

**Reconstructing the Herculaneum Collection.
The Prototype of a Software for the Papyri with Complex Stratigraphy.**

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In the Herculaneum papyri with complex stratigraphy, the presence of misplaced fragments coming from the next circumferences (*sovrapposti*) and from the previous one (*sottoposti*) can seriously compromise the reading and the understanding of their content, since the *mise en colonne* of the text appears totally disarranged. Restoring the correct order of the layers in a virtual reconstruction is the only way to read them.

Recently, an article published by Federica Nicolardi in «Cronache Ercolanesi» 49/2019 has illustrated the general rules of the so-called 'spostamento a catena' of *sovrapposti* and *sottoposti* to follow in the virtual reconstruction of the Herculaneum scrolls; nevertheless, in practice, a specific program to do this does not exist, and the graphic design software used at the moment by the scholars remains unfitting and requires long and complex operations.

This has led me to consider developing the idea of a specific program for importing and editing images able to 'learn' the 'rules' of stratigraphy and to automatically do what we now manually do with a photo retouching software. Thanks to the AFoH's scholarship, in collaboration with a Computer Scientist, I could develop a prototype of this software, which at the moment allows to do the following operations:

- To import the image of the papyrus;
- To configure circumferences, columns, and intercolumns, by inputting into the software the basic data resulting from the material analysis of the papyrus under investigation (Fig. 1). Based on these parameters, the software creates automatically the succession of circumferences and columns (Fig. 2).

Fig. 1

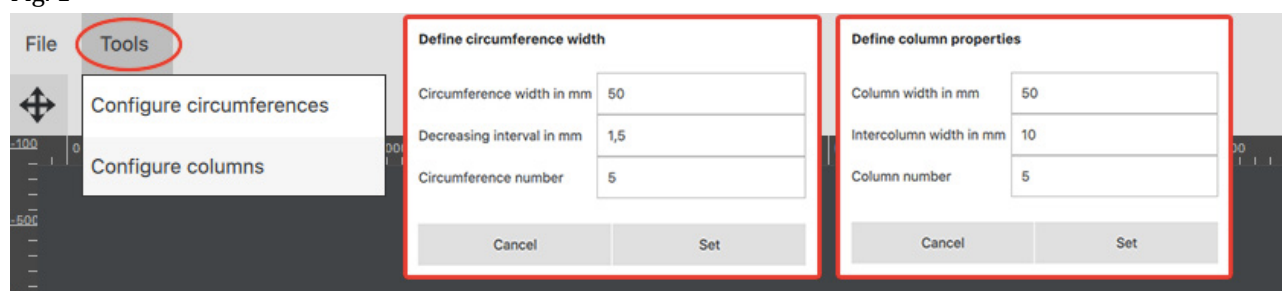
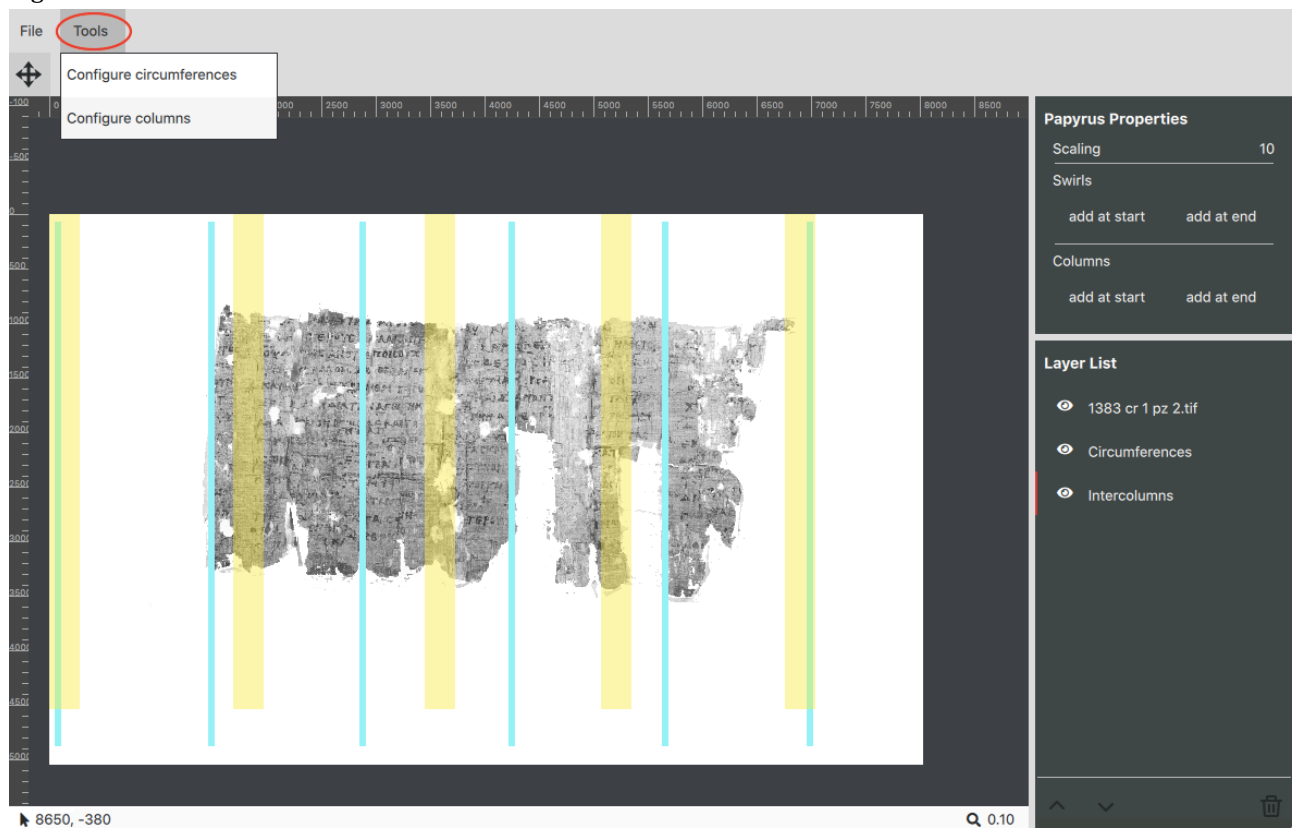
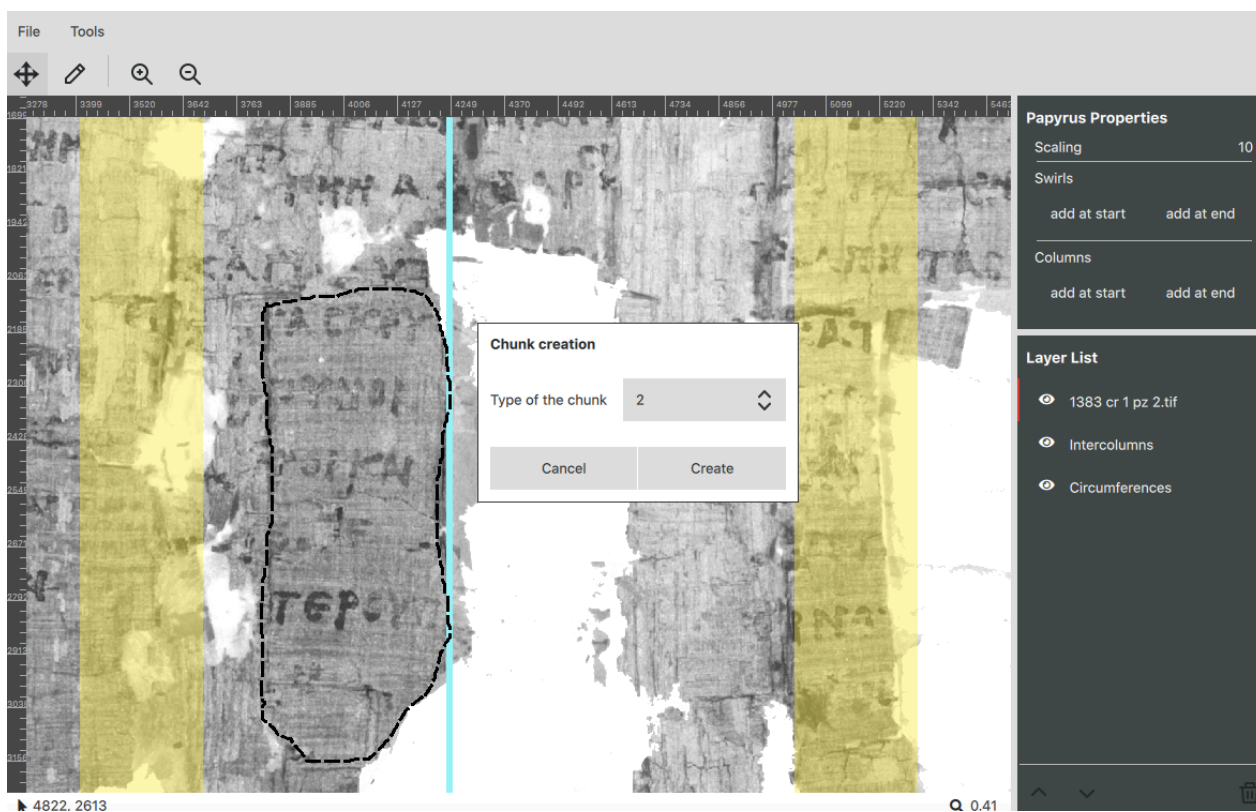


Fig. 2



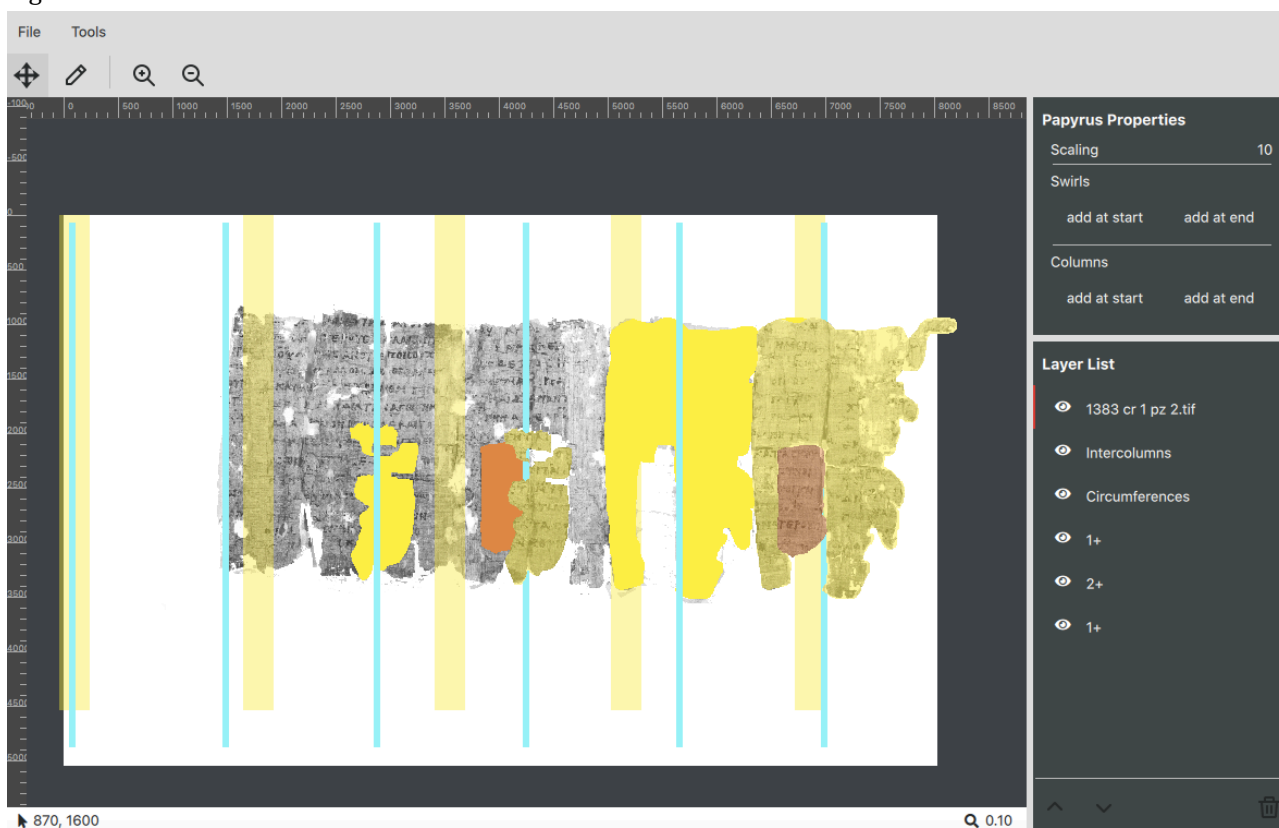
- To select regions of the picture corresponding to the misplaced portions in the papyrus and to add a tag (and a related color) according to the level of *sovraposto* or *sottoposto* verified on the original (1+, 2+, 3+, 4+ ...; 1-, 2-, 3-, 4- ...) (Fig. 3).

Fig. 3



4. The software moves automatically the selected regions one or more circumferences backward or forward, in relation to the added tag (1+ one circumference forward; 2- two circumferences backward ...) (Fig. 4).

Fig. 4



Within a few months, the software would allow to automatically move a piece only according to the parameters established, by preventing the user from moving a piece to a position that is not valid according to the mentioned rules.

This prototype represents the first step towards a fully functional software specifically dedicated to the reconstruction of the Herculaneum papyri with complex stratigraphy.