

Analysis of Photographs of the Wall Paintings in the Archaeological Site of Ostia Antica

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In 2018, we have analyzed the potential of infrared photography by comparing infrared photographs of the wall paintings of Ostia (Terme dei Sette Sapienti/room5/Seven Sages), Roman period wall paintings of Lebanon and the pillar paintings of Enjō-ji Temple, Nara prefecture. In addition, as a new attempt we experimented with ultraviolet photography and color filter technique in order to ascertain their capability.

For the wall paintings of Ostia Antica, infrared photography clearly revealed inscription and painting lines which are otherwise undiscernible to naked eyes. This will aid us greatly in interpreting the original intentions behind the commission of these wall paintings (Fig. 1). Similar results were obtained for the wall paintings in Lebanon, vividly showing the images which until now have been hidden by pigment degradation and contamination caused by soils and their iron contents (Fig. 2).

Photography utilizing red, blue and green filters has the effect of emphasizing their respective complementary colors. This effect provides us with clues regarding the restoration of degraded or lost pigments. Ultraviolet photography, which we have attempted for the first time, reacts to organic pigments and the result is shown in tint (Fig. 3 – Fig. 5).

This research was also an attempt at engineering investigation applicable to archaeological

sites. Procuring power sources necessary to operate lights and instruments are often difficult during archaeological investigation. This research tried to obtain the same level of results in archaeological sites as those gained in laboratory environment.

We will continue the experiment with infrared, color filter and ultraviolet photography in order to further understand their effects, and our aim is to establish a method where such techniques can be easily utilized in archaeological context.

Fig. 1 Site of Ostia Antica—Terme dei Sette Sapienti/room5—

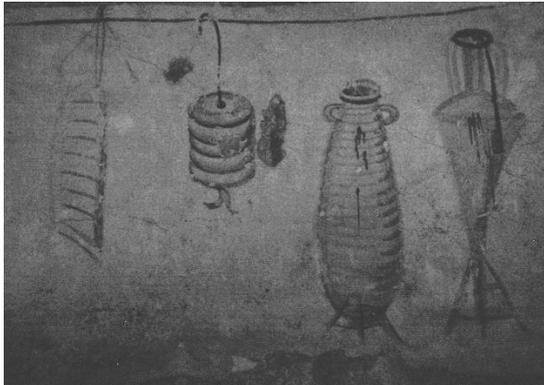


Infrared photograph

Fig. 2 Republic of Lebanon, wall paintings from underground tombs, Roman period (second century CE)



Infrared photograph

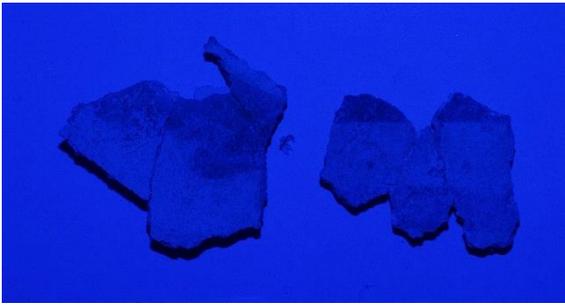


Infrared photograph

Fig. 3 Republic of Lebanon, wall paintings from underground tombs, Roman period (second century CE)



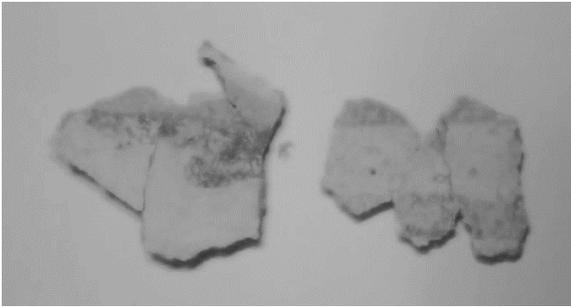
Red filter



Blue filter



Green filter



Ultraviolet photograph



Infrared photograph

Fig. 4 Enjō-ji Temple, Nara city. Painting on a pillar of the main hall (depiction of *Raigō* of a Bodhisattva, Muromachi period)



Red filter



Blue filter



Green filter



Ultraviolet photograph

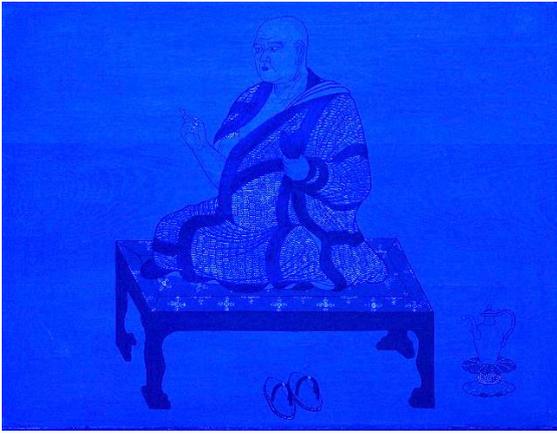


Infrared photograph

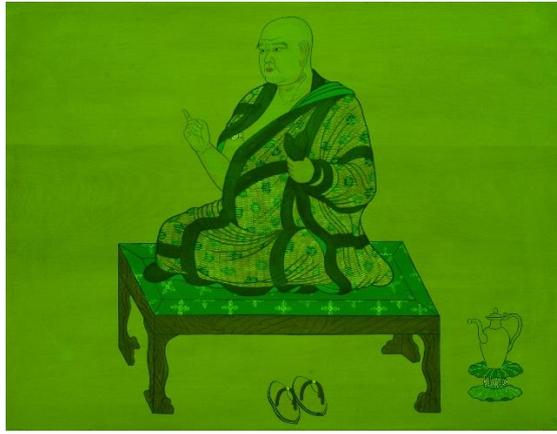
Fig. 5 Enjō-ji Temple, Nara city. Wall painting on *Tahōto* (depiction of the sect-founder, modern period)



Red filter



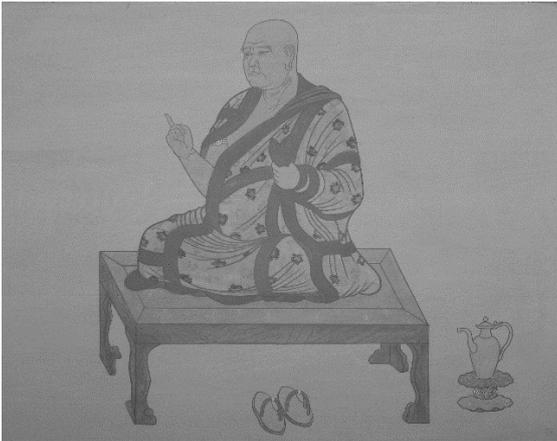
Blue filter



Green filter



Ultraviolet photograph



Infrared photograph