ERC Latin American Cities: Georeferencing Historical Maps

1. Download the zip folder from the Dropbox link provided and extract it to your working folder.

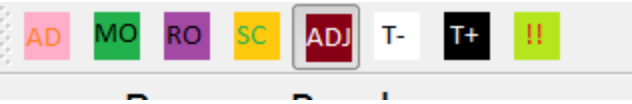
2. Open QGIS Desktop. Navigate to the downloaded folder through your Browser Panel, you should see the ba_income_2012 shapefile, the E19_12.csv, and an image or pdf file called "BNA_MA003938".

3. In QGIS, navigate to the Plugins tab > Manage and Install Plugins. We will be installing a few plugins which we will use to georeferenced and display data.

4. First, if you do not already have it installed, search and install “OpenLayers” plugin and the “QuickMapServices” plugin.

5. Next, search and install the “Freehand raster georeferencer” plugin and the “Georeferencer GDAL” plugin (which may just need to be checked off if already installed).

6. Once you’ve installed these plugins, close the Plugin Manager dialog box. You should now see a new panel in your toolbar:



This is the set of tools for the “Freehand georeferencing plugin” which allows you to align a historical map or image layer to the right spot on your map. Georeferencing is necessary when you are working with maps that you have scanned from images or historical sources, and that you want to include as a GIS layer. Basically, you must tell the GIS software how to line up your map image with the other GIS layers which are in a projected coordinate system.

First, let’s add a basemap. In the “Web” tab, click OpenLayers > Google Hybrid which will add a satellite layer with labels. Zoom to our area of interest, around Buenos Aires.

In order to begin georeferencing our historical Buenos Aires map, click the “AD” icon in the toolbar, which if you hover your mouse over it, tells you it is the icon or tool to add a layer to be georeferenced.

A pop-up will appear; click “Browse” and navigate to the BNA_MA003938 file in the downloaded folder. Choose this image.

The map should appear on your mapping view. In this case we now need to align it to our satellite basemap. You can align, move, scale, and adjust your map by playing with the icons in your georeferencing toolbar.

MO – moves map

RO – rotates map

SC – scales map

ADJ – adjusts map

T+ and T- - changes transparency

!! – allows you to save your georeferenced image.

Work to align your map, and export to a georeferenced image format when complete.

7. Now that we've used one method to georeference our map, we will go through a second, more traditional georeferencing tool, based on the GDAL Georeferencer plugin we added. To find a detailed walkthrough of this method, go to:

https://github.com/CenterForSpatialResearch/MappingForTheUrbanHumanities/blob/master/Tutorials/04_MakingData01.md

8. We should now have a georeferenced map that we can digitize road data from. For a detailed walkthrough of how to digitize data, go to:

https://github.com/CenterForSpatialResearch/MappingForTheUrbanHumanities/blob/master/Tutorials/05_MakingData02.md

Now we will digitize sites of interest, represented by points.

9. Choose Layer > Create Layer > Create New Shapefile, and create a line shapefile, adding columns or fields:

SiteType: a text field where we will categorize the sites we digitize by "market" or "church", etc. based on the map.

Marketname: a text field for the market name or other identifying information about the market.

Once you've filled out the layer information, choose a name and folder location to save your new file.

10. Begin digitizing the sites by right clicking the new file in your "Layers Panel" and clicking "Toggle Editing". Then turn on the New Features tool.

11. Choose a point to plot. In order to add a feature, click to drop points.

12. If you made a mistake or want to drop a new point/delete an existing point, right click the layer in the "Layers Panel" and "Open Attribute Table". From the attribute table you can select and delete a row or point you drew. You may also delete the drawing as you are working on it by right-clicking and choosing "Cancel" when prompted to finish the segment.

13. Once you've digitized some points, save your edits and turn editing mode off by right-clicking the layer in the "Layers Panel" and choosing "Save Edits" and "Toggle Editing".