

## English summary

Philip Cole/Ivor Bloor

This edition of *Burgen und Schlösser*, No 3/2015, deals with the general restoration of the Elector's castle of Boppard from the initial planning phase in 2001 to completion of the work in autumn 2015.

*Doris Fischer* of the Directorate-General for Cultural Heritage in Mainz, in her article entitled 'Mediaeval castle to early Baroque four-wing residence – the former Elector's castle of Boppard', briefly describes the historical development of the castle site and its various uses from the 14<sup>th</sup> to the 20<sup>th</sup> century (Elector's castle, customs post, financial administration, then storage depot, military hospital, gendarmerie, prison, tax offices and courthouse). All the conversions and new uses have left their imprint on the interior and exterior of the castle. Plans had existed since the 1990s to restore and alter the castle. A complete survey provided a solid base for subsequent plans; a competition was held in which architects submitted plans to redesign the Rhine façade; and the entire building stock underwent a structural survey. Once the project had been accepted as part of the investment programme for national UNESCO World Heritage Sites implementation became a tangible target, although work had to be tailored to the availability of funding. Apart from repairing the façade in the early Baroque style, the costly Cologne ceilings in the interior were restored and the old plastering on the keep was stabilised.

*Constanze Altemülle* and *Elmar Torinus* report on the 'Restoration and redesign of Boppard castle from the aspect of the competition, design and works planning'. The architects' competition, announced in 2000, was won by the Berlin studio to which they both belong. One of the tasks was to develop a concept for the 'Franzosenbresche' (French breach), a gap in the castle's Rhine wing, so that it remained visible but was incorporated into the new design. Before planning started the four-wing château-like building showed much damage. The restoration work also had to take ac-

count of the castle's location on a site susceptible to flooding. The Cologne ceilings in various parts of the building were restored at great expense and more recent partition walls were removed to bring to life once more the spaciousness of the original sequence of rooms. During the building work it was found that the keep needed to be stabilised. The oaken horizontal roof trusses had to be repaired and restored section by section while under a protective roof covering. All existing stairwells had to be either altered or moved; extensive work on the windows was also necessary. In place of the 'French breach' a new glazed element, flooded with light, was installed. All the functions needed by a modern museum, such as barrier-free lift access to the upper floors, a new stairwell, a ticket counter, cloak-rooms, etc., have been housed in this area. Thus, the new building serves to open up the adjoining wing and slots carefully into the building as a whole. *Sabine Naujack* and *Dieter Rumpfenhorst* represent the architects' studio which supervised the entire building phase. They were on site from September 2009 onwards. The building phase was divided into two stages because of the amount of work involved: The castle site was refurbished, the historical ceilings and structural elements were restored and the glazed element was constructed as a linking structure and to open up the museum. The studio planned and supervised refurbishment of the roof timbers using static support for the building structure, replacement of damaged wooden windows with new windows, and new plastering and paintwork for the façade.

Preliminary surveys and structural engineering plans were urgently needed and these were carried out by *Bernd Mittnacht* on the basis of a building survey by students at the Mainz University of Applied Sciences from 1999 to 2003. The structure of the castle was found to have serious damage to roof timbering, wooden joist ceilings, half-timbered walls and the entire foundations. Leaks in the roof coverings had caused rot damage and encouraged longhorn beetle infestation. The extent of the damage was catalogued to form a basis for planning measures and the static calculation. The roof timbers of the keep and the west, north and east wings were restored and a

reinforced concrete structure was built into the gap between the keep and the east wing, its foundations formed of micropiles with double corrosion protection.

*Lorenz Frank* describes the Elector's castle of Boppard as a prime example of the relationship between imposing rule and establishing defensive and residential buildings. In 1312 the 'Free City' of Boppard and the free-standing keep (probably dating from the 1260s) were pledged to Balduin of Luxembourg, Archbishop of Trier. After an uprising by the citizens and its suppression by armed force the keep, which had been damaged during the disturbances, was restored in 1327 and its height raised by one storey (1329). After the Elector had become the main figure imposing and benefiting from customs duties, an Electoral customs house was added to the keep and later the gap between the keep and the eastern wall of the enlarged town was closed in. The upper town was given a wall in 1404 which meant that the castle was incorporated into the town's defences. Various additions and changes were made to the castle. For example, a small building was erected between the keep and the west wing and a chapel was installed in the keep; some of the wall paintings have survived. Immediately after the castle was destroyed during the Boppard war of 1497 it was restored with minor alterations. Between 1660 and 1672 there were further additions to the northwest and south wings. Following destruction in the Nine Years' War, the north wing was built in 1694 and 1695, providing a representative façade on the Rhine. Finally, the east wing was built in 1698. The year 1794 spelt the end for Boppard of rule by the Electors. Conversion into a prison in the early 19<sup>th</sup> century resulted in a further alteration of the floor plan.

*Karen Keller* and *Kristina Brakebusch* present the extensive findings from the restoration work. The purpose of their investigations was to document the different paint schemes both on the outside and in the interior, focussing on the Cologne ceilings – an unusually large enclosed surviving feature. Traces of the original colour scheme could be observed on the north-eastern, pavilion-style roof dating from 1694/95. The dressed stone wall angles were also very apparent. The new colour scheme of the

castle is based on this finding. The well-preserved mediaeval plasterwork of the walls in the keep made it possible to recreate the atmosphere of mediaeval rooms. More recent plasterwork on the ceiling was removed and the mediaeval surfaces preserved. At the beginning of the last century paintings in the former chapel on the fourth floor of the keep were exposed: multi-layered lime-wash paintings. Following conservation the colours appear much fresher. The Cologne ceilings with their profiled stucco work from the late 17<sup>th</sup> century can be seen in eight rooms on the first floor of the north and west wings.

*Enno Steindlberger* carried out a scientific examination of the historical plaster and mortar and the more recent phases of repair at the castle. Flood damage in the past often led to repairs to the base of the castle and hence to new plasterwork and new colouring. The consolidation work sought to examine the composition of both the historical mortar and the more recent plaster so as to identify any adverse reactions between old and new mortar and to find suitable types of plaster. All the samples of mortar examined were limestone-based with hydraulic components. The parts of the building next to the ground displayed substantial damage from salt and moisture, leading to efflorescence and loss of material. Wherever damage was found the existing plaster surfaces were repaired or completely removed back to the wall which was then coated with a natural hydraulic lime render.

*Lutz Henske* discusses aspects of preventive fire protection at the castle which seeks to protect persons, the historical fabric and cultural assets. However, evaluating and improving the fire protection of buildings protected as monuments presents problems in that the method of construction and the internal volume mean that it is usually impossible to comply, to the letter, with the requirements in force. As a result fire protection appropriate to the building was the focal point of the measures which include installing an automatic fire alarm system throughout, providing protection against lightning and sending an automatic alarm to the local fire brigade.

*Roland Boettcher* was responsible for flooding-related planning, building and conservation. The Elector's castle lies right on the bank of the Rhine; in other words, in the area liable to flooding. It was clear to everyone involved in the planning that

absolute prevention of flooding of the castle is impossible, but that this can be taken into account via the technical fittings of the building and by moving items to higher floors. Water-resistant building materials were used in the ground floor and the walls just above the ground were made more resistant with wall heating to permit more rapid drying of walls and floor. Action plans were drawn up for evacuating areas on the ground floor. The castle has also been given portable flood barriers to cope with flooding to a maximum depth of 1.3 m at the northern entrance on the bank of the Rhine.

In the final article *Wolfgang Fritzsche* presents the new museum concept. The new exhibition will focus on the following: Thonet, the history of the town of Boppard, the museum's special collections and the castle as an exhibition item. The museum is designed to be barrier-free: only the upper floors of the keep are accessible by stair alone.

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