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WE WSPÓŁCZESNYCH BADANIACH
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CADASTRAL MAPS IN GALICIAN GENEALOGICAL AND HISTORICAL RESEARCH

MAPY KATASTRALNE W BADANIACH GENEALOGICZNYCH I HISTORYCZNYCH DOTYCZĄCYCH GALICJI

Summary: Economic and social historians are accustomed to aggregating tax records, including building and land parcel registers, to study the development of human settlements, geographic and economic regions, and states. Genealogists are learning to use individual entries in these same records, supplementing other record types (vital, census, etc.), to discover family residence and business addresses/locations. Often the precise geographic data recorded in cadastral maps associated with the registers is ignored by both historians and genealogists. In this paper we demonstrate how the additional information in historical cadastral surveys and maps, together with simple or sophisticated historical GIS, may be applied to: amplify genealogical research; study the evolving spatial demographics of neighborhoods or entire settlements; and inform historical research which supports modern heritage preservation projects. The data and examples presented here are specific to Jewish communities within settlements of the former territories of Austrian Galicia, but the resources and methods can be applied in comparable ways to other populations throughout the Austrian Empire, and to any location where historical cadastral maps and records survive.

Keywords: cadastre, cadastral map, genealogy, family history, Austrian Empire, Galicia, heritage preservation, Jews.

Streszczenie: Historycy ekonomii oraz społeczni mają w zwyczaju zestawiać ewidencje podatkowe, w tym rejestrzy budynków i gruntów, w celu badań nad rozwojem siedlisk ludzkich, regionów geograficznych i gospodarczych. Genealogowie uczą się wykorzystywać pojedyncze wpisy takich rejestrów i w połączeniu z innymi ewidencjami (metryki, spisy ludności itp.) starają się ustalać rodzinne miejsca zamieszkania i firmy. Często precyzyjne dane geograficzne zapisane na mapach katastralnych są ignorowane, zarówno przez historyków, jak i genealogów. W niniejszym artykule pokazujemy, w jaki sposób dodatkowe informacje – pochodzące z historycznych planów geodezyjnych i map w połączeniu z prostymi lub rozbudowanymi historycznymi materiałami GIS – mogą wzbogacić badania genealogiczne, analizy zmieniającej się demografii przestrzennej dzielnic lub całych siedlisk ludzkich, a także wspierać współczesne projekty ochrony dziedzictwa. Dane i przykłady omawiane w niniejszym artykule obejmują wyłącznie społeczności żydowskie w siedliskach dawnych obszarów austriackiej Galicji, jednak zawarte tutaj materiały i metody mogą być stosowane w podobny sposób przy badaniu innych społeczności Cesarstwa Austrii i każdego obszaru, z którego zachowały się mapy i dane katastralne.

Słowa kluczowe: kataster, mapa katastralna, genealogia, historia rodziny, Cesarstwo Austrii, Galicja, ochrona dziedzictwa, Żydzi.

Edward L. Ayers, an American historian, senior research fellow at the University of Richmond (Virginia) Digital Scholarship Lab, and recipient of the US National Humanities Medal, has said:
Maps and history are deeply complementary. . . . Maps and histories do the same kind of work in different disciplines, in different dimensions of human experience. . . . [H]istory has always had a strong spatial component. Historians have long relied on maps and have always plotted stories in space as well as time. Geographers and historians have usually seen each other as allies, fellow travelers¹. but also:

Despite the affinities of history and geography, trying to comprehend space, place, and time in concert has always proven difficult².

Another historian, Richard White of Stanford University’s Spatial History Project, adds:

Scholars have claimed to write „new histories” that broaden the scope and techniques of the discipline for more than a century. Those efforts, however, have rarely involved new ways of doing history. Virtually all have been new varieties of narrative histories, and their format has been the printed book or article³.

Both quantitative and spatial research and publication remain uncommon within the humanities, including history. In the 34 papers of Volume I of proceedings from the first conference in this series (2015), some 37 authors produced almost 500 pages of text with only 25 photographs or drawings, 15 tables, 6 charts, and just 6 maps – 5 of which were in a single paper⁴.

We are not historians, and do not mean to challenge historians on this topic; as genealogists we know our field is currently even less aware and competent in the use of maps. But as researchers working in a parallel field to history, we hope to share a resource we increasingly find useful, and which may not be well known to others participating here. In the sections which follow, we will describe and demonstrate historical cadastral maps of Austrian Galicia as a graphical data source for historical research, and for work in allied fields such as heritage preservation. We are also not geographers or GIS (geographic information systems) specialists, so the range of other possibilities for use of these historical maps extends well beyond our own reach.

² Ibidem.
Cadastral maps in the Habsburg Empire

Numerous land surveys and cadasters were made in Europe by wealthy individuals and by states before the 18th century. The spread of technical advances in surveying and cartography developed by the Cassinis of France, plus a desire to defend the Austrian Habsburg territories from both external military threats and internal power struggles over taxation, prompted the Habsburg state to apply their administrative strength to a first complete cadastral survey and map of the duchy of Milan in 1759. The result was influential elsewhere in Europe, but advances and evolution were greatest in Austria. Further tax reforms and technical development led through a series of imperial laws and incomplete cadasters to the 1817 patent of Francis I to create a new and complete cadastral survey of the entire empire.

The effort and the result were staggering in scope: ultimately more than 300,000 square kilometers, covering more than 30,000 cadastral parishes, divided into 50 million land parcels, were measured and mapped. The visual detail is striking, and valuable for analysis; the maps are drawn at high scale (commonly 1:2880; line widths of mapped features correspond to 1–2m) with individual land parcels and buildings numbered, and important natural and built objects indicated on the mapped terrain. And despite the scope and detail of the task, the quality of the result is very high; professional cadastral surveyors judged an earlier military triangulation net as inadequate, so created their own, and used plane-tableing to construct the maps. Modern large-scale mosaic alignment of the historical maps to Earth using only the map sheet corners for geo-reference gives typical accuracy within 15–20m, but for smaller projects aligning with persistent land or built features within the map frame, the accuracy can be much higher (a few meters).

9 Ibidem, p. 9.
10 R. Kain, E. Baigent, op. cit., p. 196.
Fig. 1. Cadastral map (excerpt) of Jarosław, undated ca. 1852
Original paper map preserved by the Archiwum Państwowe w Przemyślu. Composite digital image assembled by Gesher Galicia\textsuperscript{12}.

The geographical survey work was only part of the effort; numbers on the maps corresponded to entries in registers of parcels, buildings, and owners, but the data went further to include area, land use, and production statistics, plus records of revisions\textsuperscript{13}. The change in property over time can also be analyzed spatially, where more than one map for a town has survived in archives; for some towns, at least four maps span much of the 100 years the empire persisted following the 1817 cadastral patent. Many surviving maps show revision marks by surveyors who returned to towns to document changes 10, 20, or more years after the original maps’ measurements, which are useful even when the later map did not survive.

Today the vast majority of surviving Habsburg-era maps are preserved in the national archives and/or land survey offices of the twelve inheritor states which now span the former Habsburg territories\textsuperscript{14}; for the defunct Austrian Galicia, the maps are held in Poland and Ukraine. Digitization progresses in most of those archives, in order to reduce handling and to increase access to the maps; many map scans are now available for free use in archive reading rooms and on the Internet. In addition, a few organizations are already providing access to custom assemblies of maps, either for individual towns\textsuperscript{15} or in large geo-referenced mosaics spanning

\textsuperscript{13} E. Török, Digitisation Projects of Cadastral Documents in the Central Archive of National Archives of Hungary, Budapest, [in:] B. Benedetti, op. cit., p. 44-45.
\textsuperscript{14} A. Sipos, op. cit., p. 11.
entire states or provinces\textsuperscript{16}; Figures 1 and 2 show excerpts of two such maps.

Our primary focus in this paper is the use of historical cadastral maps for genealogy and broad history research, but the maps find use in many other fields as well, including urban and regional planning, archaeology, law, earth sciences, environmental sciences, and cultural heritage research and preservation\textsuperscript{17}; this last item will be discussed further below.

\textbf{Fig. 2. Cadastral map (excerpt) of Kopyczyńce, 1828}

Original paper map preserved by the Central State Historical Archives of Ukraine in Lviv (TsDIAL). Composite digital image assembled by Gesher Galicia\textsuperscript{18}.


\textsuperscript{17} A. Sipos, Cadastral Maps - Ideal Field for International Archival Cooperation, [in:] a presentation at the ICARUS conference „Cartography and cadastral maps: Vision from the past for a vision of our future", Scuola Normale Superiore Pisa, Pisa 2015, p. 4.

Locating family history

The high scale and accurate detail of historical cadastral maps can take genealogists „to the doorstep of [their] ancestral home”\textsuperscript{19}, but the maps have only recently been used in significant numbers as archive and Internet access has improved. The lives of ancestors can be sketched more clearly when their spatial relationship to roads, rivers, markets, religious buildings, and the houses of their family and neighbors can be visualized. This is especially true when the layout and appearance of towns have changed significantly since those ancestors were resident, whether due to ordinary urban development or more suddenly from wars.

A simple example will illustrate both the use of maps to locate family history, and the use of associated cadastral registers to bridge over gaps in vital records and identify potential family links. The town of Rohatyn was located in eastern Galicia, today western Ukraine. The Horn family appears in a dozen vital records in Rohatyn house 128, from the birth of Malka Horn in 1861 to the birth of Tonka Horn in 1902; because some metrical registers have not survived, not all of these people can yet be linked to the Horn family tree.

House 128 appears in an 1846 cadastral field sketch of Rohatyn\textsuperscript{20}. Because this rough sketch was the first graphical representation of the town, made while the surveyor stood on the land and before survey measurements were taken, and because no later-state or finished map now survives, our work required the sketch to be laboriously geo-referenced to Earth using satellite images and lower-altitude aerial photographs to effectively reduce its distortion. The town area around house 128 is shown in Figure 3; note that the house is divided into two dwellings, numbered a and b. Also significant to the Horn family history are other marked buildings in the area: four synagogues and a school belonging to the Jewish community.

The 1846 building register\textsuperscript{21} and a separate 1846 alphabetical property owner register\textsuperscript{22} survive in archives; this property data was collected at the same time the town was surveyed for the surviving cadastral sketch. Neither register records a Horn in Rohatyn that year; house 128a is associated with Mender Storn in the numerical building register and with Mender Storn in the alphabetical property owner register (house 128b belongs to Itziy Katz).

These registers suggest that the Horn family arrived in Rohatyn after 1846, but other evidence sheds a different light on the records. There is an older register relating people to places in Rohatyn: the 1820 property owners register, part of the


\textsuperscript{20} *Feldskizzen der Gemeinde Rohatyn 1846*, Central State Historical Archives of Ukraine in Lviv, record 186.1.668.

\textsuperscript{21} *Alphabetisches Verzeichniss der Gemeinde Rohatyn samt Ortschaft Perenowka 1846*, Central State Historical Archives of Ukraine in Lviv, record 186.2.21a.

\textsuperscript{22} *Original Bauparzellen Protocoll der Gemeinde Rohatyn samt Ortschaft Perenowka 1846*, Central State Historical Archives of Ukraine in Lviv, record 186.2.21b.
Franciscan land census. In this register, there are two separate entries for house 128 (but without the a/b designations); one is owned by Mendel Horn, the other by Simche Todfeld.

![Cadstral Map of Rohatyn, 1846](image)

**Fig. 3. Cadstral map field sketch (excerpt) of Rohatyn, 1846**
Original paper map preserved by the Central State Historical Archives of Ukraine in Lviv (TsDIAL). Composite digital image assembled by Gesher Galicia.

The similarity of the names Mendel Horn and Mender Storn/Storm prompt a closer inspection of the 1820 and 1846 records. Comparison of majuscule H and the combination St in the records shows significant similarity; while the St in Storn/Storm is clear, elsewhere it would be easy to confuse the script, and our conclusion is that the names in the 1846 registers were incorrectly transcribed by the imperial clerks from the field recording notebooks. Thus the Horn family can probably be dated to at least 1820 in Rohatyn, and a new earlier ancestor named Mendel is likely.

Even older records exist for Rohatyn; the archives also preserve the 1787 Josephinian land census. In that record however, there are clearly no Horns listed, and house 128 is owned by Jukiel Herzkowicz. So the arrival of Horns in Rohatyn probably occurred between 1787 and 1820.

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23 *1820 Franciscan Land Survey of Rohatyn, Galicia*, Central State Historical Archives of Ukraine in Lviv, record 20.9.189.


25 *1787 Josephinian Land Survey of Rohatyn, Galicia*, Central State Historical Archives of Ukraine in Lviv, record 19.9.263.
The same methods linking people to places in towns is equally useful in general history research, and can be expanded from individuals and families to larger groups as well.

**Spatial social demography**

The French historian Marc Bloch is generally credited with identifying cadastral maps as a key resource for studying the rural history of Europe\textsuperscript{26,27,28}, because of the quantitative and spatial data contained in the maps which is not available elsewhere. The same maps are equally useful for urban history study, in settlements sized from villages to cities, especially where the geographical data can be combined with information about the residents and owners.

The sources employed above to study one family’s connection to a single house in Galician Rohatyn could also be used to study economic, ethnic, or other dynamic historical aspects of the town. The Jewish genealogical organization Rohatyn Shtetl Research Group (RSRG) transcribed all of the name and house number data from each of the land registers described above and published that data to the group’s intraweb. A simple GIS model of the neighborhood around the Horn house 128 in 1820, identifying the ethnicities of the property owners based on surnames and forenames (verifying some through other records and genealogical links), shows just how communal this part of Rohatyn was at the time. In the image, dark blue buildings belong to the Jewish community, light blue buildings to Jewish house owners; the dark red building is a Dominican church linked to the Polish community, and light red buildings belong to ethnic Poles; the green building is an Austrian imperial hospital, possibly associated with the church; white buildings are without data (either unnumbered on the map or missing from the register, commonly because the buildings did not yet exist in 1820), and grey buildings have register data but the owners’ ethnic groups could not be determined.

It is evident from the modified map that in 1820 this town area was completely Jewish. The same GIS model updated to 1846 shows an interesting trend: more buildings have been built but now Poles are becoming part of the neighborhood.

\textsuperscript{28} R. Kain, E. Baigent, op. cit., p. xviii.
Fig. 4. 1820 property owners in Rohatyn (see text for color coding)

Original paper map preserved by the Central State Historical Archives of Ukraine in Lviv (TsDIAL). Composite digital image assembled by Gesher Galicia\(^29\). Data from RSRG web archives\(^30\).

Historical texts and photographs show that this neighborhood was almost completely destroyed during the many battles in Rohatyn during World War I; when the area was rebuilt, property lines had blurred and the 1846 map no longer represented the building profile of the area.

This approach can of course be extended backward and forward in time (given available records), and spatially to the entire town to show the evolution of all residential areas, the farm lands, and the businesses on the market square. Depending on the specific focus of historical research, cadastral maps and related records may help reveal trends which are not visible in text form.

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\(^29\) Rohatyn Cadastral Map 1846, op. cit.

Research to support heritage preservation

Historical cadastral maps help to bridge between genealogy and academic history, and between history and the social sciences, but can also inform historical research which supports contemporary cultural heritage preservation. Municipalities, archaeologists, and heritage specialists may find the accuracy of surviving historical maps a significant aid to defining the location and character of built features which are no longer present in their original state, and for which few landscape clues are present on the ground.

Many towns in Austrian Galicia were significantly damaged in World War I, and the same territories under Polish rule were damaged again in World War II; ethnic deportations and urban development programs under Soviet rule further degraded many buildings and sites there. The fate of Jewish cemeteries in the region is well known, but details are often unknown about the actual pre-war boundaries of the cemeteries, many of which were stripped of headstones and perimeter markers from 1940 forward.

31 Rohatyn Cadastral Map 1846, op. cit.
It is often quite simple to geo-reference a historical cadastral map to identify cemetery boundaries on modern maps, using GIS tools or simpler graphical methods. Even in towns which suffered significant structural damage during and after the World Wars, usually there are sufficient surviving natural and built features from the Habsburg period to anchor the historical map to modern Earth.

An example is the old (first) Jewish cemetery of Sokół Malopolski in southeast Poland, formerly part of Austrian Galicia. The history of this cemetery is well documented, and does not require mapping or special technology to define, but it demonstrates how historical maps can be useful. In Figure 6, an 1853 cadastral map of the town\textsuperscript{33} is referenced to a modern satellite image from Google Maps. In the satellite image it can be seen that the old market square has evolved into a city park, roads have become paved streets, and, unfortunately, the old Jewish cemetery (marked \textit{Ogrody} on the map) has become an industrial site. The accuracy and precision of the map for identifying boundaries is even clearer in an overlay view.

The same method can be used to locate and size cemeteries which are otherwise undocumented, or where the existing documentation is sparse or conflicting. An example is the Jewish cemetery of Hrymailiv in western Ukraine, formerly Grzymałów in Austrian Galicia. At present, descriptions of this cemetery are weak or non-existent on key reference sites of Jewish heritage, including those of the US Commission for the Preservation of America’s Heritage Abroad\textsuperscript{34}, the IAJGS International Jewish Cemetery Project\textsuperscript{35}, and Virtual Shtetl\textsuperscript{36}. Personal observation in 2011 confirmed that the cemetery was then still used as an informal park and walking path for local townspeople, unfenced and with no surviving grave markers.

\textsuperscript{33} \textit{Markt Sokolow in Galizien (Mapa miasteczka Sokół w Galicji)}, Archiwum Państwowe w Przemyślu, record 56/126/0/1561M.


Fig. 6. Cadastral map (excerpt) of Sokół Małopolski 1853

Several historical cadastral maps of Hrymailiv are preserved in state archives in Ukraine; three of those still include sheets which document the Jewish cemetery.

38 Katasterkarte der Gemeinde Grzymalow 1828, State Archives of Ternopil Oblast (Ukraine), record 186.13.41.
39 Katasterkarte der Gemeinde Grzymalow 1861, State Archives of Ternopil Oblast (Ukraine), record 146.1.614.
40 Katasterkarte der Gemeinde Grzymalow, undated ca. 1910, State Archives of Ternopil Oblast (Ukraine), record 146.1.615.
Composite digital image assembled by Gesher Galicia\textsuperscript{41}[I]. Bing Maps imagery ©2016 DigitalGlobe, ©2016 Here.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{cadastral_maps_grzymalow}
\caption{Cadastral maps (excerpts) of Grzymalów 1828, 1861, ca. 1910}
\end{figure}

Original paper maps preserved by the State Archives of Ternopil Oblast (Ukraine).

In Figure 7, maps from 1828, 1861, and about 1910 are compared at common scale and geo-referenced to a modern satellite image from Bing Maps, to show the evolution of the cemetery boundaries. In 1828, the cemetery was nearly square in shape. Before 1861, a small trapezoidal land parcel was added at the north edge of the original cemetery. By about 1910, a long finger of land had been added to the northwest. Today, houses and gardens occupy much of the original land of the Jewish cemetery; the informal park occupies only the northern additions. This conflicts with at least one recent report on the cemetery, which says „within the limits of the cemetery [there] are no structures”\textsuperscript{42}.

\begin{itemize}
\item \textsuperscript{42} Grimaylov: Husiatyn Raion of Ternopil Oblast, op. cit.
\end{itemize}
Closing comments

We have presented here only a small number of examples of the use of historical cadastral maps in the work of historians, genealogists, social scientists, and heritage preservationists. Although the examples here are all linked to Jewish Austrian Galicia, in general the data and methods can be used for any kind of spatial-historical work in places where cadastral maps survive. We have ourselves applied the genealogy and demographic methods using maps of Christian communities of Austrian Bohemia and Moravia, and applied the heritage methods using maps of Lemko communities of Austrian Galicia. As we lack the depth of training of academic historians, we can only imagine how researchers skilled in that profession may find new and further uses of historical cadastral maps which will benefit all of us.

Bibliography: