

Tutorial

Understanding Cadastral Maps

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HISTORICAL CADASTRAL MAPS are a rich resource for family historians with roots in Galicia, Bukovina, and other provinces of the Habsburg Monarchy. Thanks to the technical abilities of imperial surveyors and cartographers, these highly detailed maps illustrate important facts about life in these areas since the 1820s. The maps and their associated property registers can offer direct genealogical data. More typically, however, they complement other records by enabling researchers to locate families at their homes and within their communities, quantify their relative wealth, and reveal their likely routes to markets, synagogues, and cemeteries. These routes, as well as various



A complete six-sheet 1850 cadastral map of Gorlice

other town features, are often visible in the same places today.

In this tutorial, we review what cadastral maps are, how they varied, and how they can still be used. We then take a detailed look at their features by zooming in and out on 19th-century Galician maps. We also aim to show how researchers can use digitized historical cadastral maps, along with other sources, to add depth to their family histories.

What is a Cadastral Map?

Cadastral maps are property maps, meaning they are legal tax documents that show parcel boundaries in relation to man-made geographic reference points and permanent natural features. Private cadastral maps have existed since antiquity, but over the past two centuries, they have typically been governed by the state, as they are today.

Habsburg authorities had already recognized the importance of military maps when, in 1817, to levy taxes equally on everyone, Emperor Francis I ordered a cadastral land survey, which also included a detailed mapping of the empire, using new techniques and new fixed references. (See Zalewski, Andrew, "Research Project Updates," *Galitzianer*, September 2017, pp. 9–11.) The result was so much better than prior efforts that it formed the basis for later military maps and the modern cadastral system across much of Europe.

The Austrian survey project was huge, covering the entire empire, with no unmapped spaces in or between towns. The "cadastral area" covered by one survey and map is usually a single settlement and the open land surrounding it. Maps for cities and large towns include all suburbs and exurbs; those for smaller towns and villages may include nearby named hamlets.

By contemporary standards, the cadastral maps were drafted at a very high scale, meaning that features as small as several feet or a few meters can

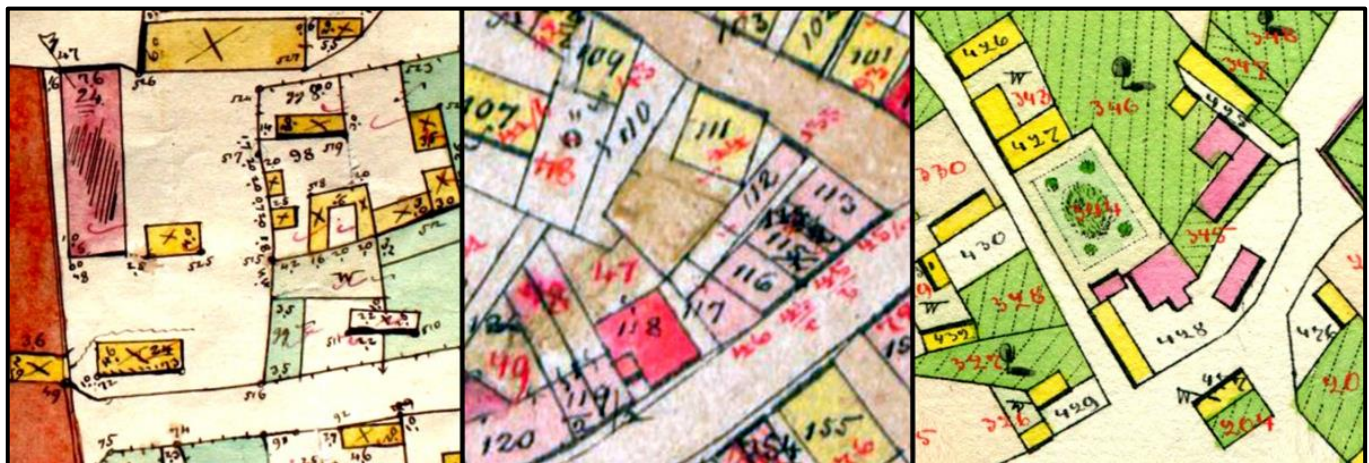
be distinguished. The maps were divided into sheets for handling and storage; each sheet was about the size of four modern letter-sized pages. As will be seen here, the high map scale captures with precision the nuances of building and land parcel shapes and many other details.

Types of Galician Cadastral Maps

Cadastral maps were produced through an elaborate multi-stage process of progressive survey and refinement, with maps of all stages preserved in the archives. It is important to recognize the stage of a given map to know how to interpret it.

In the first stage, a professional surveyor walked, measured, and sketched the land, capturing all features of value in and around a town on a hand sketch and in a temporary measurement record book. These field sketches (*feldzkizzen*) are rough and distorted, but very detailed, with house numbers, which correlate to vital records and other contemporaneous documents, labeled on every residential building. The record books note the names and locations of property owners for buildings and land and include data on building materials and crops. Special features, such as synagogues, mills, and cemeteries, are labeled, and

Comparing a field sketch, an indication sketch, and a final-stage cadastral map.



sometimes large parcels of land are annotated with the property owners' names.

More precise survey measurements were then documented in intermediate maps called indication sketches (*indikationsskizzen*). Like field sketches, indication sketches include house numbers. They also have a tax administration layer, meaning that they depict building parcel numbers and land parcel numbers as well. A building parcel typically corresponds to the footprint of a building on the land but is sometimes slightly larger. Land or building parcels belonging to a family at a known house number can be identified quickly on an indication sketch, but the double annotation—that is, house numbers and parcel numbers on the same map—can make these sketches difficult to read. (See Osborn, Jay, “Map Corner,” *Galitzianer*, December 2020, pp. 37-39.)

The official property register for a town was produced in a final stage of review, along with a lithographed and hand-colored cadastral map (*katasterkarte*). Although we refer to maps in all three stages of development as cadastral maps, technically, the earlier maps are really sketches, meaning they are unfinished. The final maps are beautiful examples of the cartographic arts, as can be seen here and on the online [Gesher Galicia Map Room](#). Sometimes, these maps still serve as legal records.

Final-stage cadastral maps are annotated only with building and land parcel numbers, no house numbers. Linking properties to owners and their house numbers requires a corresponding property register or “protocol” from national or regional archives. Gesher Galicia has indexed many property registers, and that data is searchable in the All Galicia Database.

Most towns were surveyed and mapped more than once after the middle of the 19th century. Evidence suggests that surveyors took working prints of the most recent cadastral maps back into the field, noting and measuring changes, including the shifting courses of waterways, new houses built or old ones lost, and especially, land parcels split for inheritance or sale. Revision maps are marked with red lines to indicate changes since the prior survey.

Several thousand Galician cadastral maps are preserved in archives in Poland and Ukraine, but the collected record is only a fraction of the many tens of thousands of sheets originally produced. For many places, only one—or even none—of the original maps have survived. Field and indication sketches were process documents, probably

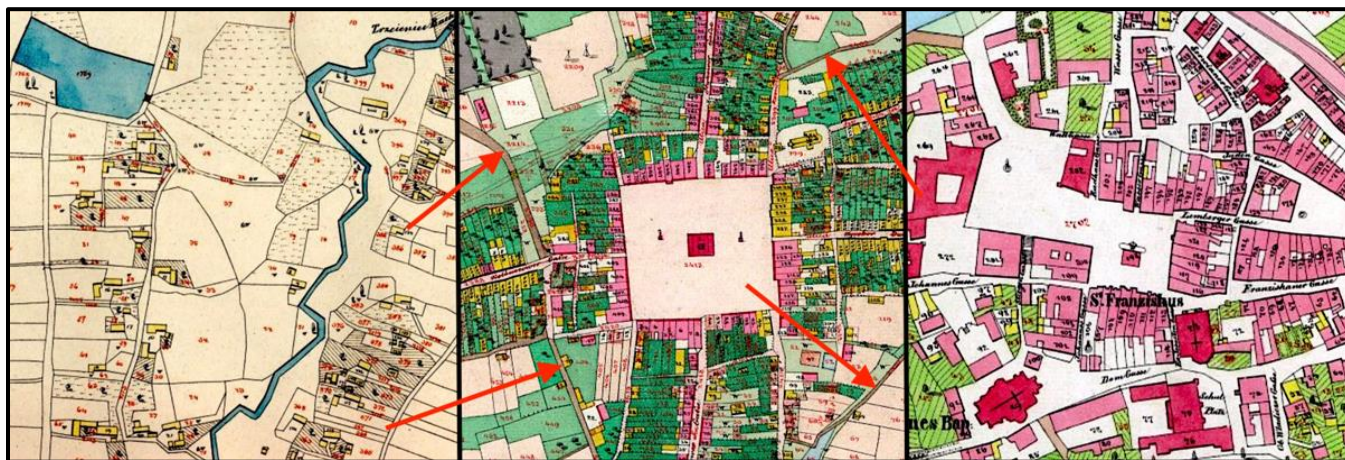
intended to be discarded once the final cadastral map was produced, yet some remain. Many of the existing maps are marked with red revisions.

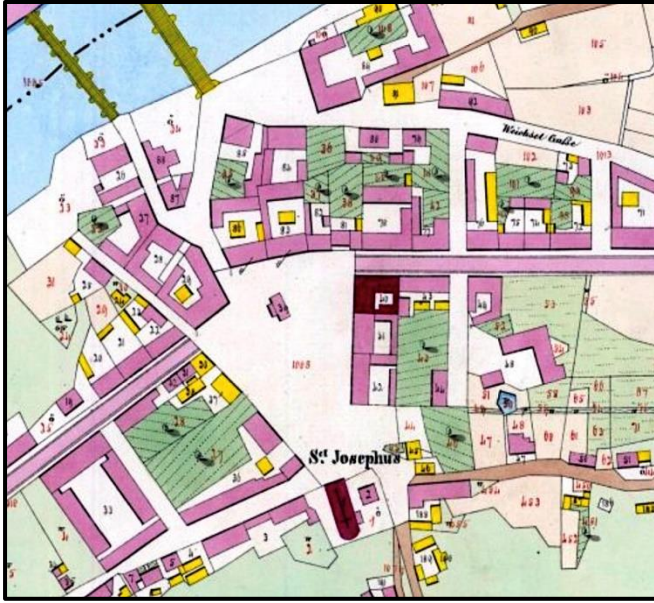
The Maps at First Glance

It is difficult to work with the original paper cadastral maps, which are comprised of more than a few sheets. However, on the Gesher Galicia Map Room, all the existing map sheets for a town are digitized and arranged onscreen in their correct position. For most, we trim and “stitch” the separate map sheets together into a seamless composite image that can be panned and zoomed in a web browser like any other Internet map, greatly simplifying study.

A zoomed-out view of a cadastral map provides viewers with an impression of the size of the residential and commercial core of a medium-sized town or large city and its placement within the surrounding lands for grazing (in green), crops (usually tan-colored), and forests (in dark gray). Smaller villages often lack a recognizable center; instead, houses dot the landscape along creeks and roads. As indicated by the arrows in the middle image below, the roads often look like brown threads connecting the mapped place to other towns, which are named at the edges of the map area. Creeks and rivers are shown in blue, as are

Comparing settlement sizes and how they appear on cadastral maps: a village, a town, and a city.





A map of Podgórze from 1847 that depicts an irregular town “square”

manmade canals and reservoirs. Many of these features persist today and can help orient a historical cadastral map to modern Internet maps of former Galician places.

Before zooming in to examine a cadastral map more closely, it is important to identify the type of map in question. In the Map Room title and description, we normally label the map as a field sketch, indication sketch, or cadastral map, but map users may want to confirm for themselves. One clue to the map’s type is the progressive refinement of graphic quality noted above. Churches and synagogues can often provide another clue. Since most prayer houses were not residences, they are numbered as building parcels on final-stage cadastral maps and usually appear without any numbering on field sketches. Final cadastral maps also have many annotations and other unique characteristics, which are recognizable if all map sheets are available.

A Closer Look at the Town Center

For towns with visible residential and commercial centers, zooming in on a map reveals many

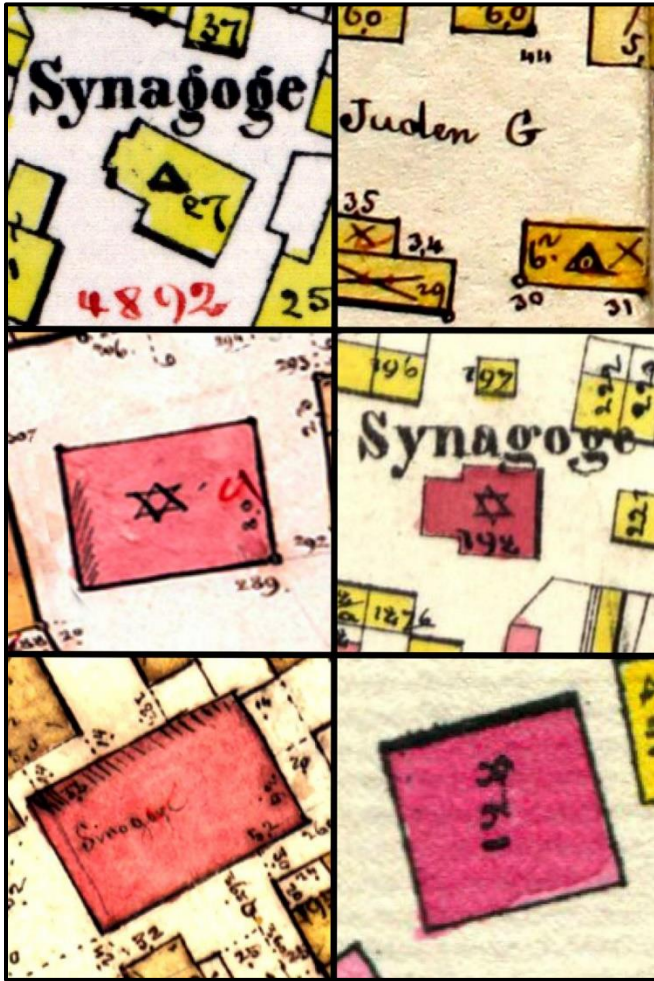
historical details. Often a market square (in most towns, synonymous with the “town square”) is prominent, usually open and rectangular, but sometimes irregular, or with market stalls within. Jews often lived in and around these marketplaces in dual-purpose buildings, with their living space behind or above shops that faced the square.

Like the land-use colors listed above, buildings are described by color as well: pink represents stone or brick, and yellow identifies wood or other less durable materials. Important buildings, such as large churches and synagogues, are indicated by darker colors on some maps.

These colors, as well as over a hundred symbols, were standardized in official map legends. The size and style of lettering script were also used to provide clues to the status of places on maps. However, colors and symbols were not always applied uniformly, especially on early drawings and incomplete drafts. A sample cadastral map legend is available on the Geshher Galicia Map Room (maps.geshhergalicia.org/references/cad_legend_en.jpg).

Many town squares were anchored by churches, nearly always depicted on maps with a prominent cross on the building footprint. However, synagogues were seldom given any mark to distinguish them from other buildings, except on field and indication sketches, where a Star of David was often inked onto the outline of a building.

Although there is no standard designation for synagogues on map legends, occasionally a triangle has been used to demarcate a synagogue on cadastral maps of all types. The reason stems from the symbol for Jewish cemeteries. A Jewish cemetery is indicated by one or more triangles, perhaps to mimic the pointed or rounded profile of many Jewish *matzevot*. Along with the occasional use of the Star of David, the triangle seems to have been used as a kind of shorthand for Jewish community buildings or land of any type.



Synagogues indicated with triangles, stars, words, and numbers

“Walking” around the town center reveals the intersection of major roads into the market area, as well as structured neighborhoods or irregular clusters of houses around major synagogues. Many cadastral maps also show civic community buildings, such as town halls, centered on the squares or prominent at a corner, as well as public houses, indicated by a building with a flagpole on one of its corners. On final-stage cadastral maps, all the features described here have building and/or land parcel numbers, including the roads and the ground of the town square itself. Everything belonged to someone, either private individuals or civil and religious communities.

Beyond the Town Center

As we move farther out from the town center, the concentration of family houses and commercial buildings often thins out quickly. We may pass labeled hospitals (sometimes run by religious communities), breweries, or distilleries. The land transforms into a broad space of mostly agricultural production on a great many small parcels with mixed or rotating crops.

As noted above, most of these lands are depicted as grass, forests (often including small schematic trees), or common areas for planting food. Fruit orchards and hop yards each have standard symbols that are often seen on Galician maps. Grazing land is usually labeled with abbreviations designating private or community (shared) use. Recognizing the maps as records of production capacity and value, the surveyors also differentiated between ordinary swamps and those with useful plants like reeds, and depicted parcels considered to be “waste land” (too rocky to be planted or to be otherwise useful) with no color at all.

Clay pits are scattered on many Galician maps, often with buildings nearby for brick production. Sometimes significant quarries of sand or stone are also shown, indicating large-scale industrial activity outside the town center.

Rivers and large creeks routinely depict human intervention as well, with bridges for road crossings, earthen dams to create reservoirs, or mills for flour and other products. Sometimes maps document the intentional rerouting of natural creek or river courses, and they almost always depict the mill buildings themselves with a few amusingly schematic waterwheels.

Private or civil community lands may include recreational gardens, often decorated on maps with ornamental hedges. However, the most common community lands shown on maps are the

cemeteries, which are outside the town centers and sometimes quite far away. Jewish burial sites are identified with the triangle symbols described above. Sometimes the maps also label Jewish cemetery land as “garden” (*ogrody*) or “trench” (*okopisko*), indicating it was not consecrated in the Christian tradition.

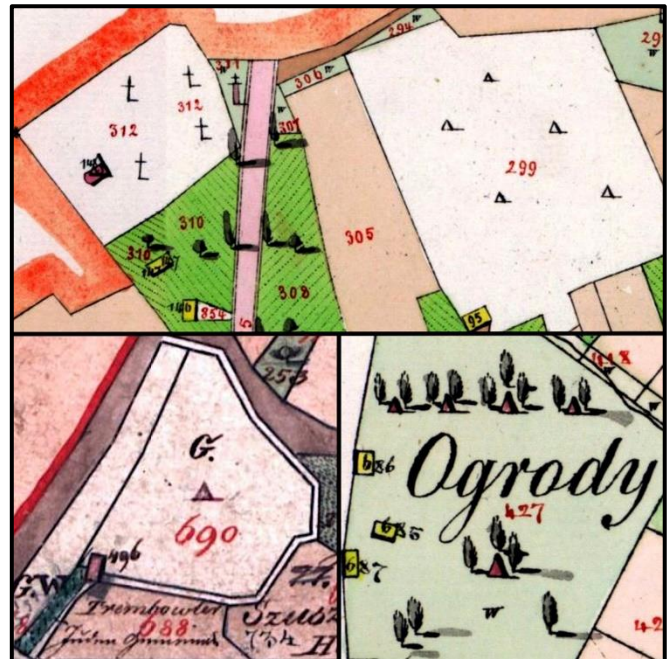
Building a Family History

Cadastral maps and property registers complement better-known genealogical records to help connect ancestors together in time and place, and potentially explain otherwise hidden aspects of their lives. Locating former family houses in towns is a direct benefit of the maps, as is identifying what else was nearby at the time. Anyone who studies a map for a single town and then compares it to others will certainly find more ways to draw details out of these resources.

Identifying the location of family houses by street name and number as we do today was uncommon in Galicia, except in the largest cities and only late in the Austrian era. Official house numbers had typically been assigned sequentially along streets and in neighborhoods before the first map surveys. Thereafter, house numbers were assigned chronologically in a town as new houses were built, regardless of location.

With these house numbers, we can use maps to identify not only where a family lived but also who their neighbors were. For example, we can identify couples who lived next door to each other before their marriage, and how families branched out around a town across generations. Families without strong historical religious traditions may be surprised to find their ancestors' homes near synagogues; others may find their families lived at mills or other industrial sites.

Some family research puzzles can only be solved with maps if two or more survey editions have survived over a span of a few decades. For



One Christian cemetery and three Jewish cemeteries of different graphical styles

example, vital records for a series of births in one family, listing different house numbers for successive children, could suggest that the family moved or that some children may have been delivered away from the mother's home. Another possibility is that officials had renumbered the houses across the entire town between births. Since evidence of renumbering has emerged in only a few surviving historical maps, we don't know how common this practice was.

As mentioned, property registers are essential to tie house numbers to the building parcel numbers noted on final-stage cadastral maps. By examining cadastral property registers, some researchers have even discovered previously unknown family members.

Since the registers quantify property sizes and characteristics, they can also offer information on the economic status of individuals and of a town as a whole, at least as represented by property value. Of course, the maps provide a graphical

representation of wealth too, even on field sketches for towns where no property registers exist.

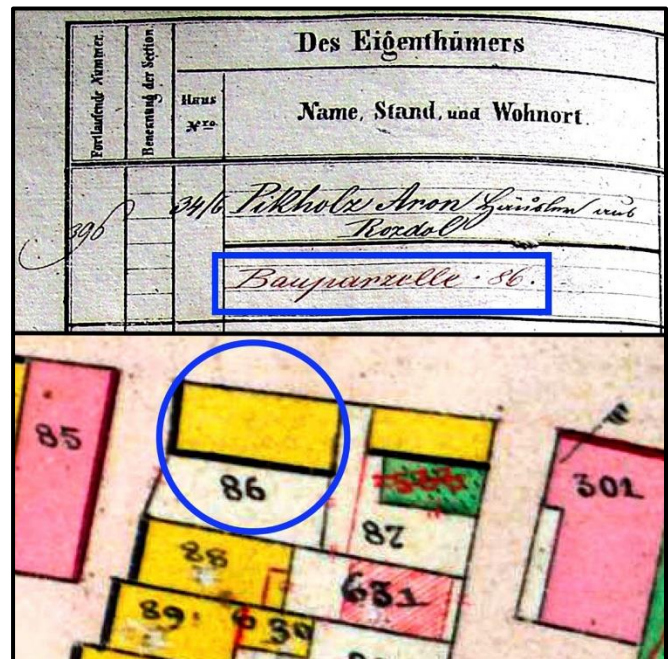
Beyond the history of individuals and families, historical cadastral maps and property registers can also provide important graphical data to support heritage preservation efforts in ancestral towns. For example, they can be used to define the original boundaries of Jewish cemeteries or the locations, sizes, and characteristics of early Jewish community buildings at the time the town was surveyed. However, smaller shuls and other spaces will usually be difficult to detect because they are labeled as private property, not as Jewish communal property.

Key Takeaways

Cadastral maps in Galicia were graphical legal property records, which documented the location, size, and characteristics of buildings and land for tax purposes. These maps and related property registers have survived for many, but not all, of the thousands of named settlements in Galicia, with some records remaining only in fragmentary form. Consider the following key takeaway points when working with cadastral maps.

Types of maps: Cadastral maps were produced in three stages of refinement. First was the rough but detailed field sketch, which includes house numbers. Second was the indication sketch, which provides land and building parcel numbers as well as house numbers. Third was the final-stage lithographed cadastral map, which only indicates parcel numbers. Recognizing the stage of a map is important for interpreting it. Maps were updated and revised over time, and the cadastral system continues today in modern Poland and Ukraine.

Historical value: The original cadastral maps are a valuable record of the layout of a 19th-century town or village. They include remarkable detail about private homes, commercial properties, and



An 1850 property register showing Aron Pikholz living at house number 34/b and owning building parcel 86, with corresponding cadastral map

both civil and religious community buildings and land in Galicia's multicultural environment.

Family history research: Family researchers can use cadastral maps in tandem with property registers to try and locate the homes and businesses of their ancestors, learn about their neighborhoods, and gain insight into their economic situations. However, these efforts can be thwarted by historical events not reflected in available records, such as fires or administrative house renumbering.

Opportunity for further study: To appreciate the beauty and value of cadastral maps, we encourage readers to browse the large number of digitized maps on the Geshher Galicia Map Room—over 150 to date, with more added every year. More information about map creation and features is also available on the Map Room reference page (maps.geshhergalicia.org/references/).