Reconstructing Women’s Lives in a Small Minnesota City --
Implementing ArcGIS in the humanities classroom

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Student Learning Objectives:

- Identify spatial information
- Organize spatial information
- Analyze spatial data
- Communicate findings

Local focus
1905 Minnesota State Census

<table>
<thead>
<tr>
<th>Name</th>
<th>Relationship</th>
<th>Age</th>
<th>Sex</th>
<th>Race</th>
<th>Color</th>
<th>Year Born</th>
<th>Year Moved</th>
<th>Parent Name</th>
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<tbody>
<tr>
<td>Radulcan Mintha</td>
<td>Wife</td>
<td>46</td>
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<tr>
<td>Radulcan Wallace</td>
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<tr>
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<td>Son</td>
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<tr>
<td>Grant Walin G</td>
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<tr>
<td>Ballard Carwell</td>
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<tr>
<td>Ballard Jno.</td>
<td>Son</td>
<td>1</td>
<td>M</td>
<td></td>
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<td>1895</td>
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</tbody>
</table>

Note: The above table is a snippet from the 1905 Minnesota State Census, listing some of the residents of a particular household.
Moorhead City Directory, 1905

**ABBREVIATIONS.**
agt. agent
appr. appraiser
agt. assistant
ave. avenue
dept. department
emp. employed
eng. engineer
ex. executive
f. first
ft. foot
insp. inspector
l. lower
ll. long long
m. master
mnnr. manufacturer
mr. merchant
ms. miss
n. north
n. north
n. northeast
o. owner
pl. plow
rd. road
res. residence
rev. reverend
s. south
s. southeast
s. south side
s. southwest
sec. second
sect. section
st. street
sw. southwest
sw. southwest

**ALPHABETICAL LIST OF NAMES.**

Aahl Ole E, res 220 1st st N
Aahl Oscar B, res 220 1st st N
Aardal Engebright
Aasenude Anton P
Aasved Miss Clara
Abbott Miss E Maude, student, bds 1315 2nd ave S
Abbott Frances M, lab, res 1315 2nd ave S
Abbott Harvey C, lab, res 1315 2nd ave S
Abbott Namen W, res 301 14th st S
Ahert Thomas, farmer, res 22 5th ave S W
Ableman Frank E, tnstr. res 131 2nd ave S

Flaten Gudmund E, res 705 4th ave S
Flaten John, brakeman N P Ry, bds 116 4th st S
Flaten Miss Mamie D, bds 411 1st ave S
Flaten Miss Marith, milliner, bds 116 4th st S
Flaten Ole B, bkpr Duluth Brewing & M Co, rms 116 4th st S
Flaten Ole E, Photographer 405 Front, res 411 1st ave S
Flaten Oscar M, bds 411 1st ave S
Flaten Over W, emp N P Ry, res 306 10th st N
Flaten R, trav agt J Gund Brew Co, bds 823 1st ave S
Fleming Joseph G, elk B F Mackall, rms 119 5th st S
Flore John O, carp, res 6 7th ave S W
Flore Miss Olga, dressmkr, bds 6 7th ave S W
Flynn Miss Anna L, teacher Central School, bds 519 7th st S
Flynn Arthur M, bds 519 7th st S
Flynn Daniel, res 519 7th st S
Flynn Daniel E, bds 519 7th st S
Flynn John M, bkpr Dwight Mill, bds 519 7th st S
Flynn Mary G, student, bds 519 7th st S
Fournier Joseph H, res 416 A S
Franklin Jesse, bds Farmers Home
Fransson Gust, elk Nels Pehrson, bds 812 2nd ave N
Frais Matilda (wid Charles), res 107 6th st S
Fredericks Thor (Edwards & Fredericks), res 114 3rd st N
Frederickson Andrew, bricklayer, res 420 A S
Freeberg Miss Amy D, student, bds 802 10th st S
Freeberg Andrew G, res 802 10th st S
Freeberg Bros (G E and M R), grocers 706 Front
Freeberg Gustave E (Freeberg Bros), res 802 10th st S
Freeberg Martin (Freeberg Bros), bds 802 10th st S

Freeman Maurice A, bds 615 8th st S
Freemanslund Louis, meat mkt 14 4th st N, res same
Fridlund Adolph J (Fridlund Bros), res 204 11th st N

Ellsworth & Jenkins
FARGO NATIONAL BANK BUILDING

LOANS NEGOTIATED AT THE LOWEST RATE OF INTEREST
Georectified Sanborn Map → Census Spreadsheet → City Directory Spreadsheet

Match Records (manually) → Geocode residences & workplaces → Create geodatabase

Join data, create layer in ArcGIS online → Analyze maps, communicate findings
What was the nature of the spatial environment of Moorhead’s working women? Where did they work, eat, play, shop, and socialize?

Where did they live? Did their residences vary by age, occupation, ethnicity, or some other factor?

Did physical features like rivers, railroad tracks, or streetcar lines influence women’s choice of residence?
<table>
<thead>
<tr>
<th>ID</th>
<th>Enum Dist</th>
<th>Place</th>
<th>Name</th>
<th>Street</th>
<th>St #</th>
<th>Sex</th>
<th>Age</th>
<th>Color</th>
<th>Bthplc</th>
<th>Yrs in MN</th>
<th>Mths in MN</th>
<th>Yrs in Enum Dist</th>
<th>Mths in Enum Dist</th>
<th>Occ</th>
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<tbody>
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<td>5021</td>
<td>20</td>
<td>?</td>
<td>Kell Caroline</td>
<td>9TH ST N</td>
<td>214</td>
<td>F</td>
<td>60.00</td>
<td>W</td>
<td>Sweden</td>
<td>Sweden</td>
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<td>4222</td>
<td>19</td>
<td>City of Moorhead Ward 1</td>
<td>Webb Abigil B</td>
<td>4th St N</td>
<td>23</td>
<td>F</td>
<td>28.00</td>
<td>W</td>
<td>ME</td>
<td>ME</td>
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<tr>
<td>4736</td>
<td>20</td>
<td>City of Moorhead Ward 3</td>
<td>Legler Vernia</td>
<td>?</td>
<td>0</td>
<td>F</td>
<td>40.00</td>
<td>W</td>
<td>MN</td>
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<td>6591</td>
<td>20</td>
<td>City of Moorhead Ward 4</td>
<td>O'Laughlin Mae</td>
<td>10 ST</td>
<td>204</td>
<td>F</td>
<td>19.00</td>
<td>W</td>
<td>IL</td>
<td>WI</td>
<td>IL</td>
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<tr>
<td>6749</td>
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<td>City of Moorhead Ward 4</td>
<td>Mahlen Doris E</td>
<td>10th ST S</td>
<td>301</td>
<td>F</td>
<td>11.00</td>
<td>W</td>
<td>ND</td>
<td>Norway</td>
<td>Canada</td>
<td>2</td>
<td>0</td>
<td>2 0</td>
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</tbody>
</table>

Examples of data cleaning issues:

- missing data (check originals)
- spelling errors
- consistency
<table>
<thead>
<tr>
<th>Key</th>
<th>Last Name</th>
<th>First Name</th>
<th>Occ</th>
<th>ResSt</th>
<th>ResNum</th>
<th>WorkSt</th>
<th>Work Num</th>
<th>Notes</th>
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<td>Annie</td>
<td>employed</td>
<td>4TH ST S</td>
<td>201 1ST AVE N</td>
<td>204</td>
<td>employee Lundgren &amp; Co.</td>
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<tr>
<td>2058</td>
<td>Anderson</td>
<td>Ingebor</td>
<td>employed</td>
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<td>201 1ST AVE S</td>
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<tr>
<td>2120</td>
<td>Newton</td>
<td>Julia O</td>
<td>principal</td>
<td>4TH AVE S</td>
<td>7TH AVE OPP 12TH 0 ST S</td>
<td>810</td>
<td>employee High School</td>
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<tr>
<td>2123</td>
<td>Cenfield</td>
<td>Jeanette</td>
<td>Teacher</td>
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<td>7TH AVE OPP 12TH 0 ST S</td>
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</tbody>
</table>
Sanborn map with workplace & residence points
Sanborn map with joined variables
Student interactive web app.

Web app QR code

https://tinyurl.com/appmoorheadwomen1905
Occupied: Mapping Working Women, Moorhead 1905

An ArcGIS Project

Storymap QR code.

https://tinyurl.com/moorheadwomen1905
Looking ahead...
Conclusions
QUESTIONS?
Acknowledgements:

This project was a collaboration between undergraduate Heritage and Museum Studies students of Concordia College, Moorhead, MN: Angie Summers ('20), Colleen Egan ('19), Julieana Wallenstein ('20), Maria Tommerdahl ('19). It, along with several other student projects, was created for Dr. Joy Lintelman's Doing Digital History course (Hist 325, Spring 2018).

Special thanks to Dr. D. Bryan Bishop for his assistance and guidance on all things ArcGIS-related, and also to Mark Peihl of the Historical and Cultural Society of Clay County (HCSCC) for his assistance in providing access to the Sanborn maps, his extensive knowledge of historical Moorhead, and his enthusiasm for this project.

The purchase of the Sanborn maps was made possible in part by the people of Minnesota through a grant funded by an appropriation to the Minnesota Historical Society from the Minnesota Arts and Cultural Heritage Fund.