodying up. All remaining flaws should now be filled.

1B.4 Drag out.

You will know it when it happens, and it will happen. This is when too much pressure is used or too much time is spent on one place: the shellac below the working surface is softened and all the polish is dragged off one spot.

There is only one fix: sand the area and feather it off over a large area.

1B.5 Preparing the surface for final finish.

How do you know you are finished bodying up? When the following has happened:

1. The entire surface has a shine and is covered in transparent clouds.
2. There are no visible pores, flaws, or scuff marks.

Assuming the above is so, wait a minimum of 24 hours, preferably longer, before moving onto the step 2, polishing. Put away the 4:1 rubber after charging it with a little methyl hydrate. Make sure you seal the top tightly. This will leave it ready for next time. By now you may have had a glimpse of the shine that is to come while bodying up. But before you can continue you must sand away any polishing swirls or surface blemishes. Sand with 240 grit wet/dry sandpaper and oil, or dry 240 grit. Sand in one direction with a flat hard sanding block.

STEP 2 (POLISHING)

The freshly sanded surface will now be dull, flat, and blemish-free. Wipe any residue from the surface. Now open the 5:1 rubber and charge it with 5:1 mix. The procedure is precisely the same as bodying up. Apply an initial covering of oil to the rubber and begin circling. Be warned however that this mix is thinner and softens the surface quicker; moreover you have a rather thick layer of shellac to tear out if you mess up. Continue with this step until you have covered the entire surface many times. The mirror-like shine should now be showing itself through the transparent clouds. The more shellac you apply, the deeper it will look. However before you apply each new charge, allow at least 30 minutes to dry.

Mistakes at this stage are very costly to repair. You must wait for the surface to dry and hope you can wet sand it out. If not, you should dry sand, using the 4:1 mix to body-up if necessary and sanding again. The rules here are if it looks like a problem is developing, leave the problem area alone and work on another area allowing it to dry, increase the circle diameter, add more oil, and lighten up on the surface pressure. All or any of the above will be used throughout the process and by now you should be beginning to understand when and what is needed during these French polishing steps, including a new arm!!!

When you are satisfied with the surface, you can begin the process of removing the oil. Recharge the 5:1 mix rubber with small quantities of methyl hydrate. Using about 8" overlapping circles move the rubber lightly over the surface until the rubber becomes dry. Finish with wide sweeping strokes. Repeat this until the oil clouds have thinned and are barely visible. Put the 5:1 rubber away in its sealed container with a small charge of methyl hydrate. Do not touch it for at least 24 hours.

STEP 3 (SPIRITING-OFF)

For those of you who cannot handle stress this may be a stage you want to miss. One week from now the remaining oil can be removed with a good quality furniture polish, but the shine will dull 25% or more.

To begin spiriting-off, remove the clean linen rubber from its sealed container and check to feel that it is still damp from your original charge. If the rubber is not charged, recharge it and put it back in the sealed container for a few hours. When you remove the rubber it should be damp.

Starting at the top of the piece and using long sweeping strokes, lower the rubber onto the surface, lifting and raising it at the end of each stroke. When you begin, the surface will go dull under the rubber; this is because the shellac surface dried with the oil still on it. Slowly the oil will be released as the surface softens. As you continue to stroke back and forth the shine will return. Continue until the oil streaks disappear. Recharge the rubber if there are still major streaks, but wait for the methyl hydrate to soak in before reuse.

There may be some small streaks that appear at the beginning and end of each stroke. Remove what you can. Do not change directions. Small smudges will vanish overnight or fade in a few days. Many projects have been sent back to square one by the over zealous chasing of smudges. You are finished for now!

In reality you are never finished. Unlike other finishes, you can always add more shellac. Even 5, 10, 15 years from now, you can dust the surface, spirit off any

furniture polish residue with methyl hydrate and add a new finished surface. There is no need to strip the surface to make a repair or restore the shine. Because this finishing technique is complex and time consuming it becomes obvious why this finish is not in common use and has been replaced by other methods. We do know however that furniture which has been French polished 200 years ago is able to be re-polished to its original splendour. No other finish can make that claim.

FRENCH POLISHING EDGES

Polishing edges, table legs, moulding and contoured areas cannot be done with the same circular motion. The same process however can be duplicated, by changing the stroke from circular to lateral. Depending on the size of the piece it may be necessary to make a small rubber. The motion is changed to left to right short strokes at first, increasing the length as it dries. The same bodying-up and polishing procedures are required and logically should be done at the same time as all flat surfaces.