Georg-Felix Sedlmeyer, Klaus Stein, Carmen M. Enss
Kompetenzzentrum Denkmalwissenschaften und Denkmaltechnologien (KDWT), Otto-Friedrich-Universität Bamberg

Organizing disaster: Interpretating and categorizing thematic maps of war-damaged cities from the 1940s

Historical thematic city maps are currently surfacing from planning offices and archival collections to a wider public knowledge. While more and more maps are digitalized and some city archives start to publish their digitalized historical maps on the internet, they do not follow a common metadata standard and there is no comprehensive typology. Currently there is no map catalogue that includes the maps of all archives, let alone city planning offices and other institutions. Few archives provide DOI, some have permalinks. Item signatures are not standardized across archives. Often digitalized maps are only available by request.

The Recording Wardamage Project (DFG-founded) and the UrbanMetaMapping Project (BMBF-founded) with scientists from five institutions research the impact of World War II war damage maps on reconstruction processes. Amongst others, Hillier (2018) theorized functions of thematic maps in urban planning processes and Oswalt's classification (2019) reveals agencies of historic maps. War damage maps are understudied documents that were bases for disaster management and reconstruction planning (Elzanowski/Enss 2021). Our web-based project research platform MapMyMaps (in development) allows to collaboratively collect, classify, analyse and geo-reference historical maps. The platform currently provides ~200 war damage maps from ~40 European cities which were located, identified and combined from several collections and specific archives. The war damage maps were created during and after WW II, mainly under German control and perpetuated post war by the affected states (e.g. Poland, Romania, Austria, France).

These maps fill a knowledge gap in urban history that exists for the period between aerial bombings and the later city reconstruction boom in the 1950s. Individually created in war-damaged cities, most maps do not follow any specific mapping guidelines and often miss tiles, key or date of creation. First maps were drawn in preparation for the war, others display increasing damages over time. After the war ending, new maps recorded a maximum damage state and successive reconstruction.

Maps from different actors/cities bear differences in style and quality. We can show that nevertheless they were produced for similar purposes. The local government were in need for directly documenting damages, analyzing and communicating and planning appropriate steps. These tasks are found in the different war damage maps created by municipal agencies.
To establish a framework for critical reading from a historic perspective we propose a typology of three main categories representing three different stages of damage mapping by purpose:
1. "record": recording and assessment,
2. "showcase": combine, enrich, streamline and propagate,
3. "plan": planning.
They describe intertwined historical processes and goals behind the map making:
1. documentation of the impact of an air raid,
2. providing a combined and contextualized view, e.g. display still habitable basements,
3. frame a reconstruction/rebuilding and development concept, e.g. plans for new building blocks superimposed over damaged areas

Regardless of individual differences in mapping styles, the damage maps of all cities can be classified into one (or more) of the categories, allowing to contextualize and compare maps and processes in different cities.

The Oswalt (2019) categories for historic maps, like "orientation", "evidence", "legitimization" focus on the functionality, especially the various (social) functions of maps in use (in contrast to the goals of the creators). Superimposing both categorizations provides a typology that envelops the creation context (goals of the map authors) and the functional impact (uses, later applications).

This gives insights in the motivations, local requirements and resulting local guidelines for staying on top of the damage chaos and reveals underlying administrative decision-making processes and structures as well as city government politics, i.e. implications for the immediate perception of the situation at creation time as well as the later city (re)construction planning after the war. This allows us to understand the complex processes of mapping and city transformation in the late war and post-war period.

The MapMyMaps platform is an important tool for categorization and classification that allows different researchers to collaboratively analyze maps with direct access to the work of each other, including (geo-referenced) scans, meta data, comments, and to apply and refine the typologies discussed above. The system provides the historical maps georeferenced on a zoomable interactive map for overview, and as exportable table showing the associated meta-data that can be sorted and filtered by various criteria. The meta data consists of the information provided by the archives and enriched by the described categorization, time layers and user comments, and is evolved along the demands of the ongoing research. The working prototype developed in the UMM project is currently used by the research group to prepare a book publication *Atlas Kriegsschadenskarten Deutschland / Atlas of German War Damage Maps*.

The platform for the first time brings together war damage maps from many different sources and archives and provides the whole picture. Having user-friendly parallel access to map data, images, and metadata of the collected maps and being able to share these with the coauthors significantly improves research workflow and collaboration. Through the ongoing research in the UrbanMetaMapping consortium and the associated international research network more and more maps are and will be added, including new aspects and viewpoints.

Currently access to the platform is restricted, mainly because of the unsettled copyright situation of many maps. The final MapMyMaps app currently in development will have a more fine-granular user and rights management as well as closer integration with external sources at the archives and will therefore allow to have selected sets of maps published online while others are only accessible for certain researchers. The source code will be available under a free license.

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