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Abstract of the dissertation

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*Building history of a medieval castle based on
building archeological research and 3D digital
documentation methods*

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The castle Csesznek is one of the late medieval to early modern estate centres in Hungary, which survive as ruins. It was built on the site of the earlier, 13th century castle during the reign of King Sigismund (1387-1437) by the Gara family. In the 16-17 centuries it played a role as a stronghold in the defensive line against the Ottoman conquest.

Carved stone elements with inscriptions and coats of arms referring to the construction of the Garas were transferred to nearby Réde when the castle had fallen into ruin, since 1954 they can be seen in the Hungarian National Museum.

An architectural survey of the ruins was made in 1960, afterwards, in 1967 research and conservation was begun and have been progressing in stages since then.

Since 2000 digital surveys have also been conducted in some parts of the ruins.

Excavations and building archaeological investigations of the ruins were led by Nóra Pamer (1967-69), Csaba László (1979-81; 2001-02). The results were published by Pamer in a short paper and by László in his M.A. thesis and a popular guidebook.

In the year 2003 and 2005 excavations were led by the author in the upper castle and in 2006 in the lower castle with Csaba László as a consultant, in order to extend and summarize the earlier results as a preparation of a new plan for conservation.

Investigation of the masonry to round up earlier research took place in 2005 with the use of scaffolding.

Research of written documents about the castle for the period until 1481 was based on the collection of original documents, for the period 1481-1636 on the work of T. Koppány, for the period 1636-1800 on the collection of copies in the Veszprém County Archives.

Primary copies of historical depictions of the castle were collected and used for the assessment of disappeared elements.

For the 2003-2006 excavations and investigations a research strategy was formed in order to get information on the details left open or dubious after earlier research. However, conservation works finished prior to research imposed an obstacle for the investigation and interpretation of several details that could not be overcome.

Excavation stratigraphy was analysed with regard to the research of built structures.

Aspects considered for the analysis of masonry included building materials, masonry structure and technique as well as mortar types.

Research observation were documented on the basis of the updated 1960 survey drawings and in detail drawings, information from the latter, together with earlier detail drawings were transferred to the general plan and elevation drawings. Research survey documentation was processed as vector drawings using the 1960 originals as underlays, with standard national GIS reference.

Digital 3D model of the existing structure of the ruin was built in CAD environment (AutoCAD). Principles of the London Charter for the computer-based visualization of cultural heritage were observed in the modelling process.

Based on the model of the existing situation a digital 3D reconstruction model was created as a process consisting of separate phases formulated with regard to different levels of interpretation and different sources of information for the reconstruction.

Documentation of earlier research was evaluated in detail. The own excavations in the upper and lower castle made it possible to repeat some of earlier observations and to adequately investigate the relations of strata, levels, standing walls and wall remains in the most important areas that had not yet been explored.

Through aimed investigation and detail survey of built structures a comprehensive research documentation of walls was elaborated. The documentation includes the chronology masonry and survey of architectural and building archaeological features.

A catalogue of written sources until 1481 was assembled and these were partly re-evaluated with regard to the castle and the estate.

Relevant historical depictions were collected and evaluated in detail regarding disappeared elements.

Through the research it was possible to determine, which of the building were erected in the course of the 14-15th century construction, and what kinds of interventions can be dated to the period of Turkish wars, and which to the late 17th and the 18th century.

Existing data on the layout of 13th century remains could be defined more completely and for the first time a detail of stratigraphy connected to the early remains was documented. A significant collection of finds from the early period was collected and evaluated.

It can be stated on the basis of the research that the basic layout and significant parts of the standing remains is very probably the result of one construction period – divided by a major change in the planned arrangement – dated to the late 14th and early 15th century and associated with the patronage of the Gara. Thus it can be regarded and evaluated as one of the few castles built on a new layout in the period. In this phase evidence for one major and a couple of smaller changes of the intended arrangement can be found: it seems that the plans were altered a number of times during construction.

From the period of the Ottoman wars artillery type openings were formed in the upper castle and the east tower.

The digital model of the castle ruin was applied as a 3D digital documentation of the present day state of the historical structures and as a base for analysis. The model is compatible with scale 1:100 and it includes all details relevant to building history and structural analysis. Throughout the modelling process the London Charter was observed as a guideline for the documentation of modelling methods, processes and information management. On the basis of the model of existing

state a digital reconstruction was made. Aims of the reconstruction were to find clues to the spatial arrangement, building forms of the late medieval castle and to facilitate an analysis of functional arrangement and symbolic architectural representation.

Following the principles of the London Charter theoretical reconstruction was seen not as a single result, but as a process based on data and research results. The reconstruction model was built in the same 3D modelling system as that of existing remains.

When defining the phases of theoretical reconstruction process the observation levels of the building: elements/structure – room – level – building unit – whole building, and sources of information for the reconstruction: interpretation of existing remains – modern documentations – analogies – historical depictions were taken into consideration.

Other objects with different types of sources and with a different proportion of preserved fabric can be approached in a similar way to formulate the steps of reconstruction.

The results from reconstruction of material form it was possible to consider the spatial arrangement of the two lower level of the upper castle. Central space of the building is the inner courtyard.: the gargoyle with coats of arms thought to have been here is a form of heraldic representation.

The courtyard separated the east and west parts of the building. In the second floor the larger west compartment can be considered a residential area, where four rooms seem to have been in a symmetrical arrangement: the two bedrooms on the two sides of the central living rooms. On the east side of the courtyard the single large room in the second floor was probably the great hall.

In the first floor storage and facilities, while in the third floor defence functions and/or staff living quarters are probable.

The appearance and exterior arrangement of the castle seems to have been influenced by not so much the strategic as the cultural aspects of the surrounding landscape. The faces of the buildings to the main directions of the road passing the castle seem to have been especially important for the builders. Inner functional arrangement is also related to the exterior appearance.

A main aspect learned from the computer-based modelling and reconstruction of the castle was that reconstruction should be based on a model of the existing remains that integrates most fully the results of building archaeology.

The approach of the London Charter that regards 3D digital reconstruction as a documented process is indispensable for this type of analysis.

List of publications, on which the abstract is based

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Pamer Nóra: Csesznek. In: Gerő László (gen. ed.): Várépítészetünk. Budapest 1975. 122-125

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A modellezés, mint az elemzés és az elméleti rekonstrukciós folyamatok bemutatásának eszköze a cseszneki vár példáján I. Castrum 15 (2012) 49-60

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