Material analysis of inks and pigments in coloured maps

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The Project

The 3-year interdisciplinary project Coloured Maps (2018–21) was devoted to a systematic study of colouring on maps, focused on a selection of maps from the 15th to 20th centuries from Western and Northern Europe as well as from East Asia (China, Japan, Korea). The maps are located in Hamburg in the Stiftung Hanseatisches Wirtschaftsarchiv (SHWA), in the Commerzbibliothek der Handelskammer as well as in the MARKK. In cooperation with the LIB and the CSMC, colours, colourants and their use for colouring maps were investigated.

Methods

Scientific analyses were carried out using non-invasive, mobile methods. These include X-ray fluorescence analysis (XRF) to determine characteristic elements in inorganic pigments, visible spectroscopy (VIS) to determine coloured materials, and vibrational spectroscopy (e.g. Raman) to analyse organic materials.

The material science findings were compared with corresponding colouring manuals. Cultural studies dealt with colouring practices and the function of colour in maps.

Results

In general, it was found that new synthetic colourants and colouring technologies from Europe were swiftly and thoroughly assimilated in East Asia, especially from the 19th century onwards. As regards the colouring of maps, we found only minimal influences from Europe to East Asia, mainly limited to an increase in the full colouring of land masses from the 19th century on. In order to make the transcultural comparison of map colourations possible, suggestions for standardized, specific definitions for the terms ‘colour system’, ‘colour scheme’ and ‘colour code’ were generated out of the project.

Significant colour systems and schemes for different eras and spaces have been worked out for Europe. The colouring of a map can help to date it. Material science analyses of the colourants (dyes and pigments) in European maps have confirmed instructions and recipes from corresponding colouring manuals, thus confirming long traditions of colouring paper objects.

Only few written sources on map colouring for the East Asian region exist. Printed maps were coloured less frequently in East Asia. Similar to Europe, significant colouring systems and schemes could be identified. The material-scientific investigations and the comparison with painting manuals show that the same colourants were used for the colouring of maps as well as for paintings.

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References


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