

Summary of Research and Conservation work on Mural Paintings in the Regalia Room, Archbishop's Palace, Trondheim, Norway

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Background

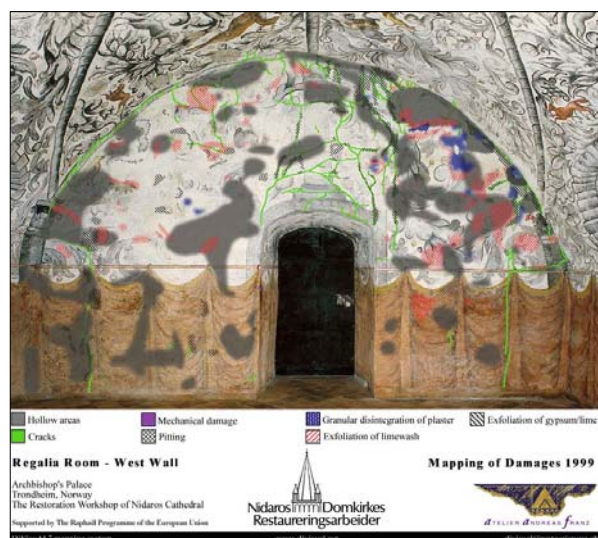
The so-called Regalia room in the north wing of the Archbishop's Palace in Trondheim exhibits perhaps the finest example of secular mural paintings in Norway. Covering all the walls and the barrel vault of a medieval room in the palace, the Renaissance murals were painted in the early 17th century. The current name, the Regalia room, derives from its use as a storeroom for the Norwegian crown regalia in a short period after 1826.

Although the paint has faded and there are many other damages, the murals are generally in relatively good shape. The great exception is the west wall, which has been in a very bad condition for a long period of time, even after having been extensively restored in the 1960s. Thus, as the damages are critical, and reappearing after the last restoration, it was decided to start investigations and conservation work on the west wall..

The Raphael Programme has enabled the Restoration Workshop of Nidaros Cathedral to organise an international research and conservation project, and until now the Workshop has co-operated with Swiss experts mainly. As the Raphael programme comes to an end (2000/2001), it is nevertheless planned to continue work in the room, both on the west wall and on other walls. Thus, the project will be carried on at least until 2005.



Location of the Regalia room



Map of damages on the west wall

Main objective: sustainable care of the murals

Since repeated surveys of the west wall showed that the weathering was very active and that there were no simple causes of the decay, the conservation project was designed as an *applied research* study, and not only a short-term investigation in order to draw up a practical conservation plan. The main objective is thus to lay a sound basis for long-term protection, maintenance and conservation, including necessary follow-up work of a scientific nature. In this respect the project follows the idea of *sustainable care of monuments*, and the work is carried out as small, "reversible" steps. A further aim of the project is to use and refine state-of-the-art digital graphic documentation methods.

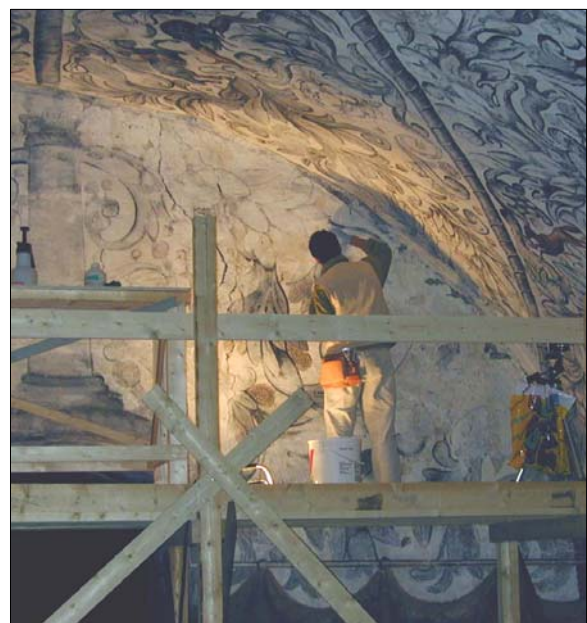
Work carried out until 2001

Efforts to reduce the weathering rate in the Regalia room started already by the early 1990s. At that time the very damaging floor heating installed in the 1960s was turned off, and the exterior part of the gable wall repaired by applying new plaster. Since 1996 the room climate, as well as material fallen from the west wall, have been recorded. In order to keep the room climate fairly constant, the room is generally closed to the public.

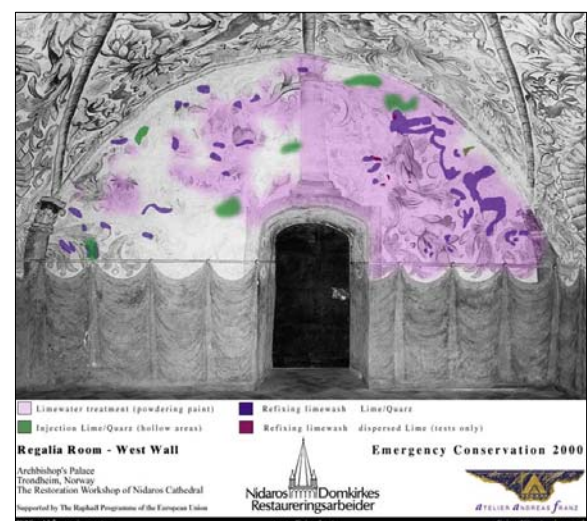
The first task in the Raphael project was to work out the art history of the murals, including the restoration history. This was undertaken in 1998-99 (Odén 1999) and provided a firm basis for research on paint stratigraphy and historical evolution of the weathering in 1999. A conservation concept was also worked out in 1999 (Franz & Storemyr 2000), in which the most urgent task listed was to secure remaning paint on the west wall.

The emergency conservation in 2000 (Franz & Storemyr 2001) was carried out using lime-based materials only. It included: 1) Removal of gypsum repairs from 1966. 2) Impregnation of the painted surface with lime water. 3) Re-fixation of exfoliating limewash and paint (injection). 4) Re-fixation of mortar in hollow areas (injection). 5) Closing of cracks and gaps with lime mortar.

Scientific investigations in 2001 included following up of crack measurements and climate monitoring, as well as studies on salt



Conservation work 2000



A part of the documentation of measures carried out in 2000

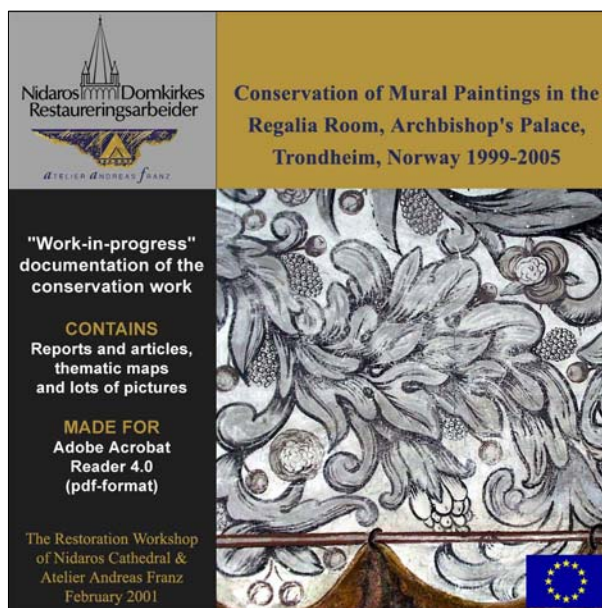
weathering. The relationship between indoor climate and salt crystallisation/dissolution is not yet properly understood, and experimental work on this theme is planned in 2001. A plan for further protection and conservation work on the west wall, as well as in the rest of the room has also been worked out.

At the moment we may state that the murals paintings in the room are in a semi-stable condition, and that the greatest risks are related to possible future water leaks from the west gable wall and unwanted release of water from the sprinkler system on the loft.

Documentation of the work

The project is generating large amounts of information - maps, photos, drawings, samples, analyses etc. - and all is documented by written reports and on CD-ROM. The CD-ROM is a "work-in-progress" documentation, which will be continuously updated. The CD contains almost all information produced in the project and, as it can be viewed by Adobe Acrobat Reader, it is readable for anyone with access to a computer.

In 2001 it is also planned to develop a web-site for the project. Moreover, the most important results so far will be published in an international journal of conservation.



Cover of the work-in-progress CD-ROM documentation

Reports, papers and CD published by the Restoration Workshop until 2001

Birgitta Odén (1999): Kunsthistorisk analyse av kalkmaleriene i Erkebispegården i Trondheim (NDR Report 9901). ISBN 82-7693-038-7 (in Norwegian with English abstract)

Andreas Franz og Per Storemyr (2000): The 17th Century Mural Paintings in the Regalia Room, Archbishop's Palace, Trondheim, Norway: History, Paint Technology and Weathering of the West Wall. (NDR Report 0001). ISBN 82-7693-040-9

Per Storemyr & Andreas Franz (2000): Experiences from the use of Adobe Photoshop® and DiVisuAL® for digital graphic documentation of mural paintings and exterior stone facades. In: Raphael I: Summary of investigations and research carried out 1999-2000. Nidaros Cathedral Restoration, The Raphael Programme, European Heritage Laboratories. (NDR-report 1/2000), pp. 91-98.

Andreas Franz og Per Storemyr (2001): Conservation of Mural Paintings in the Regalia Room, Archbishop's Palace, Trondheim, Norway 1999-2005. Emergency Conservation of the West Wall and Scientific Investigations 2000 (NDR Report 1/2001)

Per Storemyr (ed.) (2001): Conservation of Mural Paintings in the Regalia Room, Archbishop's Palace, Trondheim, Norway 1999-2005. Work-in-progress CD-ROM.