

Thermovision investigation of frescos in Cistercian monastery in Łąd - Poland

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In 2007, the interdisciplinary team from a few Universities in Poland performed the integral investigations of gothic frescos in the richly adorned oratorio in monastery in Łąd, where, according the historical tradition, a Cistercian chapel was created in the second half of XIV century. The aim of the investigation was to find the original gothic polychromy under the later overpaintings being done during the last renovation. The thermovision measurements were made using Inframetrics PM290 camera, equipped with the high power heat sources of 4kW. The thermal images were acquired using passive and active thermography (lock-in).

The same parts of the paintings were also documented using UV fluorescence using the mercury lamps with different filters, such as Wood's one at 360nm and another working at 415-700nm. The next complementary method was reflectography in UV band, where the halogen lamps with 320-360nm filter were applied. In addition, the paintings were analyzed in the near infrared spectrum using the same lamps with the filter at 870nm.

The images obtained from all mentioned techniques indicated many places where there is an original gothic polychromy behind the newer paintings. In addition, the research allowed the historians to locate the areas where the composition of the painting was changed during the conservation.

The proposed methodology of frescos investigation using different complementary imaging methods gives the possibility to evaluate the correctness of the previous conservation works in a relatively short time. Additionally, it proves that such investigations should always premise the new restoration.

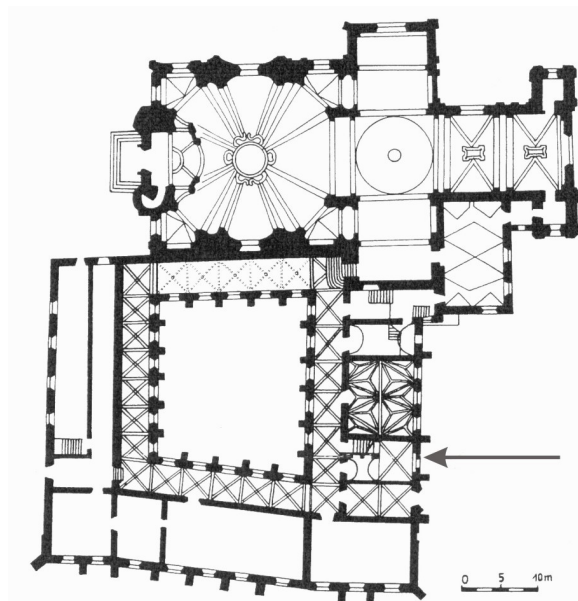


Fig. 1. Plan of the monastery and Cistercian church in Łąd with the indication of the chapel

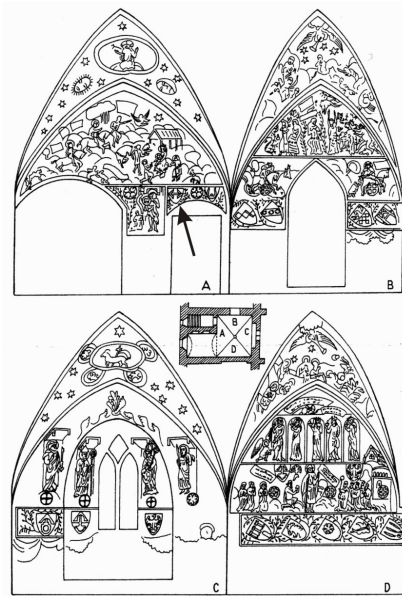


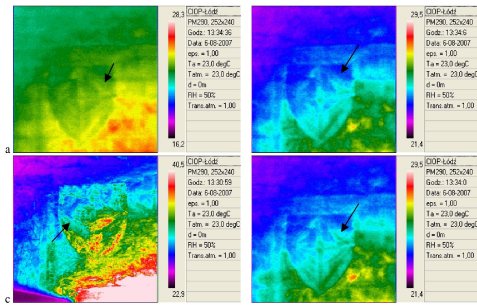
Fig. 2. The scheme of the location of the paintings in the chapel



Fig. 3. An exemplary painting on the south wall showing the scene of giving the symbolic chapel to the Cistercian abbot



a.



b.



c.



d.



e.

Fig. 4. Chosen results using a) visual light, b) thermography, c) UV fluorescence, d) UV reflectography, e) near IR