Ancient 'Egyptian blue' pigment points to new technology

EurekAlert!

A bright blue pigment used 5,000 years ago is giving modern scientists clues toward the development of new nanomaterials with potential uses in state-of-the-art medical imaging devices, remote controls for televisions, security inks and other technology. That's the conclusion of an article on the pigment, Egyptian blue, in the Journal of the American Chemical Society.

Tina T. Salguero and colleagues point out that Egyptian blue, regarded as humanity's first artificial pigment, was used in paintings on tombs, statues and other objects throughout the ancient Mediterranean world. Remnants have been found, for instance, on the statue of the messenger goddess Iris on the Parthenon and in the famous Pond in a Garden fresco in the tomb of Egyptian "scribe and counter of grain" Nebamun in Thebes.

They describe surprise in discovering that the calcium copper silicate in Egyptian blue breaks apart into nanosheets so thin that thousands would fit across the width of a human hair. The sheets produce invisible infrared (IR) radiation similar to the beams that communicate between remote controls and TVs, car door locks and other telecommunications devices. "Calcium copper silicate provides a route to a new class of nanomaterials that are particularly interesting with respect to state-of-the-art pursuits like near-IR-based biomedical imaging, IR light-emitting devices (especially telecommunication platforms) and security ink formulations," the report states. "In this way we can reimagine the applications of an ancient material through modern technochemical means."

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