

POLITECNICO DI TORINO
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Master of Science in Architecture (Rehabilitation and Revaluation)
Honors theses

The Machine de Manse: hydraulics and gardens in Chantilly

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The analysis *In-Situ*, the reconstruction of processes and events which led to the ingenious mechanism's creation called *Machine de Manse* and the water system in Chantilly, finally the comparison with other mechanisms, have been the strong points of a study aimed at greater understanding of a complex scarcely recognized and valued compared to other residences carried out in vicinity of Paris at the seventeenth century.

The research is born by an analysis about the water's role through the garden art history, since the antiquity to the mid-eighteenth century and the hydraulic evolution with new techniques' development. The knowledge more detailed in hydraulics can be verify reading treatises previous, contemporary or immediately posthumous gardens' realization in Chantilly, with Hero Alexandrinus, Ramelli, de Caus, Boyceau de la Barauderie, Dezallier d'Argenville, Belidor, Diderot and d'Alembert, finally Blondel.

Ended the initial part, there is the study about gardens and water presences in Chantilly, those the architect André Le Nôtre showed a preference, after being unable to take advantage of place's difficult features and having integrated them into a formal arrangement with a striking effect. The project was based on the use of water and geologic resources of site, employing technological innovations of the seventeenth century, so, in addition to the exploitation of Sylvie lake's sources, Saint-Léonard aqueduct and Nonette river channeled in Grand Canal, there was the development of the hydraulic pump by Jacques de Manse, for supplying fountains and waterfalls with water in larger quantities and elevations in western gardens.

The *Machine de Manse*, mostly wooden and placed in a proper building in 1678, was started by a pebble wheel moved by the running water of Nonette river, coming from Canal du Roy, derived from Grand Canal. The pump drew water from a source at ground level, it convoyed this into a reservoir located in the upper floor of the building, finally, across an underground way and by gravity, the water was collected in the large *Réservoir* in Pelouse prairie before being distributed to the fountains' jets.

It was so possible testing a modern method for picking up, used in other European place between the late seventeenth and the middle eighteenth century, as it's dealt in the last chapter about the description of engines for water provisioning in formal gardens: *La Samaritaine* of Pont-Neuf in Paris, *La Machine de Manse* in Chantilly, *La Machine de Marly*, the machine of Nymphenburg gardens in Monaco of Bavaria and *Il Castello d'Acqua* of Royal Gardens in Turin. The above-mentioned mechanisms provided starting means of one or more wheels driven by a water course and the transformation of rotary movement into oscillatory in balances and translatory vertical alternate motion in pumps' pistons, which allow transferring the elevated water into one or more reservoirs and from there into the adjacent fountains.

My study must be considered an approach toward more specific knowledge and skills about the mechanisms that not only mark the landscape and a step in the hydraulic science, but they had repercussions in architecture and gardens history. The *Machine de Manse* restoration and revival in 1:1 scale, even if questionable since the wheel moves electrically and without raising the water today, has got an educational purpose: since 2005, knowledge projects of students, professionals and volunteers of *Association Pavillon du Jacques de Manse* have placed new sensitivity and regards toward a water supply system until then little investigated.

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