

Lab 1: Pigment Making

Background Information

LAKE PIGMENTS

Lakes are organic pigments made by precipitating dyes onto a powdered substrate through a chemical reaction.

LAKE PIGMENTS: A HISTORICAL RECIPE FROM THE PADUAN MANUSCRIPT

Un'altra sorte di lacca fina. - R. Piglia 12 grani di cocciniglia, o grana fina fatta in polvere, si pone in due oncie di lissivio lasciandola in infusione due hore incirca poi si cola per pano lino, e si mette sopra cenere calda, quando vorrà bollire vi si aggiunge quanto due piselli d'allume di rocca in polvere, quando il liscivo farà schiuma grossa incarnata all' hora si getta tutto in un panno lino steso, e passerà il lissivo chiaro restando la schiuma nel panno, quale si fa seccare, e si fa tavolette.

Another sort of fine lake. Take 12 grains of powdered cochineal or fine grana, add to it 2oz of ley; leave the infusion for about 2 hours; strain it through a linen cloth and put it over hot cinders; When it boils add to it pulverized roche alum of the size of 2 peas then the ley will make a thick red scum; as soon as this happens throw it all onto a stretched linen cloth, when the clear ley will pass through leaving the coagulum on the cloth, which coagulum must afterwards be dried and made into tablets.

Recipe for cochineal lake from the "Paduan Manuscript," (anon., Venice, late 16th–17th c.), transcribed and translated in Mary P. Merrifield, *Medieval and Renaissance Treatises on the Arts of Painting* (Mineola: Dover, 1969 [1849]), 701–702.

LAKE PIGMENTS: BASIC STEPS

- 1) Extract a colorant from a plant or insect by crushing it and soaking it in water.
- 2) Add either A) an acid or B) a base to that colored water and heat it for a time, the better to extract the color.
- 3) Catalyze a chemical reaction by adding either A) a base to your acidic solution or B) an acid to your basic solution (i.e., make a "volcano" reaction).
- 4) Let the reaction settle and then pour the solution through a filter; a precipitate will be left behind in the filter.
- 5) Rinse the precipitate one or two more times, ideally until the water runs clear.
- 6) Let it dry and scrape it from the filter. This is your pigment.