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PIGMENTS OF THE BUST OF NEFERTITI COMPARED WITH THOSE OF KARNAK TALATATS

The elaborate characterization and specification of material (e.g. pigments) used for decorating statues and buildings may be achieved by means of complementary methods of investigation such as analytical light and electron microscopy, thermal differential analysis, X-ray and neutron diffractometry, and various spectroscopies. The results cannot only reveal the historically relevant exploration and refinement techniques of natural resources, but also types of application on different supports. In addition deterioration and erosion processes can be monitored and eventually conservation and restoration procedures can be derived. The investigations of pigments from Nefertiti's bust (Berlin) and talatat of the dismantled temple erected by Akhenaten in Karnak will be presented. Special attention was paid to blue pigments, which - in both cases - could be identified unambiguously by means of X-ray diffractometry and Raman spectroscopy with the so-called Egyptian blue. Other pigments used in the decoration are iron oxides (red), amorphous carbon, auripigment (yellow) as well as wax mixtures (black). Wax of Nefertiti's eye have been analyzed with respect to its composition and age by gas chromatography / mass spectrometry GC/MS and by accelerator mass spectrometry (AMS). Whereas most of the mentioned pigments are chemically inert and therefore still visible, other pigments such as green may have vanished more or less completely. In summary our investigations confirm and further reveal the skill of the Egyptian artisans and may elucidate a more detailed 'life cycle analysis" of the used materials, spreading from the historical natural resources to our present reconstruction of Egyptian history.

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