Solvent-Free Painting
Using Traditional Materials

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Background

A study of the many texts written about oil painting over the last five centuries shows that there have been many different basic technical systems used. Currently, painters have been taught that solvent is necessary for oil painting, but this is not true: solvent is in fact only necessary for one type of medium, the medium based on a soft resin such as dammar or Canada Balsam dissolved in solvent. So, in the method of painting evolved by the 20th Century academic writers, such as Ralph Mayer, solvent is necessary. In older painting, the role of solvent in the texts is small, confined mainly to varnish recipes. The use of a tray in which the brushes are stored in oil is documented in several cases.

Working in an unventilated studio with solvent over long periods of time is known to cause significant health problems. Although there are safe, soy-based solvents now for cleaning brushes, there is no such thing as a safe solvent that can be used for oil painting. Many painters develop intolerance to solvents due to prolonged exposure over time: headache and nausea are typical symptoms. Because solvent use is taken for granted, solvent danger is played down by the marketplace. At the same time, health-conscious painters have created a demand for water-based oils, a clearly inferior medium. This is a great example of a totally unnecessary and complex mess brought on by painters being close to the marketplace, but far from their craft. Below is an overview of several methods for working with mainly traditional materials that use no solvent or, in the case of the Strasbourg Method, a small amount. For more information on these, consult the techniques section of the website, or e-mail me from the site.

The Putty Medium

A simple mixture of calcium carbonate and pre-polymerized oil, the putty medium is the basis of the system of both Rembrandt and Velásquez. It offers a simple yet incredibly versatile and stable method of creating any style from smooth to broken surface painting by varying the consistency and type of ingredients used. Putty can be made on the palette from chalk and oil, or made in larger quantities and tubed. When beginning, it's best to simply use chalk and oil, get used to the way they interact, the various rheologies available. Paint can be cut with putty to any degree, the color becomes lighter but without the loss of saturation that results from cutting color with white. This allows for more apparent color from a low chroma palette. Stronger colors can be cut with more putty, although a good standard proportion is one part putty to one part paint.

The mix of oil used to make the putty can be customized for specific purposes. Because the oil used to make commercial tube paint is always raw, it is important to make the putty with pre-polymerized oil, this results in a stronger and more stable paint film. A simple procedure is heating the oil with rapid stirring to the smoke point, then letting it cool. Another method involves heating the oil in a Crockpot or small deep-fryer to 100C for 24, 48, or 72 hours. The long slow heat results in a slight increase in viscosity and mimics the quality of an aged oil. Small additions of thicker oil such as sun oil or burnt plate oil will give the puttied paint more saturation. Small amounts of egg white can also be incorporated into putty. This creates a seizure which must then be softened by more oil. The result is a putty which is richer but also moves better making a more mobile quality of impasto.

There are many types of chalk and marble dust to choose from. Bentonite can be used in small amounts to increase the thixotropy of the putty. Very fine cristobalite, a variety of quartz, will also change the way the putty moves. Exploring these additions is interesting but, at least in my own work, none of them represents a quality of change which is crucial.

The Silica Gel Medium

A modern gel medium based on industrial fumed silica, sand which has been heated to a very high temperature. The Venetian painters are documented as having used ground river silica pebbles in their paint as an extender, this medium provides a modern, more transparent way of using pure silica. The oil or combination of oils is simply mixed into the silica, a stable transparent gel forms, the gel can then be used or larger quantities tubed.

Many slight differences in working character can be built into a silica gel: more or less movement, hard or soft edges, thick or thin impasto, all depending on the ratio of silica to oil

and the type of oils used. Again, when using commercial tube paint, it's important to make sure all the oil is pre-polymerized in some way for a stronger and more stable paint film.

The silica gel mediums are a good counterpoint to the putty mediums: the silica gels being more about movement, or slide, the putties being more about hold or stick.

Fumed silica is very light and fine. This material should be handled with care when dry using a good particle mask. Once in the tube it presents no issues.

Fused Balsam-Oil Mediums

Many of the older paintings examined by London's National Gallery in their annual Technical Bulletins are made with a medium that uses pre-heated oil and a small amount of pine resin. While painters are becoming more accustomed to using Canada Balsam and the older Larch Turpentine as higher quality dammar replacements, it's also simple to fuse these resins into an oil medium for a material that is even more stable over time. The paint film is so sensitive to change that even at a ratio of one part resin fused into 9 parts oil, the presence of the resin is noticeable in both the working qualities and the look of the paint. A small amount of the chosen mixture of resin and oil is simply heated with rapid stirring over medium heat. The mixture at first is cloudy. The resin component will begin to smoke fragrantly before the oil component, and the mixture clears. Once the oil component begins to smoke, the process is finished, it is possible with practice to stop the process earlier. The important thing is that the solution remain clear on cooling. If it becomes cloudy or separates, it wasn't heated enough. There is some darkening of the medium in this procedure, between honey and amber color, but it is inconsequential in practice. This medium tends to dry harder, with less residual stickiness, than using the resin raw. This system works well for thinning paint cut with the putty medium in thinner or finer painting styles. Brushes used with this medium can be cleaned and stored in oil.

The Strasbourg Method

This method comes from a 14th or 15th Century manuscript found in a library in Strasbourg and was translated by Eastlake in the first volume of his classic Methods and Materials. In this method, a very small amount of a hard resin, cooked oil varnish such as amber or copal is mixed into each color on the palette before painting begins: the recipe

specifies “a drop or two”. The addition of the resin varnish causes the paint to seize, more apparent in some colors than in others, more apparent in artist made paint than in commercial paint, perhaps most apparent generally in lead white. A very small amount of the resin by volume is enough, between 2 and 4 percent, and results in a moderate surface shine when the paint dries. More resin will in fact result in a surface that is too closed or shiny to be painted on without first being ground down with sandpaper or some form of pumice in oil. Amber and copal varnishes are typically sold with a significant solvent content, but the amount used is small compared to other solvent methods, and the brushes can still be cleaned with and kept in oil. The Strasbourg Method can be combined with any of the mediums listed above, it works particularly well with the putty medium and the silica gel medium for increasing saturation in later layers of the painting, or for a more spontaneous *alla prima* approach with overall impasto.

Brush Care

Using the above methods, brushes are kept on their sides in a small glass or ceramic tray partially filled with oil. The tray can be tilted with a block beneath one end so less oil is in play at any time, makes things less messy. The oil used can be raw safflower, sunflower, or walnut: all oils which dry, but slowly. Brushes should be somewhat clean before going into the oil but can be thoroughly cleaned on the rag the next day before painting begins again. These methods are all relatively rag- intensive, when using linseed oil rags should always be spread out separately to dry, never left in a pile as a danger of spontaneous combustion exists from the oil as it polymerizes. At a certain point, usually every few months depending on ambient temperature, the oil in the tray will begin to get either too full of pigment or too dense to clean the brushes quickly. The tray is then wiped out and re-filled with clean oil.