

THE VARNISHED ICON

A Historical Survey of Icon Varnishes

Ivan Bentchev

Icon Conservation in Europe, Valamo 1999 pp. 64-88
nemskata versija pak tam, bez ilustracii, pp. 48-63

The term "varnish" – Gr. *verniki, vernikono*; Lat. *verniton, vernicon* (Theophilus Presbyter); *vernix* (Heraclius); Ger. *Firnis*; Fr. *vernix*; It. *vernice*; Bulg. *verniki, lustr* – refers simply to a more or less glossy lacquer coating.¹

With reference to icon painting we are concerned here exclusively with oil varnishes with a linseed oil base.² With good reason the Russians use the term *olifa* to refer to icon varnish, based on the Greek word meaning "boiled oil." Hempseed oil, walnut oil and poppyseed oil seem to have been rarely used. The artistic use of an oil, in this case walnut oil, was first mentioned by the Byzantine physician Aetios in the 6th century A.D. It was useful to gilders and encaustic painters because it preserved and protected the paint.³

The first varnish was a yellowish gold lacquer made of hot linseed oil, vegetable gum and yellow pigment. Published in the Lucca MS at the end of the 8th century A.D., it was used to make tinfoil look like gold. The Strasbourg MS and the *Hermeneia* of Dionysios (18th century) recorded the same gold-colored lacquer used as an imitation varnish, referring to it as *goldvarwe* and *golivarbe alamanine*, respectively. Thus it seems that we have historical evidence for the use of at least one varnish in icon painting for over 1000 years. This insight allows us to draw the conclusion that even varnishes used on very late icons may have a very old origin. Theophilus (ca. 1125) described a linseed oil varnish with gum arabic. Both are brought to a boil: "Every painting covered by this varnish becomes brilliant, majestic and very durable."⁴

Medieval icon painters appear to have valued a glossy and long-lasting varnish. It should dry quickly and be mostly colorless. What means was used in an effort to achieve these qualities? Antiquity was familiar with the process of thickening oil in the sun. In the 4th century Marcellus described a process of heating with a lead siccative. The next mention of siccatives comes in 12th- and 13th-century copies of the Heraclius MS, when oil painting began to become more significant. The fact that we have to wait this long does not mean that this knowledge had disappeared in the meanwhile.

This is not the place to go deeper into the history of the usage of varnishes; a special conference would be needed for this topic alone. However, I have gathered together the most important historical methods in several sketches and tables – first for the preparation of oil lacquers and then for the varnishes themselves. Let's turn first to oil. We should distinguish between purification and thickening of oil. Letting the oil stand for a longer period of time results in the settling out of all of its impurities. The vessels should be airtight in order to avoid oxidation. In German, oil lacquer prepared in this way is called *Standöl*.

The *Hermeneia* of Dionysios describes this process under the misleading heading "The Boiling of *Peseri*": Linseed oil was allowed to settle in the sun for 40 days in summer until it had the consistency of honey.⁵

Bleaching of oil in the sun is mentioned in two Bulgarian handbooks written after 1834 that have been edited by Vasiliev: the *Hermeneia* of Dičo Zograph²⁹ and the *Hermeneia* of Zacharij Petrovič.⁶ Petrovič recommends mixing linseed oil and olive oil or raw linseed oil in proportions of 4:1, plus a little bit of *raki*, allowing this mixture to stand in a sealed bottle for 10 days in the sun, and shaking it every day until the varnish turns "white."⁷ Antiquity was familiar with placing oils in open vessels in the sun. Polymerization and oxidation caused these oils to thicken, and stirring them from time to time prevented the formation of a film. This process contributed to the purification of these oils, as the watery components evaporated and the viscous materials settled to the bottom. Sun-bleached oils dried more rapidly than stand oils produced by other methods. Although this method was in common use throughout Europe, there were also other ways of obtaining oil lacquers. In the East, in the Balkan region and in traditional Russian icon painting linseed oil was generally brought to a boil over fire. Petrovič's *Hermeneia* of 1834 recommends that the oil "be boiled until it foams up, then add alum [so-called *Rasierstein*, which is a double salt consisting of calcium and aluminum sulfate, as a siccative, I.B.], so that the foam disappears. The Muscovites add lead white [as a siccative, I.B.], others add three onions and three garlic cloves, and when it stops foaming, they cover the vessel with a lid. As soon as the onions turns red, they remove the oil from the fire."⁸

The Bologna and Tegernsee MSS recommend using garlic and onion to remove the oil from the water.⁹ We read in the Bologna MS, which is the first to mention distilled linseed oil, that in order to obtain *vernice liquida*, the oil should be boiled with burnt and powdered alum and be mixed with red lead ("minium"), or linseed or olive oil should be absorbed with garlic.¹⁰

For whatever reasons, throughout Russia linseed oil from northern Russia was considered to be the best. Linseed oil from southern Russia was less favored. In Russia linseed oil was purified by allowing it to stand. In sunny Greece, on the other hand, it was allowed to stand for months in well-sealed vessels. From time to time the top, purer layer was decanted until the linseed oil was translucent and thickened. Thus, in Russia purified stand oil was also used, but owing to the climate the oil was not bleached in the sun. Sometimes the linseed oil was first boiled in open pots on the riverbank where there was no dust. The icon painters from Palech, on the other hand, allowed the linoleum to stand in well-sealed ceramic vessels for at least six months on a warm oven.

In the West, however, by 1100 linseed oil had already replaced the slow-drying walnut oil. The *Vita Ottonis* tells us that cicinun oil was in use as a siccative. Another oil varnish seems to have been adopted from Byzantium, for Heraclius calls it "*colla Greca*"¹¹, as Theophilus states in general in his treatise that he

intends to treat the paints which are commonly used in Greece. Unfortunately, the earliest Greek handbook on painting that we have, the *Hermeneia* of Dionysios, is now known to be an 18th-century compilation. Albert Ilg has shown that linseed oil is referred to in this manuscript in numerous rather grotesque Germanisms: *linelaion* (Old High German: *linolei*) is translated as *linele*. It may be relevant to note that this appears in Chapter 51 in a discussion of Cretan icon painting technique, where the text contains an explicit reference to the fact that the gray hair of old men is painted with *linum* (linseed oil binding). *Golivarbe alamanine* is the equivalent of the German *Goldfarbe*. This is Theophilus' *aureola*, the yellow-colored oil varnish on silver leaf.¹² The *Hermeneia* mentions it in connection with the Venetian painters, who are said to have used this "varnish" instead of gold leaf. Dionysios does not go into this subject any further, and it seems that he had no first-hand knowledge of this varnish. In the *Hermeneia*, where we find five recipes for oil varnishes and oil siccatives, linseed oil is called *peseri*. *Peseri* is the Turkish word for linseed oil. Unfortunately, the German translator did not comment on this word. All things considered, today only polyglots can understand this old terminology. Many Germanisms, Italianisms, Turkisms, etc., which are difficult to understand today, are also found in the Bulgarian *Hermeneias*. The *Hermeneia* of Dionysios assumes that linseed oil is used as a binder for oil paints on linen icons. Walnut oil is specifically prescribed only for lead white.¹³ Siccatives are not mentioned even once. Fir resins or fir pitch is mentioned as being used for varnishes, not only to enhance the gloss, but also to promote drying. This kind of resin is called *pegula*, which is brought over a boil on a fire.¹⁴ The *peseri* varnish consists of 100 parts of sun-cooked linseed oil and 75 parts fir resin, thinned with naphtha.¹⁵ In the same chapter the following "excellent" varnish is described. Instead of fir resin alone, the painter should take mastic and fir resin in proportions of 1:2 by weight. In Chapter 32 a sandarac resin varnish is described (the German translator speaks erroneously of sandalwood). This varnish is boiled over a fire with linseed oil and naphtha. The naphtha varnish described in Chapter 32 is similar to that described in Chapter 31. Chapter 34 gives a yellow varnish for leaf silver overlays. It is made of sun-cooked linseed oil and yellow-colored aloe resin, called *sarisabri* (from the Turkish *sarisabur* for aloe resin). Here, too, naphtha – purified petroleum distillate – serves as a thinner. Finally, Chapter 35 includes a rapidly drying varnish of strong *raki* with sandarac (called *sandalosa*, as the recipe is almost certain to be of Italian origin) and linseed oil in proportions of 2:1. The author says repeatedly that icons should be pre-warmed in the sun or at the fire if they are to be varnished. This is what the Greek *Hermeneia* have to say about varnishes.

The oils were actually purified when they were heated to 120°-160°C, but there was a risk of browning at higher temperatures, especially when heated for a lengthy period of time. Linoleic acids are formed which are responsible for the yellow-brown color of the oil varnish. In general, walnut oil darkens significantly, linseed oil less, and poppy seed oil least, whereby the opposite tendency is observed in shrinkage. It was noticed at an early time that linseed oil is best. The later darkening to a brownish red color and the tears in the oil varnishes are primarily caused by the excessive application of siccatives, especially

during the 19th century. Here, the use of certain Ca, Zn, Pb, Cu and Mg compounds caused the varnishes to dry too quickly. Heraclius knew what he was saying when he recommended adding lime and lead white to boiling oil and then letting the varnish sit in the sun as long as possible.¹⁶ This varnish was supposed to add gloss to metallic paints. Today we know that lead varnishes have a strong tendency to yellow over time, while manganese varnishes (those with manganous copper) even turn reddish brown. As far as the formation of shrinkage tears are concerned, today every student knows that the more siccatives is applied, the more tears will result, sooner or later – and inevitably. The second point is that a varnish layer that is applied too thickly will sooner or later be transformed into an elephant skin. Because the Russian method was to spread the *olifa* by hand from the middle toward the outside of the surface, the varnish layer is very frequently especially thick at the edge, and that is where shrinkage tears are formed.

Every icon restorer knows today that many old varnishes can be chemically removed without causing any damage to the paint layer, and that in other cases it is extremely difficult to remove some kinds of varnish. In between there is a broad spectrum of cases, some of which are successful, some of which are enough to drive a restorer to despair. Obviously this difference has a lot to do with the various varnish compositions. Of course, a number of other factors, including the age of the varnish, and such external factors as where the icon is placed, the effect of heat (for example, varnish surfaces that are singed by candles), darkness or sunlight, dampness, additional layers of oil and/or varnish, etc., play an important role. Consideration should be given to the distinction between warm- and cold-pressed oils¹⁷, boiled and unboiled varnishes, varnishes that are applied warm or cold, and the various combinations of these alternatives.

Nevertheless it can be said that in general the successful removal of varnish from 18th- and 19th-century Greek and Balkan icons with the help of solvents is much easier and simpler than removing the varnishes of later Russian icons. Here I am referring to the professional mass-production of the Old Believer and Palech icon painters. For this reason it is useful to take a look at the 19th-century icon varnish recipes. Right at the outset we should note that there is a large difference between the practices of the Russian icon painters and those of the Balkan artists.

We turn first to the traditional Russian varnish. The varnish of the leading icon painter of the tsars, Simon Ušakov (after 1650), which he called *olifa*, consists of three parts linseed oil and 1.5 parts mastic. The Russians produced a resin and oil varnish by dissolving natural resin in heated linseed oil, or by mixing resin dissolved in turpentine oil¹⁸ with purified stand oil. Since the 17th century, northern Russian icon painters typically added colophony to resin, which unfortunately led to substantial tearing and browning. I have often found undissolved colophony particles in the brown varnish layers of northern Russian icons. These particles are problematic, particularly since they are distributed over the whole surface of the icon.¹⁹ The Russian varnishing methods have



Fig. 2. The collar of the prophet on a Bulgarian icon from the 1840's.

The Bulgarian sources identify some varnishes specifically as "fine Zograph varnishes". Here they are referring to translucent paint lacquers that were known by the Turkish word *murakap*, meaning "ink".²⁴ These can be found, for example, on the collar of the prophet Elisha on a Bulgarian icon from the 1840's (Fig. 2) and on a Bulgarian mandylion icon dated at between 1830–1840 (Fig. 3). The paint lacquers consist of colored stains which, according to Petrović, are blended with the finest boiled linseed oil (normally with resin and siccativ additives). Among these is a "varnish that makes silver turn yellow" that is made of three different natural resins dissolved in naphtha²⁵ and a reddish amber varnish, colored with two vegetable dyes: red *pterocarpus* bark and saffron, dissolved in *raki*. Saffron was mentioned as early as ca. 1300 in a French manuscript as a pigment in an oil varnish (*vermix liquida*). Its use has actually been documented in the oil and tempera paintings in the St. Stephen Chapel in Ely (England), where it was used in the gold lacquer coatings of the gilding. An oil varnish was used there as a finishing varnish. Petrović expressly mentions an oil and resin varnish (which certainly included a siccativ additive) for a series of pigments of which he believed that they would not dry in pure linseed oil.²⁶ In addition he also describes not only a straightforward oil technique, but a sort of dispersion.²⁷



Fig. 3. A Bulgarian mandylion icon dated between 1830–1840.



Fig. 4. The sgraffito technique in a robe ornament on a Ukrainian icon around 1800.

Let me now say a few words about the intermediate varnishes. To begin with, there is a lacquer that we can call an intermediate varnish which the icon painters applied to metal surfaces. After tempera, oil or oil resin paint is applied to the surface, the artists scratch out the ornaments. This *sgraffito* technique is exemplified in a robe ornament on a Ukrainian icon around 1800 (Fig. 4).



Fig. 5. Note the original darkened intermediate varnish on the outside red strip on the Greek icon Descent of the Holy Spirit, ca. 1800.

This intermediate varnish had the sole purpose of protecting thin gold or silver applications. In addition, working with this technique was easier. However, Petrović writes that certain colors absolutely had to be covered with a mixture of turpentine oil and naphtha (very likely also with a varnish made of linseed oil and resin) before the final varnish was applied. He lists green, red (probably red cinnabar) and indigo.²⁶ In my opinion, this is an ancient and very important piece of information. We always have to expect partial intermediate varnishes on old and late icons. I have seen an especially tough, darkened intermediate varnish on Greek (Fig. 5: Descent of the Holy Ghost, ca. 1800; note the original intermediate varnish on the red outside strip) as well as on Russian icons, often on robes and inscriptions that are painted in red cinnabar or on ground areas that contain auripigment and indigo.²⁸

Both Bulgarian painters distinguish in their part and finishing varnishes expressly between alcohol varnishes (a total of ten recipes) and linseed oil varnishes (only six). The alcohol varnishes seem to have been preferred. They consist of a various mixtures of high-grade alcohol and turpentine oil with a large variety of natural resins: sandarac, Venetian turpentine, resins from various conifers, mastic, gum arabic, gum elemi, and amber. Sandarac, which is soluble only in alcohol, was frequently mentioned in this context. Its resistance, which is often encountered in German "intermediate varnishes," was probably well-known at the time. Dičo Zograph recommends the following ingredients for the customary alcohol varnish: 50 parts sandarac, 30 parts turpentine and 15 parts alcohol. Varnishes on Greek and Bulgarian icons that can easily be removed by solvents are probably alcohol varnishes. This is caused by saponification of the oil by alcohol.

Five of the total of six linseed oil varnishes mentioned in the Bulgarian handbooks are actually linseed oil and resin varnishes. Most practitioners prefer to add mastic or amber to the oil, which is generally boiled. One of the recipes mentioned by Petrović calls for one part amber to three parts gamboge. From time to time resins from Bulgarian conifers (pine, juniper) are mentioned. They are thinned by naphtha, as in the Greek manuscripts.

The following is a list of the most important varnish recipes, translated into modern terminology.

Dičo Zograph (1836)

Alcohol Varnishes

1. 50 parts sandarac resin, 30 parts turpentine oil, 15 parts alcohol
2. 20 parts Venetian turpentine, 5 parts juniper resin (ardič-sakas), 50 parts alcohol
3. 150 parts turpentine oil, 150 parts juniper resin, strong alcohol
4. 80 parts sandarac, 20 parts turpentine oil, 300 parts alcohol
5. Wood polish: 20 parts gum arabic, 20 parts amber, 0.5 parts red stain made from the pterocarpus bark (kikardae-kana), 0.5 parts saffron, 200 parts alcohol
6. 100 parts alcohol, 40 parts sandarac, 32 parts turpentine oil, 4 parts camphor (to be applied warm)
7. Wood polish: 8 parts alcohol, 12.5 parts gum lacquer

Linseed oil – Resin Varnishes

1. Mastic varnish: 30 parts mastic varnish, 40 parts pine resin, 100 parts boiled linseed oil; thin with naphtha.
2. 20 parts amber and 40 parts sun-bleached or boiled linseed oil; thin with naphtha

- 4. pine resin and naphtha
- 5. Linseed oil binding agent: boiled linseed oil, lead white, sulphate (vitol),²⁴ naphtha

Zacharij Petrović 1834-1846

Binding agent for paints:

1. boil linseed oil, add some lead oxide
2. boil linseed oil, add alum
3. bring colphony to a boil, add a little alcohol, thin with naphtha

Alcohol Varnishes²⁵

1. 100 parts alcohol, 40 parts sandarac, 10 parts mastic, 10 parts turpentine oil (seal in the sun or boil)
2. 25 parts pine resin (dđvka), 25 parts sandarac, 25 parts Venetian turpentine, 1 part camphor, 100 parts, alcohol
3. 1 part sandarac, 50 parts turpentine oil, 200 parts alcohol
4. 200 parts alcohol, 16 parts gum, 50 parts, sandarac, 6 parts gum elemi, 32 parts turpentine oil
5. 16 parts amber, 20 parts red paint from the pterocarpus bark (kikardal), 0.5 parts saffron, 306 parts grain alcohol
6. tanigra (?) and grain alcohol

Linseed oil – Resin Varnishes

1. 70 parts amber, 30 parts linseed oil, 200 parts gamboge, 200 parts gum
2. 24 parts linseed oil, 16 parts powdered paint as stain, 16 parts ink (murskepi)

It is interesting that Petrović gives the following procedure for icons executed in oils. Apply old walnut oil, let dry, apply naphtha, let dry. Only then apply three or four thin coats of varnish with a peacock feather until the surface "shines like crystal."²⁶ From today's point of view this way to varnish is very problematic. We know that cracks are unavoidable when a quickly drying varnish is applied to a slowly drying varnish layer. By the way, this is an old forger's trick. (Fig. 6; Mandilion, as in Fig. 3.) Please note the characteristic cracks in the varnish. We note in passing that Petrović's Hermeneia gives 15 recipes for transparent, yellow and black lacquers or mixtures which he specifically calls varnishes.²⁷ Under the heading vernik Heraclius described a linseed oil application.²⁸ Only here, in the Petrović Hermeneia, is shellac mentioned among the oil-resin mixtures.



Fig. 6. Mandilion (a detail). Quickly drying varnish applied to a slowly drying varnish layer causes cracks.

It is characteristic that the MSS that we know make no mention of beeswax. Wax varnishes are mentioned in Western Europe only after the rediscovery of the ancient encaustic technique in the second half of the 18th century.²⁹

Varnishing Technique Today

After this historical survey I would like to say a few words on varnishing techniques today. Aside from a few exceptions there is no need to discuss the question of whether or not to varnish icons, for at least since the beginning of the Middle Ages all icons were varnished. Varnishing was valued on account of two positive characteristics: the brilliance of the colors and its ability to protect. During the Moscow Stoglav Council in the middle of the 16th century icon painters were instructed "to repair the old icons, and those icons that have little varnish must also be varnished." In 1770 the Moscow Archbishop Amvrosij wrote to the councilors of tsarina Elizabeth II how the icons of the Kremlin cathedrals should be restored. The paintings, whose colors are to be tempered with wheat water and egg, "should be coated in the old way with a thin layer of oil without gloss" so that they are not damaged by dampness.³⁰

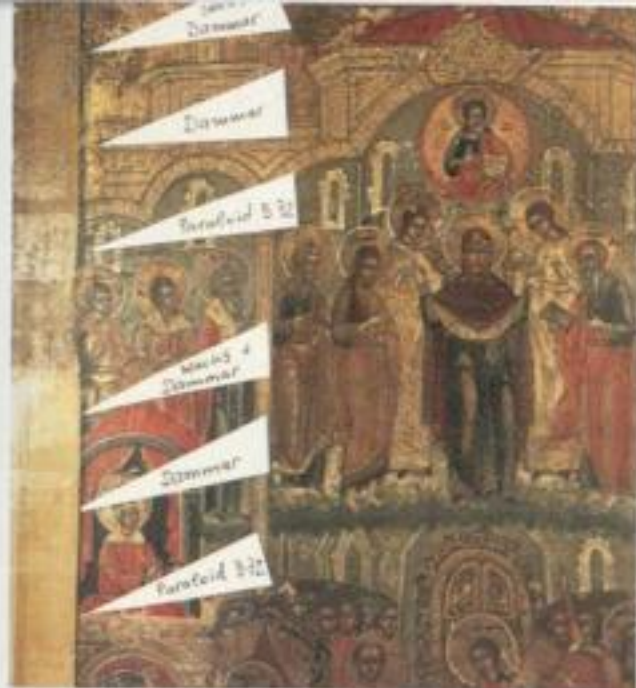
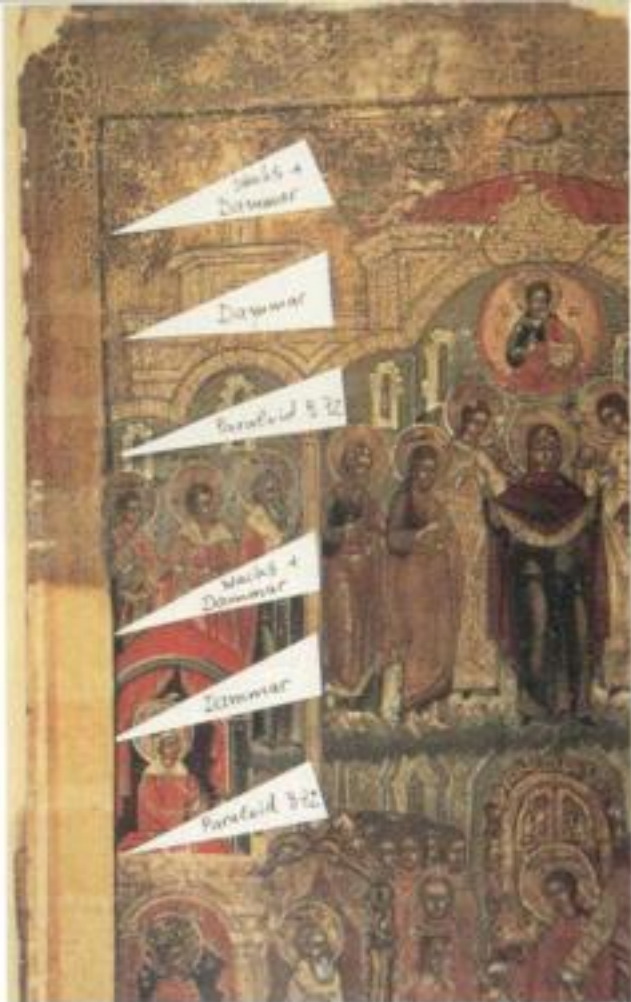


Fig. 7. and 8. A varnish of turpentine, dammar resin and microcrystalline wax produces a subdued gloss, like that of silk.

We all know that varnishing has two aspects, one having to do with painting technique and the other having to do with aesthetics. The old icon painters doubtless valued an extremely glossy, but this layer of varnish. Today most restorers proceed according to the following rule: oil paintings are varnished to a high gloss, paintings on boards to achieve a silky, matt finish. There is no question that varnishes that are too matt diminish the brilliance of tempera or oil paints. At the same time, however, icons that are too shiny are justifiably felt to be, to put it mildly, unsatisfactory when they are too thickly coated with varnish. For my part, I prefer to use a varnish of turpentine, dammar resin and microcrystalline wax, which produces a subdued gloss, like that of silk (Fig. 7, 8). On the top sample in each of these illustrations you can easily see how matt this varnish is compared to dammar varnish and Paraloid B 72, whereas the latter two have practically the same optical effect. My opinion is that icons of the Cretan school should probably be glossier than others. Each case has

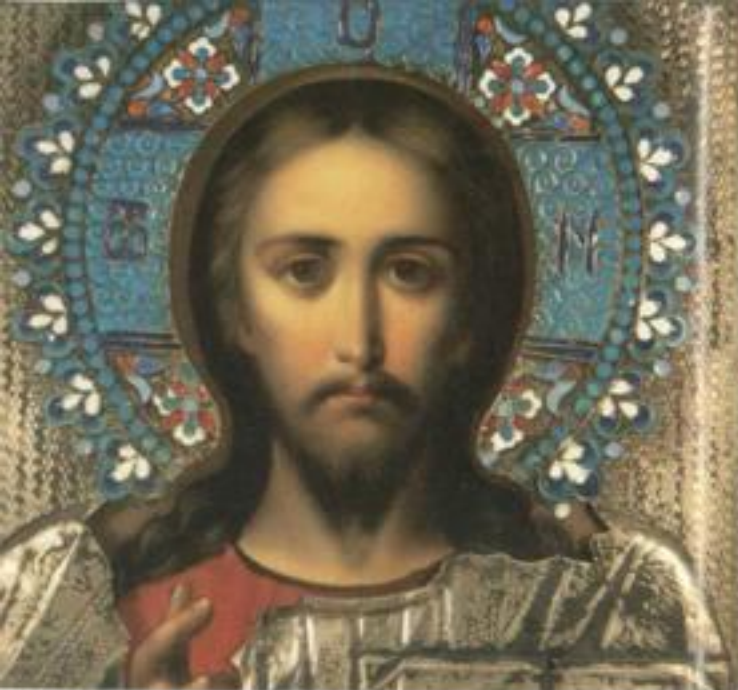


Fig. 9. This Russian icon depicting Christ has been varnished with dammar.

to be decided on its own merits. Some later icons whose colors are supposed to shine like enamel I varnish with dammar – for example, this Russian icon depicting Christ (ca. 1900; Fig. 9). Other late icons, however, that are painted in oils on linen shouldn't be varnished at all. Today even art dealers know that many painters since the 19th century didn't varnish their oil paintings at all, especially as they were painted without grounding directly onto the linen. These artists had a great appreciation for the interplay between glossy and matt finishes. I encountered an Ethiopian icon that the painter did not varnish (Fig. 10). It should remain that way. There are also late icons from Orthodox Europe that were also painted this way. Recently the auction house Carola van Hamm in Köln complained with good reason that many Impressionist, Expressionist and Art Nouveau pictures have been rendered simply worthless by varnishing them. Accordingly, I wouldn't varnish either a Fayum mummy portrait or any picture that had never been varnished.



Fig. 10. An Ethiopian icon that the painter did not varnish.

How should the varnish be applied? Heinz Althöfer in Düsseldorf varnishes with silkpaper, others with a swab, especially when pasting, and most restorers varnish with a brush according to the classical method: first vertically and then horizontally. I use a broad brush with short bristles. All three methods work well, if a thin, even coat of varnish is applied. Here I would like to reject one modern varnishing technique very emphatically, namely that in which the varnish is sprayed, either from an aerosol can or with an expensive spraying apparatus. In the first place, this is not a historical technique, and secondly a sprayed-on layer only seems to be thin. Thirdly, very fine drops dry on the surface and form a sandy finish. It suffices to see the sprayed Dutch masters in the Louvre to know that spraying must be abolished as a method of restoration.

An especially bad impression is made by icons when retouched parts or more recent layers that have been left alone (vstavki) show different degrees of glossiness. A large iconostasis icon in the permanent exhibition in the Russian Museum in St. Petersburg comes to mind: the icon seems to fall into several segments on account of the varying glossiness of the varnishes applied, so that it cannot easily be appreciated as a single unified work. It should be considered that over time varnish can "set," especially on freshly patched and retouched places. My practice is to cover patches and tempera retouching with clear shellac before I varnish. Only then do I apply a finishing coat of oil and dammar, if necessary.

A few years ago Nicole Delsaux contacted icon restorers for the purpose of finding out what methods and materials they used. I don't know how far she has progressed with this. I have summarized the results I have obtained with a short questionnaire during this conference. I would like to cordially thank everyone who contributed information to it.

Very different varnishes have been and are being used by various schools and countries. In 1957 Zdrávko Blažič, the well-known restorer of the famous Christ icons, mentioned a varnish consisting of 4 parts rectified turpentine oil, 1 part dammar, 1 part mastic and 3% wax.¹⁰ The excellent restorer Nikolaj Percev (1902-1981) can serve to illustrate Russian practices. In 1959 he used a dammar varnish¹¹, mastic in 1961¹², and 1968 an acrylic varnish (fataškov).¹³ In the 1950's and later both Slansky in Prague and Wehite in Stuttgart rejected oil, sandarac and mastic varnishes because they turned yellow. Instead they suggested a dammar painting varnish (1 part dammar to three parts turpentine), to which wax should be added if the painting is in tempera. Kurt Wehite noted the use of a paste consisting of beeswax, carnauba wax and turpentine.¹⁴ I also use a similar paste made of bleached or microcrystalline wax with a dammar additive. After 30 minutes or an hour I can polish it. Around 1980 the Gemäldegalerie Dresden was using the following varnishes: dammar with 5-6% wax on painting on boards, dammar or mastic mixed 1:1 with AWZ resin, a polymer of cyclohexanone manufactured by BASF that is no longer being produced. Ślesiański (Academy of Art in Cracow) also noted the use of an acrylic resin: Paraloid B 72 in toluole and xylene. (By the way: in my experience Paraloid B 72 is especially suitable for fixing badly flaking and very fragile layers of paint.)

Varnish removal, then and now

The icons that we are concerned with rarely have their original varnish. Often they were "purified" by self-anointed restorers for resale on the market, and in such cases we find only irregular remains of the original varnish. The old methods of removing varnish often led to damage. In the best case "only" the gilding was damaged, as all of us have seen on numerous icons. The Greek Hermeneka recommends warm water, the Bulgarian Hermeneka by Petrović recommends strong spirits with naphtha, applied with a brush.¹⁵ Yuri Bobrov

reported two 17th-century podzimki recipes for removing oil.¹⁶ The first recommends soaking a cloth in soapy water containing yeast and laying it on the icon. The softened oil is then scraped off with a knife. The second involves application of lye with potash and soapy water, after which the oil is scraped off with a knife. A paste with a meal porridge and potash was also used in Russia.

In the meanwhile we have discovered that it makes no sense to use, for example, Petenkefer's method or some variation of it (for example, the one used by Kudrjavcev) to regenerate the old varnish on icons or to dissolve it and distribute it afresh.

Even today icon restorers are spending a lot of time removing varnish. Today the situation is no different than it was in the second half of the 19th century. At that time I.P. Sacharov, the first to develop a restoration theory in Russia, postulated the following procedure: fixation, then removal of the old oils and overpaintings, followed by addition of the lost portions of the painting. N.V. Pokrovskij, who was working at the same time, also believed that restoration meant returning the icon to the condition it was in when it left the workshop of its creator.¹⁷

The dry method of removing varnish, either by rubbing with colophony or by using a scalpel, is familiar. Mechanical varnish removal, which is still problematic even today, is used especially to remove applications of gold-colored coats and especially applications of silver that are supposed to look golden with the application of yellow-colored varnish. Here, the scalpel is often also used, especially in connection with varnishes that have been previously softened, which should not be done with water and spirits in the case of metallic applications.

I recall a confrontation that took place during an ICOM meeting about 20 years ago in Copenhagen between the proponents of the slow, piecemeal approach and those of a rapid, large-surface approach to varnish removal. At the end of the 1960s a famous English restorer showed a film in which he demonstrated how he removed the yellowed varnish from the entire surface of a Botticelli painting in about 5 minutes. For at least one hundred years the question of rapid or slow removal has been debated, and the question of whether one should remove varnish entirely (London, Amsterdam and Brussels) or partially (Rome and Paris) for decades. In the final analysis Paul Philippot was certainly correct when he stated that here we are not talking about alternatives, but instead about individual decisions of the restorer. If, however, as in one case I am aware of, only the faces are cleaned and then the whole painting is sealed with Zapon lacquer, then the partial cleaning is simply inexcusable.

Now I would like to make a few brief remarks about methods involving the use of a solvent. Here the main point is "less is more," for we must always reckon with varnishes of different thickness and that the old varnish penetrated more in some paint layers than in others.

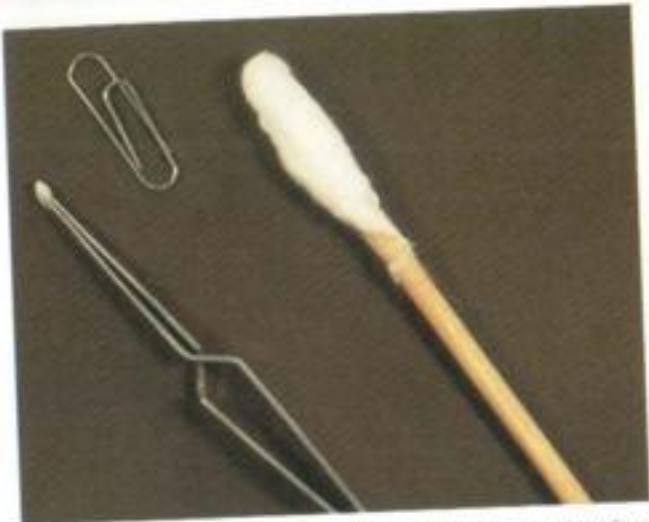


Fig. 11. Personally, I don't like the swabs that are so popular nowadays. Instead I use small tweezers that are capable of holding even the smallest tampon.

Personally, I don't like these swabs that are so popular nowadays. Instead I use small tweezers that are capable of holding even the smallest tampon (Fig. 11). For compresses I use lead balls in a bag as weights. As an alternative to the compress, I could mention the excellent method used by Olga Lelekova (GosNIIR). She dissolved the varnish over a paper, for example "Bondra," or over a piece of silk, thus preventing the damage to the painting layer of the sort that occurs through mechanical rubbing with a tampon (Fig. 12).

Application of a weak lye solution is still used in Russia. It works, as I have observed, when used by the best icon restorers in Moscow. According to my experience, soapy water followed directly by white spirit can be very effective. Siansky recommended alcohol, acetone and chloroform, mixed with turpentine or xylene for oil varnishes. A little ruzinus oil weakens the alcohol and prevents the hardening of the softened varnish. The amber varnishes are difficult to remove. Previously they were brutally removed with a mixture of copalba and liquid ammonia (recommended by Pettenkofer in 1870) or spirits or acetone. Today I would recommend cyclohexanone. Sleshski quotes G. Rüger, who used 20 parts dichloromethane, 5 parts acetone, 10 parts spirits, 15 parts diacetone and 40 parts turpentine. In the Tsentr Grabarja they use compresses with formalglycol. The Russian restorers have a lot of experience with acetone,



Fig. 12. It is possible to dissolve the varnish over a paper.

ethyl and isopropyl alcohol, methyl and ethyl cellosoloph, formalglycol with dimethylformamide, dimethylsulphoxide or dimethylacetamide, whereby they recommend using dimethyls in water solution rather than with glycerol. Turpentine, white spirit or turpentine also serve here as softeners. I can refer to a rather inaccessible publication by N. M. Alekseeva (GosNIIR, Moscow) for her report on numerous, very concrete recipes that she has used to remove old and more recent varnishes.¹¹

With respect to varnish removal, what counts in the final analysis is the result and not the method. We all know that it is possible to do more damage with a drop of water or white spirit than with concentrated liquid ammonia.

Historical Survey of Oil Varnishes

	Resin	Siccative	Thinner	
alnut oil for ding and caustic				Aetios, <i>Corpus medicorum graecorum</i> , Byzantium, 6 th century
seed oil plus flow dyes	vegetable gum			Lucca manuscript, end of 8 th century (gold lacquer)
t-pressed seed oil	gum arabic	minium		Theophilus, 1 st half of the 12 th century. (<i>vernitor</i> ; <i>vernicon</i> ; <i>pictura translucida</i>)
seed oil		lime + lead white		Heraclius, 12 th –13 th century (<i>vernix</i>)
seed oil		cicinun oil		western Europe, 12 th century
seed oil thickened in the (un)		lead		Cennino Cennini, ca. 1390
stilled linseed		alaun + minium		<i>Bologna MS</i> , 15 th century (<i>vernice liquida</i>)
seed oil thickened in the (un)				G. Vasari (1550–1568) (<i>vernice liquida</i>)
seed oil	mastic + sandarac	alaun	naphtha (the first mention)	<i>Marciana MS</i> , beginning of 16 th century (application oil)
seed oil + naphtha, seed oil	sandarac, mastic + pine pitch, aloe resin		naphtha	<i>Hermeneia</i> of Dionysios, 18 th century
seed oil	mastic			Russia, the <i>olifa</i> of Simon Ušakov, 2 nd half of the 17 th century
seed oil, poppyseed oil	colophony	lead white		Russia, 18 th –19 th century
seed oil	mastic amber gamboge	lead white, alaun, (= copper sulphate/ zinc sulphate)	naphtha	Bulgaria, after 1832

Spirits Varnishes (historical)

Oil	Resin	Siccative	Thinner	
linseed oil with <i>raki</i> 1:2	sandarac		spirits, first mentioned in Marciana MS (beg. of 16 th cent.)	<i>Hermeneia</i> of Dionysios, (18 th cent.)
turpentine oil + alcohol	sandarac Venetian turpentine mastic, amber, gum arabic gum elemi fir pitch			Bulgaria, after 1834
linseed oil + olive oil 4:1 + <i>raki</i>				Bulgaria, after 1834

Examples of Varnishing 1999

dammar + beeswax in white spirit	Alexandra Bersch, Icon-Museum, D-Frankfurt
<p>1. Normal varnish: Dammar and unbleached beeswax in turpentine proportions in order to obtain required gloss or mattness. Most of the paintings I clean are mediaeval English oil paintings, but I also use this on icons.</p> <p>2. Varnishing Italian Tempera paintings: A pure mastic varnish sometimes looks wonderful. I don't think I've used it on an icon. (I was taught to use it in Italy).</p> <p>3. "Kiss-proof varnish": I first used this on mediaeval polychromed doors of English rood-screens which get a lot of handling, but it could be used on an icon if it was going to get a lot of handling.</p> <p>Layer one: Dammar in distilled turpentine allow to dry for three weeks. (insulating layer). Layer two: Dammar in turpentine plus a little stand oil. This dries very glossy. Leave it at least a month. This is intended to be a strong protection. Layer three: A very very thin touch of beeswax paste in turpentine just to take off the glossy look, and make it match the rest of the screen which has dammar and beeswax. Then buff it up to take the "stickiness" away.</p>	Anna Hulbert, GB-Childrey Wantage, Oxfordshire
<p>1. isolating varnish: Paraloid B 72</p> <p>2. final varnish: ketone + micro-wax</p>	Hilary Pinder, GB-Richmond, Surrey
<p>1. dammar + microcrystalin wax (5-20 %) in turpentine (with brush or ball)</p> <p>2. dammar in turpentine (brilliance-varnish - by brush)</p>	Ivan Bentchev, D-Bonn
1. dammar diluted in white spirit	Kiriaki Tsesmeloglou, F-Nantes

<p>applied with brush</p> <p>2. Paraloid B 72 sprayed</p> <p>(Double varnishing system for avoiding dammar oxidation - Paraloid is diluted in toluol in different percentages depending the level of matt we want to obtain. This is the principal varnishing method of the workshop. We avoid ketonic varnishes.)</p>	
shellac + some dammar, final varnishing with beeswax	Kurt Eberhard, D-Bietingheim-Bissingen
<p>1. for tempera: dammar + 10-20 % beeswax (dammar resin is diluted in turpentine and wax is added)</p> <p>2. for oil: dammar without wax; sometimes a spray of Paraloid B 72 in toluol if the frame is in bad condition</p>	Nicole Delsaux, F-Musées de France
shellac (only for old icons)	Olga Lelekova, Gos NIIR, RUS-Moscow
dammar diluted in white spirit, applied with brush first; last varnish layer sprayed	Pia Olsen, School of Conservation, DK-Copenhagen
dammar, sometimes mastic (rare) in turpentine (1:2, 1:3), applied in a few layers spread with brush or hand	Repin Art Institute / Academy of Arts, RUS-St. Petersburg
<p>1. Lefranc & Bougeois <i>verniss a retoucher</i> applied with brush or spray</p> <p>2. Lefranc & Bougeois <i>verniss dammar matt</i> applied with brush or spray</p>	Rita Ciardi, I-Rome
<p>Ketone N varnish in white spirit with brush;</p> <p>Paraloid B 72 in xylene with spray;</p> <p>optionally for icons only: polishing with Renaissance wax</p>	Stergios Stassinopoulos, Benaki Museum, GR-Athens
<p>1. Lefranc & Bougeois <i>verniss a retoucher sur fin 1188</i></p> <p>2. dammar in white spirit or in turpentine (sprayed)</p>	The Valamo Art Conservation Institute, Finland

NOTES:

- 1 Cf. on this topic *Varnishing Conference Papers 1993*. Association of British Picture Restorers, Station Avenue, Kew, Surrey England TW 9 3 & A; tel. & fax 0044 181 948 5644; and IIC Brussels preprints 1990 (paper on early varnish and notes on rood-screens). I am grateful to Anna Hulbert for bringing this information to my attention.

- 2 Cf. the important publication by Rolf E. Straub, "Zur frühen Geschichte der Ölfarbe in der Tafelmalerei nördlich der Alpen, in: *Von Farben und Farbe: Festschrift für Albert Knoepfli* (Zürich, 1980 (ID-Vol. 4)), pp. 21–29.
- 3 Straub, p. 21f.
- 4 Theophilus Presbyter, *Schedula diversarium artium*. In: *Quellen für Kunstgeschichte und Technik des Mittelalters und der Renaissance*, ed. R. Eitelberger v. Edelberg, Transl. and introduction by Albert Ilg (Wien 1874), cap. 21, 28. For a Russian translation see "Manuskript Teofila...", *Soobščeniia VCNILKR 7* (Moscow 1963).
- 5 Hermeneia (München 1983), cap. 29.
- 6 See Asen Vasiliev, "Ermenii," *Technologija i Ikonografija* (Sofia 1976), p. 35.
- 7 Vasiliev, p. 244.
- 8 Vasiliev, p. 208.
- 9 Straub, Rolf E., notes 46f.
- 10 Heraclius, Von den Farben und Künsten der Römer. In: *Quellen für Kunstgeschichte und Technik des Mittelalters und der Renaissance*, ed. R. Eitelberger v. Edelberg (Wien 1873), p. 174. See the Russian translation in "Manuskript Iraklija...", *Soobščeniia VCNILKR 4* (Moscow 1961). (Transl. into English by Henry Fullenwider)
- 11 Heraclius, p. 162. (Translated into English by Henry Fullenwider)
- 12 Heraclius, p. 165. (Transl. into English by Henry Fullenwider)
- 13 Hermeneia, Cap. 53.
- 14 Hermeneia, Cap. 30.
- 15 Hermeneia, Cap. 31.
- 16 Heraclius, Cap. III, XXIX.
- 17 Theophilus Presbyter (12th cent.) knew about warm-pressed oils for oil paints; see cap. 20.
- 18 Used in paints and varnishes, turpentine oil produced a more matt effect than turpentine or white spirit.
- 19 It is known that commercially available colophony, which is a by-product of the distillation of turpentine oil, dissolved better in spirits than in turpentine.
- 20 Monachinja Julianija (Maria Nikolaevna Sokolova), *Trud ikonopisca* (Svjato-Troickaja Sergieva Lavra 1995), pp. 105–107.
- 21 Jurij Bobrov, *Istoria restavracij drevnerusskoj živopisi* (Leningrad 1987), p. 136.
- 22 Vasiliev, p. 208.
- 23 Heraclius, p. 186.
- 24 Vasiliev, p. 232.
- 25 Vasiliev, p. 248.
- 26 Vasiliev, p. 230f.
- 27 Vasiliev, p. 230.
- 28 Vasiliev, p. 244f.
- 29 *Tabletka*, 16th cent., cf. the study by H. Mommsen, et. al. in: *Russische Ikonen. Neue Forschungen*, ed. I. Bentchev and E. Haustein-Bartsch (München 1997), p. 24. Here I refer to the numerous rules in the old handbooks, according to which certain pigments are not only to be tempered with egg but also with linseed oil and linseed oilresin -varnishes. For example, this is expressly stated for green pigments (copper acetate) in the Russian *typikon* of Bishop Nektarij (1599). Cf. S. A. Pisareva, *Kraski srednovekov'ja*, (Moscow: GosNIIIR, 1998), p. 53. In the final analysis it is difficult to distinguish between oilpaint layers and fatty intermediate varnish layers.
- 30 Zinc sulphate is mentioned as a siccativ by van Eyck and Sebastiano del Piombo, as well as in the Marciana MS (end of 16th cent?); cf. Heraclius, p. 186.
- 31 The icons should be warm; cf. Vasiliev, p. 244.
- 32 Vasiliev, p. 244.
- 33 Vasiliev, pp. 244ff.
- 34 Heraclius, Cap. XLIV.
- 35 Bohuslav Slansky errs when he says that wax varnishes were invented in the 20th century. In 1817 the cupola of the Pantheon in Paris was painted with wax paints. Significant examples of the use of this technique at that time have also been documented in Italy, Germany and Austria.
- 36 "...a daby i sie pis'mo ot vlagi i mokroty ne povredilos', to, sleduja staromu obrazcu, prikrivat' tonko, izbegaja losku, oilfoju". In: *Sochranenie pamjatnikov cerkovnoj stariny v Rossii 18.-načala 20 vv. Sbornik dokumentov* (Moscow 1997), p. 45.
- 37 Zdravko Blažič, *Konservacija Ohridskih ikona i nove konstatacija* (Skopje 1957), p. 49.
- 38 Deisis icon (18th cent.). See N.V. Percev, *Katalog restavracionnyh rabot* (St. Petersburg 1992).
- 39 Icon: "The Beheading of John the Baptist" (17th cent.).
- 40 Icon: "The Resurrection of Christ", 16th cent.
- 41 Wehle, K. *Werkstoffe und Techniken der Malerei* (Ravensburg 1977), p. 674.
- 42 Petrovič, *Hermeneia*, in: Vasiliev, p. 243.
- 43 Bobrov, *Istorija*, S. 18f.
- 44 Bobrov, p. 29.
- 45 NM. Alekseeva, "Uton'šenie laka na kartinach," in: *Kul'tura i iskusstvo v SSSR, Serija Restavracija i konservacija* (8), (Moscow 1985), pp. 4–6.