The walls of Chieri: analysis and planning for the conservation of mine's rampart. Relationships between artificial structures and self-vegetation

by Sabrina Ricca, Simone Ronfetto, Sabina Zinni
Tutor: Maria Adriana Giusti
Co-tutor: Grazia Tucci

Our paper investigates the current state of conservation of a Sixteen Century rampart belonging to the second town wall of Chieri (Torino) and explores the range of possibility of restoration and strengthening of the structure in order to end the current decays.
The graduation thesis begins with a historic and archives research, almost completely developed using original documents and files.
Afterwards we have proceeded with a instrumental survey with a digital goniometer laser integrated, positioned on a reference grid obtained with a geopositioning satellite system.
We have mapped decays and instabilities of the structures using interferometric X-ray analysis and visual investigation.
The main reason of decay is the massive number of self-vegetation weeds growth inside the brick structures.
We need a vegetation classification in order to know the real dangerousness of each type of plant and consequently develop an action planning, developed in three steps: correction, turning and maintenance.

The glyphosate salt has been chosen to eliminate the undesired plants, but not all the died plants will be removed from their site.
In fact, for structural needs, the major roots developed inside the brick walls will be kept in their place as if they were wood beams. So it will be necessary to curb the moistness, using electro-osmosis, in order to avoid mushrooms infestation
The turning phase will consist in the elimination of new born vegetation in springtime.
After all it will be necessary a constant maintenance and care of the whole structure, of the fields around and of the electro-osmosis system.

At the same time the walls will be cleaned and detached bricks put back.
Afterwards the structure will be reinforced using ethyl-silicate and the walls finally cleaned.
The diagnostics surveys will be now possible, no more hampered by self-vegetation, and it will be finally possible to restore the structure and proceed with final reinforcement and protection.

For further information:
Sabrina Ricca , e-mail: magri.ricca@tiscali.it
Simone Ronfetto , e-mail: simone.ronfetto@tiscali.it
Sabina Zinni , e-mail: sabinaz@libero.it