

A close-up, monochromatic photograph of a dark, textured surface, possibly made from sheep feet. The texture is rough and irregular, with various protrusions and indentations. The lighting is dramatic, highlighting the depth of the surface.

Sheep-feet bone black

Reconstruction
Recipe by Mitens/Mayerne, 1629

Recipe (1629)



M^r Mitens Peintre h[ab]e excellent. vs. Gobelin
Labeur de noir.

Le meillier de toute lez noirs, qui fassent le meilier
c[on]tenuz en peinture ou en peinture glaize, est le noir d'ivoire,
ou noir du p[er]le du montagne. lesquels se mettent
par pieces dans un eruzet, qui fault bien con-
tenuir une telle ou plusieures, et lutter lez jointures si
soigneusement que nien ne ressort, le tout se fait
mis dans un bon feu, par l'effau d'ivoire brûlé
lement, auquellement les ore porrorent blanchis,
et ainsi soit brûlé la matira à parfait noir-
eur.

Ce noir fait espacement
broyé sur le porphyre ou pierre auer de l'hu-
ile de noir ou de lai y adjointant pour meilleurs
dus noir la quarantaine partie (comme un
quart d'once) de verd de gris. Ce qu'il fault entre-
tenir si veue auer un bon grand labour à faire.
Autrement broyer en soubremont pour la noircissai-
re present de la besoing que voudra auer à
faire. Car tant que le noir est frais broye
tant meillier il est et mieux il fassent. Mui-
see que le verd de gris soit espacement mesme
bary tout le noir. Appliquez le felon l'art.
Il se peindra, quoy que non pas si fort que les
autre couleurs qui sont prefere de dieux
de bruyre.

Lameu d'ore
brûlé, que
veue le brûlé
auer van fete
le p[er]le brûlé
brûlé, comme
un p[er]le ou
oro. Lesquels
si veue mesme
auer brûlé sur
la vallette, il
se fait un noir
comme j'ay
trouvé, com-
me j'ay vu, et
a giffing des
addition ordi-
naires pour
peindre. Ce q[ue]
ne fait jame-
si soy mesme

Recipe (1629)



Diplomatic transcription

Mr. Mitens peintre tresexcellent.

18. Septemb. 1629

Labeur de noir.

Le meilleur de touts les noirs, qui s'estend le mieulx, & duquel mesmes on peult glacer, est le noir d'yuoire, ou d'os de pieds de moutons, lesquels se mettent par pieces dans vn creuset, qu'il fault bien couurir d'une tuile ou bricque, & luter les jointures si exactement que rien ne respire; le tout sec soit mis dans vn bon feu, par l'espace d'vne heure seulement, (aultrement les os pourroyent blanchir), & ainsi soit bruslée la matiere a parfait noirceur. Ce noir soit exactement broyé sur le porphyre ou escaille avec de l'huile de noix ou de Lin, y adjoustant pour vne liure dudit noir la quarantiesme partie (comme vn quart d'once) de verd de gris. [...] Appliqués le selon l'art. Il se seichera, quoy que non pas si tost que les aultres couleurs qui sont prises de diuersité de terres.

(transcription in: Berger, Ernst, 1901. *Beiträge Zur Entwicklungs-Geschichte Der Maltechnik*. Muenchen: Callwey, p. 264ff.).

Translation (English)

Mr. Mitens, Excellent painter.

18. Septemb. 1629

Work with black.

The best of all blacks, which can be spread the best and with which one can even glaze, is ivory black, or that prepared from the foot bones of sheep. These, in pieces, are put in a crucible, which is well covered with a brick and the seams tightly sealed so that no air can penetrate, and put the whole thing on a strong fire, not longer than an hour, (otherwise the bones will bleach) and thus the mass is burned to a perfect black. This black is most exactly ground on the porphyry or shale with nut oil or linseed oil and for a pound of black add a fortieth part (about a quarter of an ounce) of verdigris. [...] Use it accordingly to the rules of art. In general it does not dry as quickly as the other colours that are extracted from the various earths.

(translation in: Fels, Donald C., 2010. *Lost Secrets of Flemish Painting: Including the First Complete English Translation of the De Mayerne Manuscript*, B.M. Sloane 2052. Rev. ed. Floyd (VA): Alchemist.)

Handout instructions



Source

Mayerne, Théodore Turquet de. 1620. 'Pictoria, Sculptoria et Quae Subalternarum Artium' (the 'Mayerne Manuscript'), British Library, B.M. Sloane 2052, fol. 93r

Annotation: "Mr. Mitens peintre tresexcellent. 18. Septem. 1629"

Ingredients & equipment

Lamb- or sheep feet bones

Boiling water and pot, brush

Fire

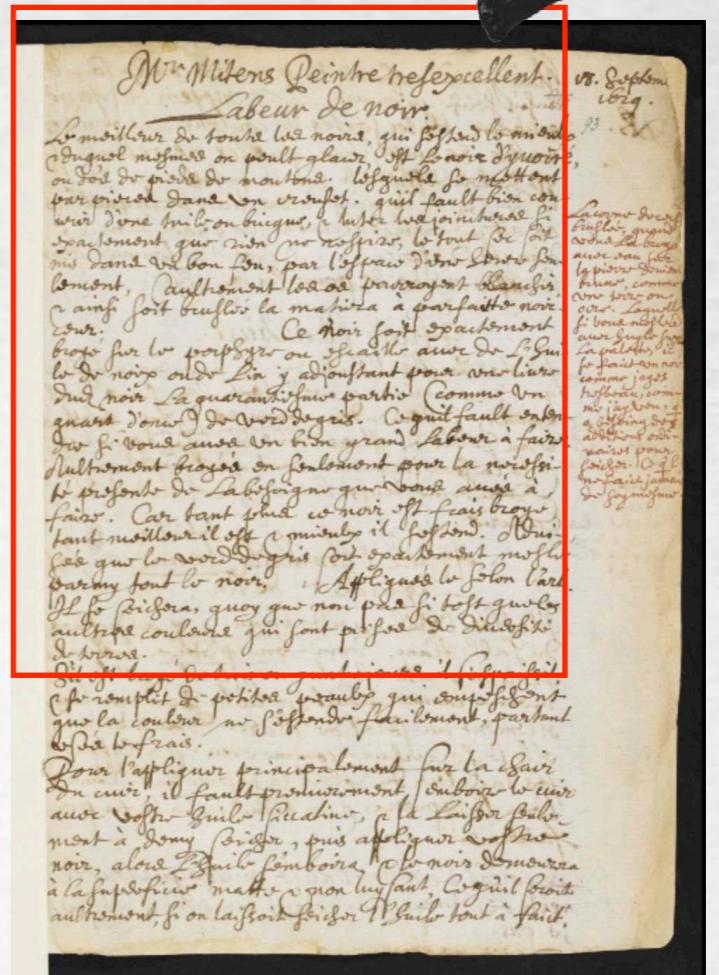
Iron-cast crucible with lid

Metal mortar & pestle

Grinding slab stone, muller, water

Gum Arabic solution (not mentioned in recipe)

Sweet water shell, brush (not mentioned in recipe)



Preparation steps

- (1) Boil lamb-feet bones, remove the meat and remove residues by brushing them off
- (2) Remove the bone marrow
- (3) Light a fire
- (4) Put bones in a crucible, close the crucible
- (5) Put the crucible on the fire and let it there for about 2 hours
- (6) Crush the charred bones in a metal mortar & pestle
- (7) Grind the powder on a porphyry stone with a muller and water, add gum Arabic

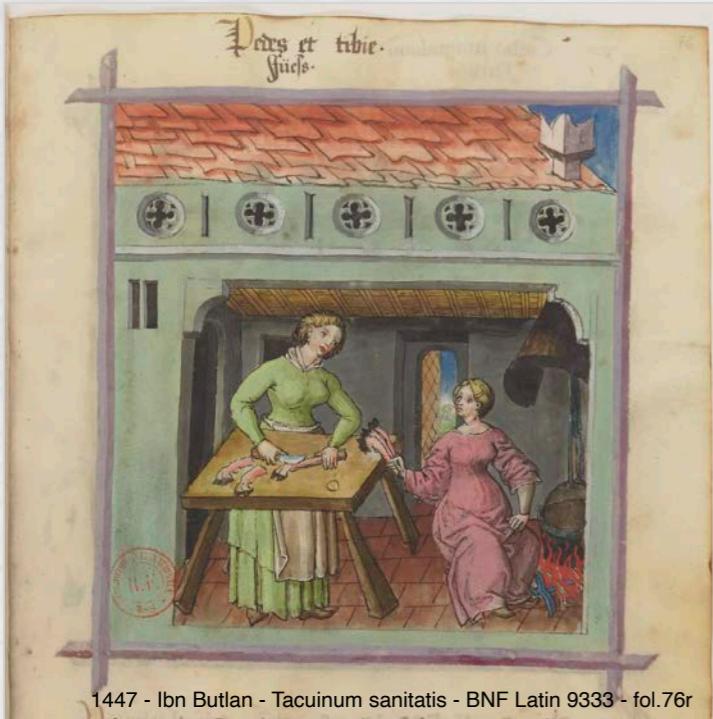
Date & Place

"Burgundian Black" Summerschool ROOTS: Research on the origins of historical techniques, University of Antwerp, 1-5 July 2019 and "Black", hands-on workshop for master students painting conservation, Conservation & Restauration Department, University of Amsterdam, 20 February 2020.

Photo report: step-by-step reconstruction



1. Clean and boil lamb-feet bones



Sheep hoove's are cooked.

The meat is removed and the bones are boiled again in water and cleaned by brushing.

The bones still contain bone marrow. The bones are crushed and the marrow is scraped away.

Photo report: step-by-step reconstruction



2. Crush and char lamb-feet bones



The bones are placed in a crucible which is closed with a lid. The crucible is placed into a fire for 4-5 hours.

Bones charred in anoxic conditions have a deep black colour. However, if air enters the crucible, the oxygen causes further combustion. As result the bones turn chalk-like white, rendering the bone mineral visible (bone white, hydroxylapatite). This is already described in the recipe:

"le tout sec soit mis dans vn bon feu, par l'espace d'vne heure seulement, (aultrement les os pourroyent blanchir)" .

Photo report: step-by-step reconstruction



3. Crush and grind charred lamb-feet bones

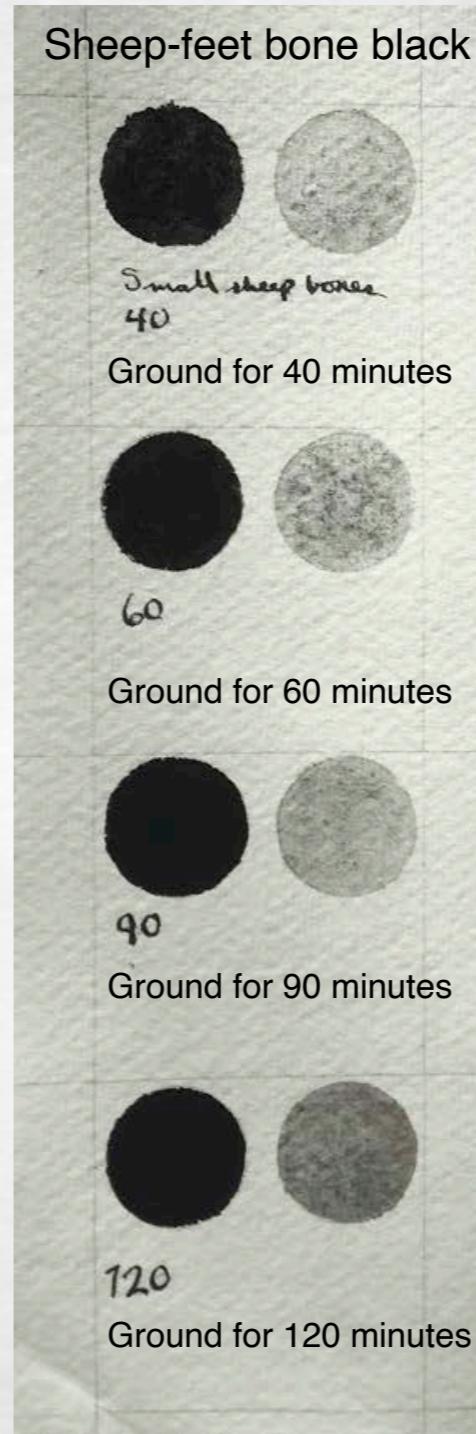


The charred bones are crushed in a metal mortar. The resulting powder is ground on a stone with a stone muller and water.

Photo report: step-by-step reconstruction



3. Transfer the bone black into a shell and apply on paper



What did we learn during the reconstruction?



Removing all organic parts as well as the marrow from the bones before charring decreases the reaction time.

One hour as stated in the recipe was sufficient to burn the sheep feet bones in the Amsterdam experiment, in Antwerpen they were burnt for more than 3 hours. Crushing the bones into smaller pieces as suggested by the author of the recipe reduces the burning time.

Where air/oxygen entered the crucible, the parts of the bones which were in direct contact with the air turned white.



What did we learn during the reconstruction?



Deviating from the recipe, gum Arabic was added as binding medium instead of oil, in order to create a water colour. This made a good paint.

Grinding larger amounts of sheep-feet bone black required an unexpected long time. The ideal grinding time turned out to be above 90 minutes. Only then, the paint showed a deeply black, opaque, equal film, and no separate particles in thinner applications.





Enjoy your own reconstructions
and share them with the field !

Birgit Reissland

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Heritage on paper and related materials

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