PERIOD FURNITURE FINISHES

By Marion Smith

A comparatively small body of study relates to period furniture finishes when compared to the information compiled concerning the other aspects of furniture made between the late 17th century and about 1825, a time period which many experts recognize as the "Golden Age" or "Pantheon" of furniture design and craftsmanship. After about 1825 a combination of the changing of design of furniture to, for example, American Empire, Victorian and others, from the earlier period designs together with the development of mass production techniques for furniture and the decline of the guild system signaled the end of the Golden Age of furniture.

Much research has been done and much has been written concerning the furniture itself. Its dimensions, proportions, level of craftsmanship, style and local and regional eccentricities are all easily seen, measured, photographed, and wood identified. Its finish is another story, however.

Furniture finishing is the least studied and the most mysterious part our furniture history. In part the lack of study and surrounding mystery stems from the fact precious little original period finish still exist. Museum curators, furniture conservators and other experts pretty much agree that less than one percent of antique furniture has even remnants of its original finish. Additionally, much of the mystery flows from the fact that from the renaissance forward, furniture finishing and the knowledge of its materials, formulas and process was the province of a limited number of cabinetmakers, varnish makers, guilders, and other related artisans who were in in various allied guilds. Both the craftsmen and the guilds cautiously guarded their "secret "receipts, formularies and varnishes. While the Guilds were not as prevalent in America as in Great Britton and Europe, the craftsmen here were just as protective of their trade secrets as the guilds were across the Atlantic. Consequently, there is very little written material from the periods identifying either the components or the processes associated with finishing furniture, although there are some.

It is from these written records and some post-period publications that Mr. Robert D. Mussey compiled the information which he used to write several excellent articles on period furniture finish several of which appeared in Fine

Wood Working about thirty years ago.. Mr. Mussey also edited wrote an introduction to and compiled a glossary for *The Cabinet Makers Guide of 1827* which he published as *The First American Furniture Finisher's Guide.* Mr. Mussey is one of America's leading conservators and his research on period finishes is invaluable to anyone interested in the subject.

The earliest furniture finishes were essentially paint and it was used at least as far back as the Romans, Greeks and the Egyptians. The first of the clear, transparent or "white" finish materials was in all likelihood beeswax. The concept of clear finishes was not new to the 17th and 18th centuries as beeswax had been in use for centuries and varnishes had been used on musical instruments since the 1500's. Drying oils such as boiled linseed oil, walnut oil and poppy seed oil had also been in use as transparent finishes for some time prior to the advent of the "Periods". However, wax and oil finishes, while the most common finishes of the period of time being addressed, had their limitations and the craftsmen of the time were constantly trying new concoctions in order to discover the perfect finish, and in preparing this presentation I have concluded that we still are and have not found it yet.

After reviewing more than 5,000 documents and conducting more than 5 years of research concerning finishes used between the late 17th century and about 1825 Mr. Mussey wrote:

> I have formed some broad conclusions from my research; several of these have surprised me. I started out wanting to prove that shellac and French polishing were widely used during the 18th century. Instead, I discovered that French polish was not invented until about 1810, and oil and wax were the predominant finishes of the period, favored even on many high style pieces. And I found that the finish that left the shop was not mellow and glowing, but probably brilliantly colored, bright and shiny

Surface Preparation

Only very high quality or high style furniture received any significant surface preparation. The run of the mill, common furniture received very little surface preparation and the surviving pieces show plane and other tool marks; however the finer, more elaborate pieces frequently received extensive surface treatment. One publication describes a process which

includes smoothing planes followed by a variety of hooked scrapers, a vigorous rub with bundles of rushes, abrasion with solid pumice-stone lubricated with water, and then rubbing with seal skin, and lastly burnishing with rounded blocks of hard wood. The solid pumice-stone rub lubricated with water would produce slurry of wood fibers and water which would also effectively grain fill open pour wood like mahogany, walnut, etc.

By the very early 19th century grain filling materials included, among other things, plaster of Paris, powdered pumice-stone, Tripoli powder (pink or cream), glue size, etc. When clear finishes were used the stains and other coloring used in the filler would frequently fade and leave white specks in the filled pours. An earlier graining filling technique involved abrading the surface with a flat solid pumice-stone block lubricated with linseed oil. The slurry of oil and wood dust would fill the pours and cure hard and look very much like the wood itself. After drying the excess was removed with a scraper. This procedure was not without its problems as the linseed oil would eventually darken and leave black specks and a darkened and often nearly opaque finish.

Coloring

During the 18th century craftsmen were experimenting with many substances in an effort to obtain pigments, dyes and other coloring agents which would be permanent. They were certainly no more successful than modern craftsmen and manufacturers of coloring agents. One 18thcentury craftsman complained that the colors "flee with the light". Could their colors have faded any faster than do modern water based aniline dyes when exposed to sunlight? Yes.

A look at some of the materials used as colorants will provide insight into not only why the colors faded but why the finish used over the colorants failed so frequently. Materials such as logwood, indigo, oak bark, walnut bark, walnut husk, brazilwood powder, dragon's blood, barberry root, iron files soaked in vinegar, extract from a Canary Island lichen and on and on with literally hundreds of items used in a near infinite number of combinations. Many of the coloring compounds contained or were treated with such things as vinegar, urine, wine, quick lime, sulphuric acid, muriatic acid and nitric acid among other corrosive materials. The use of these corrosive materials and the inhospitable surface they created at least in part

explains why so little of the original finishes survived. They were essentially destroyed from within.

One of the attachments contains explanations of several stains and dyes. In one of his articles Mr. Mussey explains that he reproduced a number of the period coloring agents and that they were quite intense and unsuited for the present day taste. The colors which resulted were not the mellow, soft tones we associate with our antique furniture. The resulting colors were bright bold and flashy. It appears that time, light and perhaps the inhospitable environment created by harsh chemicals used in producing the coloring agents have produced the hues we have come to love.

Thomas Sheridan, in his 1803 *Cabinet Dictionary* states, "The art of staining wood was more in use at the time when inlaying was in fashion, and Mr. Mussey states, "There is strong documentary evidence that staining of furniture before finishing was much less common in the 18th century that we assume." He further indicates that the thousands of 18th century documents he has reviewed infrequently mention staining or the staining materials.

The Finishes

After the surface preparation was completed it was time to apply the selected finish coat. Finish coatings fall into four general categories; oils, waxes, varnishes and combinations of these.

The craftsmen, finishers and writers have a long list of qualities they found desirable in finishing materials. The wood should be preserved and colorfast. The finish should be hard, shiny, flexible, neither yellow nor darken, neither crack nor turn white when exposed to water, also be resistant to alcohol, and stand up to a lifetime of heavy use - pretty much the same qualities that are sought after today. Even with their vast array of formulae the 18th century search for the perfect finish was no more successful than today's efforts.

1. Oil

By the beginning of the 18th century craftsmen had for centuries known that certain vegetable, nut and seed oils would both help preserve wood and create a pleasing somewhat shiny finish. Linseed oil (flax seed oil) was the

most common of these oils because it was widely available and cheap. In its natural state linseed oil lacked clarity and when heated to improve its "drying" qualities (curing, polymerization or crosslinking) it would darken and continuing darkening in the presence of the air until it became nearly black. Both walnut oil and poppy seed oils were better behaved with greater clarity and did not darken with age. They were, however, expensive and far less plentiful than linseed oil. All of the oils had their short comings as they were not durable, waterproof or alcohol proof. A linseed oil finish was, however, easily repairable, just wipe on some more linseed oil. Despite its shortcomings linseed oil was widely used as a furniture finish in both England and America. Unlike the more exotic materials imported from or through England, in America linseed oil was readily available, locally produced, free from English tariffs and thus cheap. In fact, after reviewing several hundred furniture forms in influential trade price-books from both England and America, Mr. Mussey concludes that the only "quoted" finish prices are for finishing and polishing with linseed oil.

One significant distention between early linseed oil and that produced today is that lead salts (white lead and red lead) were used as drying agents or siccative to speed up the curing process from 1-4 weeks to one day. Today metal salts not involving lead, cobalt and other dangerous metals are used for this purpose.

The application of oil finishes has changed little in the past 250 years. Apply the oil with a brush or rag and let it sit for an hour or so. Then wipe of the excess and let it stand overnight. Continue this process until it no longer absorbs the oil and then let the piece stand while the oil cures.

Like all of the finishing materials and techniques, approaches to oil finishing varied. Sheridan's *Cabinet Dictionary* contains a description of the use of brick dust and linseed oil, either uncolored or colored red with alkanet root to polish mahogany. The paste of oil and brick dust is rubbed on the surface until it is warmed. The surface is then cleared with wheat straw leaving a bright surface. To add color to mahogany he recommends coloring the oil with alkanet root, dragon's blood or rose pink.

2. Wax

Like linseed oil, wax was easy to use, available in large quantities and cheap. In New England bee culture had become so advanced that it was a

virtual art form. The beeswax was produced and refined locally and thus not subject to import duties. And, while there were other natural waxes beeswax had long been favored as a wood finish, waterproof caulking for boats, final moisture barrier for varnish, flattening agent etc. Beeswax is the most oxidation resistant finish material to date used on furniture as evidenced by a modern day analysis of beeswax found on a Punic warship which revealed that the wax was chemically unchanged after 2000 years.

Like most finishing products the craftsmen developed a variety of method to apply and polish it. The most basic process was to repeatedly apply beeswax, either pure or softened with turpentine and buff each application with a soft cloth. One early formula for creating a wax finish was "once a day for a week, once a week for a month and once a month for a year". That amounts to 23 applications in a little over one year.

Sheraton presents more than one method of finishing with wax. First he describes a procedure by which the wax is rubbed hard with cork and then brick dust is sifted through a stocking and buffed until it clears away. For another approach he is to softens the wax with turpentine and adds a little ocher and a little copal varnish, lets it cool and applies the mixture with a stiff brush and buffs with a soft cloth.

An approach to waxing used by the French was described by Mr. Mussey based upon the description contained in Andre Jacques Roubo's *The Art of the Woodworker* published in Paris between 1769 and 1774, a portion of which is contained in the attachment titled "French polishing with wax"

Wax, like oil, has its limitations. It is soft, it is easily smudged and it does not resist wear. On the other hand wax finishes are easily renewed and repaired with the application of more wax and buffing.

3. Varnish

Varnishes are solvent solutions of resins and gums that dry or cure to form a thin, tough, glossy film on the surface of wood. In the 17^{th}, 18^{th} and 19^{th} centuries alcohol and a variety of vegetable oils such as linseed oil, walnut oil and poppy seed oil were the common solvents .Natural resins harvested from a wide range of plants, insect secretions or mined from fossilized vegetable material such as amber were the primary component of most varnishes. Natural gums were used in small quantities as plasticizers in

order to make the resins flexible enough not to crack or craze from the natural seasonal expansion and contraction of the wood.

There are many types and formulations of varnish. They fall into two broad categories under today's system of categorization. The simplest type of varnish is classified as spirit varnish. The spirit varnishes were composed of resins and gums dissolved typically in spirits of wine (alcohol) much the same as we prepare today's shellac. In fact, in the 18th and early 19th centuries our modern day shellac would be considered a spirit varnish. The second category is fixed oil varnishes. Fixed oil varnishes are a solution of resins, gums and a curing oil such as linseed oil, walnut oil or poppy seed oil. These varnishes cure by a process of chemical change as well as solvent evaporation and form complex tough films made up of a mixture of resins and oxidized oils.

Spirit Varnishes

Spirit solvent varnishes were once the predominate varnish used in finishing furniture. These varnishes could produce nearly transparent finishes that were both inexpensive and easy to make. Because they used alcohol as the solvent successive coats could be applied shortly after the prior coat permitting the rapid build of the finish. Spirit varnishes did, however, have drawbacks. They are brittle and cracked, are not waterproof and are easily damaged by both alcohol and heat. Furthermore, absent very careful formulation the varnish could not be effectively polished, which was an important final step in 18th and 19th varnish application.

"Spirits of wine" was the primary solvent in 18th century spirit varnishes. Unfortunately, the distillation process was not exacting with the result that solvent alcohol was very impure, perhaps as much as fifty percent water. There were ways to improve the purity of the solvent. One method was to repeatedly distill the solvent using a *bain-marie*, a sort of glass double-boiler. This could produce quite pure spirits. Another method was to add potassium carbonate (salts-of-tarter) or potash to the alcohol to absorb at least some of the water. This process of tartarization did have the effect of increasing the strength of the solvent.

There were a number of tests which could verify the purity of the solvent but the most amusing was to half fill a spoon with gunpowder and cover it with the solvent and set it on fire. If the solvent was pure the powder would ignite, but if it contained excessive water it would not.

In making spirit varnishes the cabinetmaker sought the clearest lightest resin materials free from debris and impurities. Of the many resins available sandarac was the most sought after. The resins were granulated or powdered in a mortar (an electric coffee grinder works quite well) and placed in a covered glass jar to dissolve. Periodically shaking the jar assisted is the dissolving process. In some instances, to both speed –up the process and effect a more complete dissolution of the resin, the solution was heated in a sand bath. Hot alcohol fumes around an open fire sounds like the work assigned to an apprentice. This was a dangerous process and explosion, fire and serious injury were not uncommon to the varnishes trade.

Until about 1820 spirit varnishes, including shellac were applied only with brushes and were thinned and warmed to allow them to both flow and rapidly dry. The method of rubbing on spirit varnishes known as French polishing was first written of in the 1818 printing of the London edition of T*he Cabinet-Makers Guide,* and it was not until the 1827 printing of the American version of The *Cabinet-Makers Guide* that French polishing was brought to America The Guide gives seven formulas for spirit varnishes which may be French Polished and none is exclusively shellac. One of the formulas referred to as the "True French Polish" contains one pint of spirits of wine, ¼ oz. gum copal, ¼ oz. gum arabic, 1 oz. shellac. According to Mr. Mussey this formula remained in use up to and including the 1920's and several museums use a French polish based upon this formula. The Guide recommends a final application of ½ pint spirits of wine, 2 oz. gum benzoin, ½ oz. gum sandarac..

The method described in the guide is very similar to the methods used today. Fine Wood Working has two excellent articles on French polishing. One is at FWW # 20 P.66 and the other is FWW # 217 P. 64.

Fixed Oil Varnish

Fixed oil varnishes consist of drying oil, linseed, walnut or poppy seed, and one or more oil soluble resins dissolved in the oil. Appropriate resins consist of copal, amber, rosin, damar and anime. Copal and amber were the

hardest resins known and the most difficult to dissolve but produced hard lustrous finished and were much in demand. To produce these varnishes the resins were heated to a very high temperature, 300-400 degrees F., until they "ran" (liquefied). The heated resins were incorporated into heated oil where it would now dissolve and a hot solvent, usually turpentine, was added and the whole concoction was heated further and when cooled it was considered ready for use.

Copal varnishes were considered superior to other fixed oil varnishes because they were extremely clear and colorless when initially applied,. They were much harder and more durable than spirit varnishes. They could be rubbed to a high polish and they were waterproof. Sadly, however, the process of treating the resin with high heat or tartarization to dissolve it in the oils contributed to both its rapid deterioration and darkening. It is unlikely that any significant amount of these varnishes survive on antique furniture today.

In 1776 with the publication in England of the "Genuine Receipt for Making Famous Vernis Martins" the English and soon after the American workers had available to them the receipt for Europe's most famous varnish. The Martin family of Paris had spent two generations perfecting their varnish. It was said to possess the most brilliance, clarity and durability and it was waterproof and crack free .The formula is attached.

Varnish Polishing

The Receipt for Making the Famous Vernis Martin contains a lengthily and labor intensive description of how to apply the varnish. Essentially, six coats are applied with a brush. Then the surface is rubbed with a damp course cloth dipped in ground pumice. The surface is cleaned and another 6-12 coats of varnish are applied as before. After the additional varnish is applied the surface is again rubbed with pumice and then with fine emery powder until the surface is smooth as glass. Following emery powder is a rotten stone rub and that is followed by olive oil and flower and lastly by a dry flannel cloth and flower. This process is said to produce luster as though the wood was under a glass.

The basics of this polishing process are by no means uncommon. Both the British and the Americans polished varnish finishes, including shellac, after they had dried. The surface was lubricated with oil or water and a wide

variety of abrasives were used to bring the surface to a highly polished state. None of the receipts or formulations contains any substance that could be considered a flattening agent. Flat, semi-gloss or rubbed- finishes were not desired in the 18th or early 19th centuries. They wanted a perfectly flat, high luster surface which they considered as illustrating the finest craftsmanship which was highly sought after by those who could afford it.

Sources

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Stains and dyes from *The Cabinetmaker's Guide*

I reformulate original stain and dye recipes to determine what the original colors were like. But I use alcohol soluble anilines for restoration or conservation work because they dry quickly, don't penetrate as deeply or rapidly as water soluble anilines, and because they are reasonably lightfast—I want my conservation to last more than ten years.

One of the first principles of conservation is to make any repair reversible, so it can be redone if a better technique is discovered. Original colors are dramatic, and not yet completely accepted for conservation, so when I color a piece I put down a barrier coat first, then color the finish that goes over it. The stain has not soaked into the wood so the coloring is reversible. On new work, the choice of color is my own; furniture makers have much more freedom than conservators. I think original colors will become acceptable for furniture conservation, used where appropriate to show people what the maker saw when he had completed the piece.

These recipes are from *The Cabinetmaker's Guide:*

Red dye. Take 2 pounds of genuine brazildust, add four gallons of water, put in as many veneers as the liquid will cover, boil them for 3 hours; then add 2 ounces of alum, and 2 ounces of aquafortis, and keep it lukewarm until it has struck through.

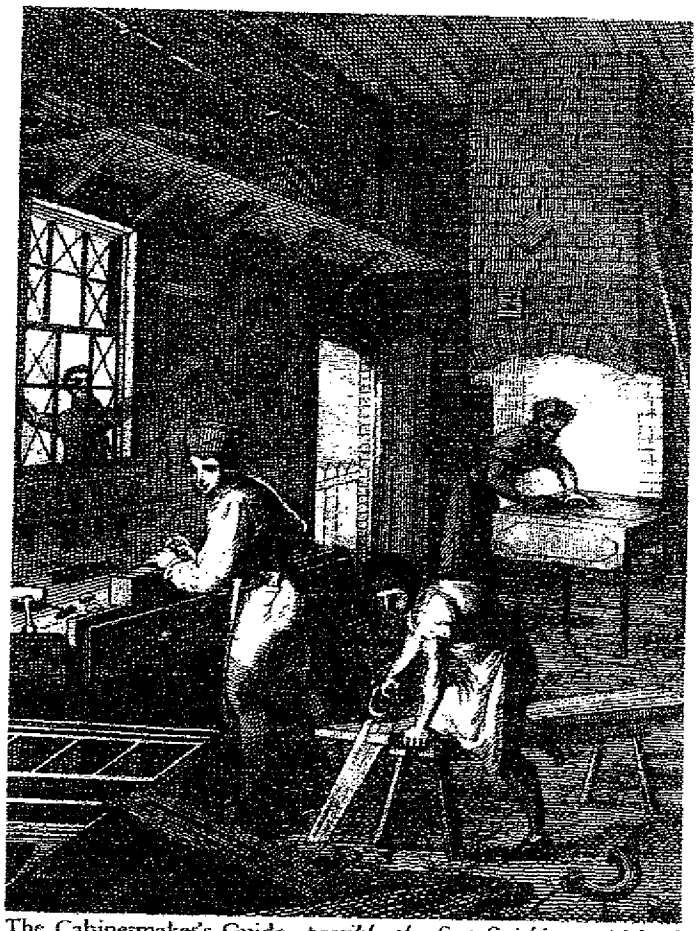
Brazildust: dust of brazilwood, *Caesalpinia echinata*, gives a very bright red dye. It was such an important item of commerce that the country was named after the tree. Aquafortis is nitric acid, reagent grade concentration.

Fine blue. Take a pound of oil of vitriol in a clean glass phial into which put four oz. of indigo, and proceed as before directed in dyeing.

This dye, and others for similarly unusual colors, would have been used for marquetry or by musical-instrument makers. Oil of vitriol is sulphuric acid.

To stain beech a mahogany color take 2 ounces of dragon's blood, break it into pieces and put it into a quart of rectified spirits of wine; let the bottle stand in a warm place, shake it frequently, and when dissolved it is fit for use.

Dragon's blood has been used for centuries, it is a dark, red resinous exudation from the fruit of the rattan palm, *Calamus drago*. Spirits of wine is alcohol distilled from wine; rectified means purified. Ethyl alcohol or shellac thinner from a paint store is the same thing. My reformulation of this stain came out a very bright red. Dragon's blood, when compared to other reds, is fairly lightfast. If you stain the wood directly, it is fugitive; but if you dye shellac with it, it is much less so, because the shellac locks the color in.



The Cabinetmaker's Guide, *possibly the first finishing guidebook printed in America, was a workshop standby throughout the 19th century. It hasn't been reprinted recently but may be available in major libraries. Note the worker polishing a tabletop by the fire, which is a good way to keep the wax flowing freely.*

Another method for black stain. Take one pound of logwood, boil it in two quarts of water, add a double handful of walnut peeling. Boil it up again, take out chips, add a pint of the best vinegar and it will be fit for use; apply it boiling hot. Note—This will be much improved if, after it is dry, we take a solution of green copperas dissolved in water, in the proportion of an ounce to a quart, and apply it hot to the above.

Logwood was an important dyestuff from *Haematoxylum campechianum*, a tree found in Central America and the West Indies. It gives a range of colors from red to purple to black and was used as dust, shavings or chips.

I have obtained materials for these and other recipes from the following firms: H. Behlen and Bros., Rt. 30 N., Amsterdam, N.Y. 12010; Laurence McFadden Co., 7430 State Rd., Philadelphia, Pa. 19136; A.F. Suter and Co. Ltd., Swan Wharf, 60 Dace Road, Bow, London E3, England; James B. Day Co., Day Lane, Carpentersville, Ill. 60110.

For further information: *The Artist's Handbook of Materials and Techniques*, Ralph Mayer, Viking, New York, rev. ed., 1982. *Painting Materials, A short encyclopedia*, Rutherford Gettens and George Stout, Dover, 1966. *R.D.M.*

French polishing with wax

Andre Jacques Roubo's *The Art of the Woodworker* was published in Paris between 1769 and 1774. Although it's out of print this excellent book is available in French at major libraries. Roubo, a master craftsman, set down detailed accounts of carpentry, carriagemaking and furnituremaking, illustrated with hundreds of engravings. This plate shows the methods, materials and tools used in finishing the finest veneered furniture, called *ébénisterie*.

Figures 1 and 2: Preparing the surface. A finely set toothing plane worked diagonally across the grain as indicated by the lines would not disturb the veneer fibers or joints. Planing as in *figure 2* is cautioned against because it will probably break the joint.

Figures 3, 4 and 5: Scrapers, shown here, followed the planes, worked in the same fashion or as indicated in *figures 14 and 15*.

Figure 6: Sharkskin, or "dogfish" skin, was used as an abrasive. For fine veneered work, the fins or "ears of dogfish skin" were recommended, also worked across the grain.

Figure 7: After planing and scraping, abrading with sharkskin or *prêle* (horsetail, a species of rush with corrugated stems) polished away the remaining fine scratches on the veneer.

Figures 8 and 9: The polisher, a bundle of ordinary rush, was bound tightly, dipped in hot wax which rose into the stems, allowed to cool and rubbed over the veneer.

Figures 10, 11 and 12: Polishing sticks, small strips of walnut or other finely grained wood, were shaped to various sizes and used to push wax into areas too small for the polisher or on moldings with delicate arrises.

Figure 13: A finisher forces wax into the grain of a veneered panel with the rush polisher. —R.D.M.

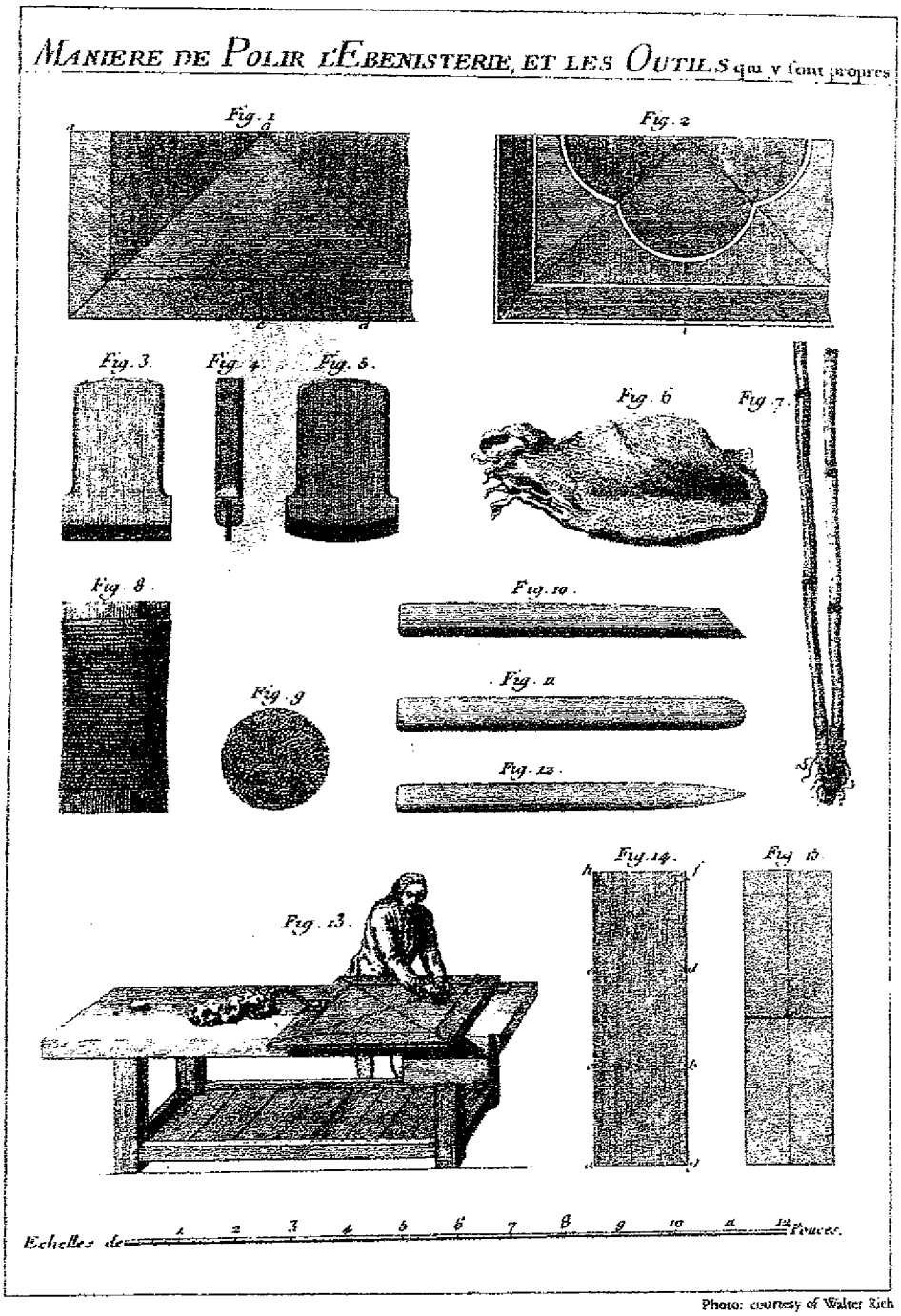


Photo: courtesy of Walter Rich

18th-century varnish resins

Here is a list of common alcohol-soluble resins used in 18th- and 19th-century varnishes. It is possible to buy some of these in small quantities, although resins other than shellac can be expensive. H. Behlen and Bros., Rt. 30 N., Amsterdam, N.Y. 12010, carries copal and a range of shellacs. A.F. Suter and Co. Ltd., Swan Wharf, 60 Dace Rd., Bow, London E3, England, stocks most of these resins.

Benzoin: Often called "benjamin," benzoin is derived from the tree *Styrax benzoin*, of Borneo and Sumatra. Used in many 16th- and 17th-century spirit varnishes it was later added as a plasticizer, or for its pleasant smell. Today it is used as a final glaze over French polish to impart gloss.

Turpentine: Called "rosin" in Colonial America, turpentine is the resin obtained from the gum (sap) of fir, balsam, pine, larch, spruce, or other conifers. It was used in inferior spirit varnishes in several forms, including chio turpentine from Mediterranean pines, Strasburgh turpentine from the German fir tree *Abies excelsa*, venice turpentine from the European larch tree, and rosin (also called colophony), the resin of various species of American pine tree.

Sandarac: From the North African conifer *Calitris quadrivalvis*, this brittle resin was often called gum juniper.

Elemi: Also called allemy, any of a large number of resins from the *Burseraceae* family of trees. A softer resin, it was added to varnishes for toughness and flexibility.

Mastic: This soft resin makes a perfectly clear varnish. It is exuded by the Mediterranean tree *Pistacia lentiscus*.

Copal: A tremendous variety of resins, some hard, some soft, are called copal. The hard copals, African, and probably of fossil origin, were highly valued, and insoluble in alcohol. A widely used soft copal, largely soluble in alcohol, was derived from the common American sumac *Rhus copallinum*.

Anime: No one seems to know what resin this actually was. Possibly it was a spirit-soluble soft copal and may have come from the Zanzibar tree *Trachylobium mossambicense*.

Shellac: The best known of the three resins exuded by insects, shellac is deposited on branches and twigs by the insect *Coccus lacca*, which feeds on the sap of the tree. The natural grades are reddish, the finer grades are bleached white and used to produce a hard but flexible spirit varnish. —*R.D.M.*

GENUINE RECEIPT

FOR MAKING THE FAMOUS

VERNIS MARTIN

After the melting pot is warmed, we pour into it four ounces of chio or cyprus turpentine; we let it dissolve till it is fluid, then pour to that eight ounces of amber finely bruised and sifted; mixing it well with the fluid turpentine, and then we set it on the fire for a quarter of an hour. After that time, we take off the pot, and gently pour into it a pound of copal bruised fine, but not to a powder; these we stir well together, and to these we add four ounces more of the chio turpentine just mentioned, and a gill [4 fl. oz.] of warm turpentine oil; set it again on the fire, blowing it rather more briskly.

When it hath stood on the fire about half an hour, we take it off, uncover the pot, and stir the whole well together, adding as we stir, two ounces of the finest and whitest colophony. We then set it again on the fire, blowing more briskly than before, and let it remain till the whole is dissolved and fluid as water. This done we take off the pot, remove it...and let it stand a few minutes....Having now twenty-four ounces of poppy, nut or linseed oil, made drying, ready at hand, we pour it into the dissolved gums, by degrees, boiling hot...and stir the whole well together with a long stick....When we have thoroughly incorporated the fluid gum and oil, we set them over the fire a few minutes till the whole boils once up, then we take it off, carry it to some distance, and pour into it a quart of turpentine made hot over the second fire. All these we stir well together, and give them one boil up, then take it off again, and again pour into it a pint more of turpentine made hot....

If the gums are thoroughly melted, and have incorporated well, the varnish is made.

This recipe, like others of the period, uses the terms gum and resin almost interchangeably. No true gums are used here, and they appear only in small quantities, as plasticizers, in other recipes. It goes almost without saying that the process as described here was extremely dangerous.