Recreating Ancient Art Mediums

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This engineering project studies ancient art mediums by recreating ancient paints from iron oxide, charcoal, and animal fat. To test the experiment, iron oxide and charcoal were mixed with different temperatures of animal fat. First, the pigments were mixed with room temperature fat, about 18°C, then pigments were mixed with warm and liquid fat. Finally, the liquid fat mixtures were retested when cooled down. Each mixture was streaked across vellum paper to be tested. Charcoal mixed with room temperature had a grainy consistency, but it was not as visible as the other charcoal tests. Unlike the charcoal, the oxide swipes showed streakiness and the inability to properly bind together. The warm animal fat mixtures were not desirable; the charcoal presented grittiness, no buildability, and the oxide showed grainy areas. The tests showed clear chunks in the oxide, and streakiness in the charcoal mixture. Liquid fat allowed the charcoal to mix easier but encompassed a gritty consistency with no buildability. The oxide mixed with liquid fat had a creamy consistency and was comparable to paint. The melted-liquid showed creamy, pigmented streaks in the oxide tests. The final test was to melt the fat, mix it with the oxide or charcoal, then allow it to cool to 18°C. The charcoal mixture was buildable, but it was the grainiest out of all of the tests. The oxide mixture was the most successful of all the tests; it was most similar to present-day paints and possessed full colors with no grainy areas.

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