

Chemistry meets Art:

Verdigris – a historical pigment

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The term verdigris, loosely defined as any blue or green color, goes back to early roman and greek literature sources. Theophrastus^[1] and Dioscorides^[2] call it ἰὸς χαλκοῦ (rust of copper) whereas Pliny^[3] writes about aerugo to denote various corrosion products formed on the surface of copper due to exposure to salt, urine, honey, lemon juice and/or acetic acid. This rust of copper comprises copper chlorides, copper carbonates, copper citrates and copper acetates or mixtures of those. In colour lists and literature on the technique of painting through the Middle Ages^[4] and later on, verdigris appears under several synonyms as viride graecum, viride hispanicum or Grünspan.

In a more constrained way verdigris, denotes a disfiguring form of corrosion or a pigment, deliberately made by corrosion of copper. Both copper acetate and copper formate occur. The various number of historical verdigris recipes is opposed by the insufficiency of analytical data providing insight into the complexity of these verdigris salts. Therefore, further research is necessitated to understand and describe the characteristics of verdigris. In a further step, a more ample set of reference data could procure new answers to questions within the field of art history.

[1] Theophrastus's History of Stones, London 1774, 225.

[2] Dioscorides, περί ὕλης ἰατρικῆς (On pharmaceutics) V, edition P. Matthiolus, Lyon 1655, 501.

[3] Gaius Plinius Secundus, Historia Naturalis, XXXIV, 110.

[4] Mappae Clavicula, edition by Sir T. Phillips, Archaeologia, XXXII, London 1847, 183-244