## On electronic versions of Cotton Roll XIII.44

It is displayed (indistinctly) on BL web page

https://www.bl.uk/picturing-places/articles/medieval-maps-of-regions

I mentioned this fact in my Jan 29th e-mail to

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I asked for better images – for research purposes only – in connection with BH. On Feb. 2<sup>nd</sup> Sandra sent me five images: c07710-05, c07710-06, c07710-07, c07168-08, and c00398-18.

Relevant metadata are as follows:

c07710-05, 3,18 MB (3.343.092 Bytes) 7201 x 5416 px made on 13.02.2007 18:22 c07710-06, 3,59 MB (3.769.729 Bytes) 7214 x 5416 px made on 13.02.2007 18:05 c07710-07, 8,21 MB (8.613.535 Bytes) 7196 x 5402 px made on 13.02.2007 18:08

Three years later BL produced

c07168-08: 2,23 MB (2.340.547 Bytes) 3801 x 7200 px made on 23.08.2010 14:55 c00398-18: 682 KB (699.186 Bytes) 2629 x 2328 px made on 23.08.2010

This latter is a low resolution/high compression excerpt (not relevant for the discussion here).

Image c07168-08: 2,23 MB looks very similar to BL 3433013 (BH's version) that Günther sent me on May 21st

BL 3433013 has a much larger size of 7,87 MB (8.256.114 Bytes) 3801 x 7200 px, date suppressed, quoted resolution 720 dpi. Its size is quoted as 64 x 13.4 cm so this is probably just a communication failure.

According to Milanesi, the map is 64 x 134 cm. The character heights of the place-names are of order 2 mm so that resolution is very important. The claimed resolution of 720 dpi (???) is strange. So I did a comparison on the basis of the relevant scale in cm. All image widths are 75.18 cm wide. The derived map-sizes are

 $c07710-05 = 66.13 \times 53.62 \text{ cm}$ 

 $c07710-06 = 66,97 \times 56.47 \text{ cm}$ 

 $c07710-07 = 66.97 \times 55.04 \text{ cm}$ 

 $c07168-08 = 66.9 \times 136.4 \text{ cm}$ 

The overlap of the 3 partial photographs is  $165,13 - 136.4 \sim 28.7$  cm. There are some orientation problems because the three do not overlap precisely. Either distortions of the 35mm focal length camera objective or micro rotation is involved. The difference between my electronic reconstruction and Milanesi's size is probably due to the fact that old parchments change in time and are never rectangular. The width at the top is indeed 64 cm, with bulges to 67cm halfway down the map... (eventually to be followed with the original at hand?)

## Conclusion

The main difference between the 2007 photos and BH's version (2010?) is mainly different compression ratios in the jpg conversion.

Nominally, my three images are 75.18 cm and 7200 pixels wide and BH's version is 7200 px high. Including the black background this amounts (crudely speaking and after conversion to the cm-scale) to 7200 px per 75.18 cm or 96 px per cm whereas BH's version image (not map)-format is 76 x 145 cm. The result is 50 px/cm nominally.

The gates of Rome in c07710-06



The gates of Rome in BL 3433013 (BH's version)



The much improved readability of the 2007 images is probably due to different compression algorithms.

## A note on contrast

The originally black ink is fading into various sepia tones in different parts of the vellum. This support is also changing from the original white (?; Milanesi) to similar sepia tones but in other parts. The combined effect is a patchwork of crystal clear contrast in some parts and illegibility in others. The originals image colour balance is beautiful so I refrained from further colour manipulation. After a while one gets used to the changing contrasts...