Detailed instructions for georeferencing historic maps using the British Library Georeferencer

www.bl.uk/maps

Georeferencing is a way of spatially enabling historic maps so that they can be overlaid and combined with modern mapping to allow visualisation, comparison, analysis and searching. Georeferencing 200 and 300 year old maps can take considerable time and attention, but is an excellent way to learn about landscapes of the past.

1. By clicking on the orange button pictured (Fig. 1), you will be taken to the British Library Georeferencer tool and assigned a random map from our collections.[i] Click the **This map** tab to view the map's title, date, and other publication information.

Figure 1: Link to the Georeferencer application

You will be presented with two map boxes in the **Georeference** tab; the scanned historic map will appear on the left, with a modern map on the right (Fig. 2).

The modern map, by default, will be OpenStreetMap online mapping. This may be changed to one of several other medium-scaled, modern "base maps" (including Ordnance Survey OpenData, Google Streets, Google Satellite, and others) using the dropdown box. (Fig. 2).

2. Zoom into the old map - enough to read it - using the controls in the upper left of the map box. (Fig. 2) The modern map has the same controls in its map box for zooming and panning.
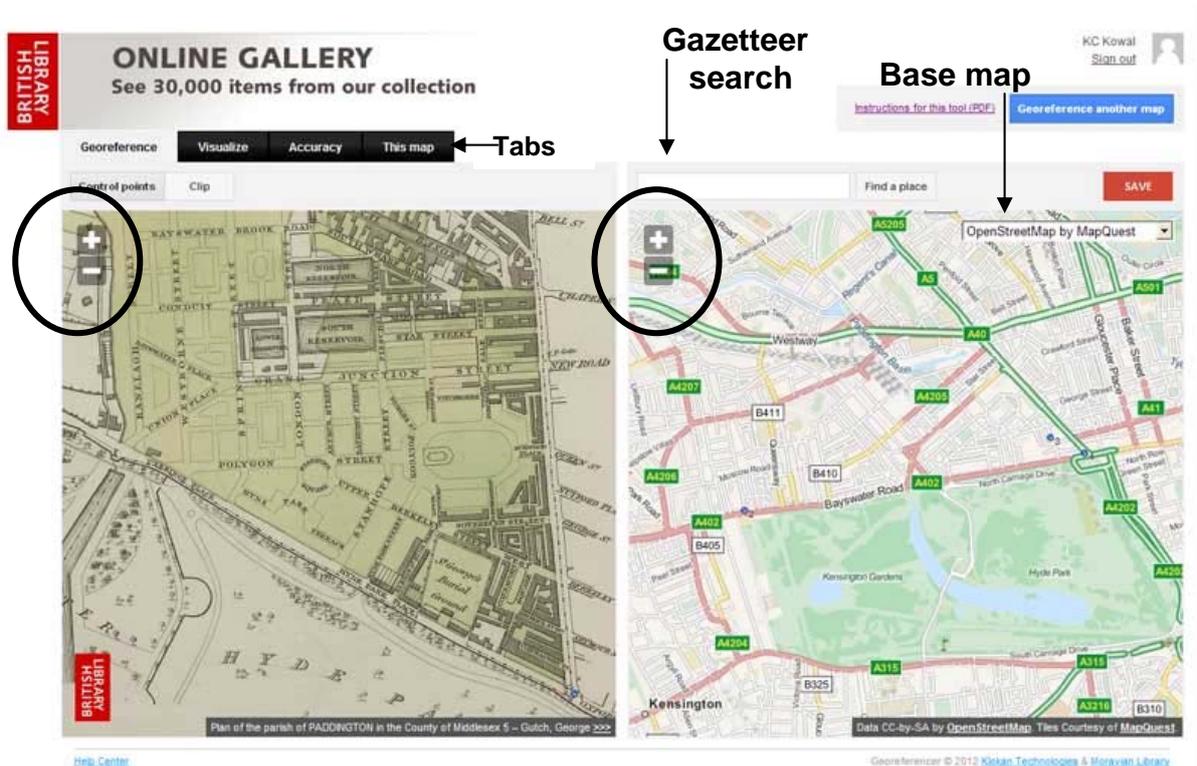

Figure 2: Screenshot of the British Library Georeferencer, with zoom-pan controls of the two maps circled, and labelled arrows pointing to the Gazetteer search, the Tabs, and the Base map selection. Pictured is *Plan of the parish of Paddington*, 1828, Maps.Crace XIV, 5.

Use the gazetteer search box that appears above the modern map (Fig. 2) to locate the place depicted on the historic map. Search for a prominent settlement name or a street; if it is still unascertainable, click on the **This map** tab to view the map's title and description, and search for the placenames noted there. Once text is entered in the box, several possibilities will be offered and the correct location should be selected.

When using the gazetteer, remember that placenames as they appear on old maps may not be found in modern gazetteers for a number of reasons, including different spellings, name changes or word form. Some examples of places not found and the reasons why they are not in the current gazetteer in Georeferencer: White Parish (listed under Whiteparish), Brent Tor (geological site and earthworks), Micheldean (current spelling Mitcheldean).

3. Examine the maps carefully, looking to identify spatial relationships. When a corresponding location between the two maps can be identified, click on that point on one map, followed by the other.

The features easiest to identify and correlate between historic and modern maps are usually road junctions, as these frequently have not changed since the map's creation, while watercourses, house/farm names and boundaries of woods and fields have sometimes altered over time.

If you wish to delete a set of points, finish assigning the pair, then select the point and press the "Delete" button on your keyboard.

4. Assign as many points as you can over the entire map. The minimum is number is five, but the more points, spread evenly over the map and extending to the map margins, will be more accurate and therefore much more valuable.

5. When you are finished, click the red "Save" button. You will be asked to log in. An account with Georeferencer is free and only requires inputting your e-mail address; this can be established by following the "Sign up" link. Alternately, you may login using an existing account with Facebook, Google, or Twitter (this may happen automatically if you are already signed-in to one of these services). See Fig. 3.

Figure 3: Sign-in

Once your work is saved, you are automatically taken to the **Visualise** tab, showing the historic map overlaid upon the modern landscape in Google Earth (Fig. 4). You will need to have Google Earth plug-in installed in order for this to function.
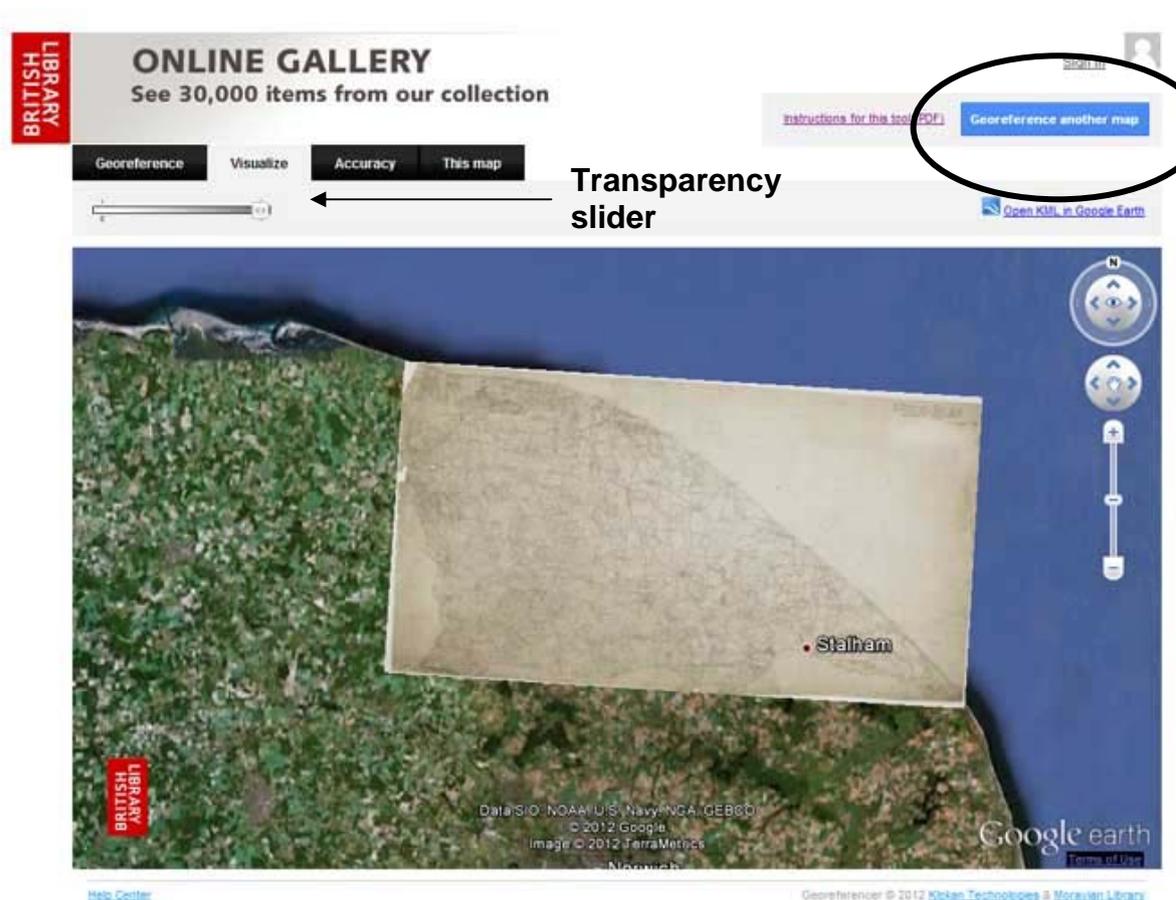http://earth.google.com/plugin/

Figure 4: The **Visualise** tab displays the georeferenced historic map overlaid on imagery in Google Earth. A labelled arrow points to the Transparency slider. The link to proceed with georeferencing another map is circled. Pictured is OSD 243, 1816, of Norfolk.

If the map looks overly stretched or warped, there could be a stray point that is throwing off the calculations. In this case, go back to the **Georeference** tab to review the placement of points. The **Accuracy** tab will indicate problem areas with red circles. If the error is still not apparent, write to georeferencer@bl.uk.

To be assigned another map to georeference, click the blue button at the top, "Georeference another map". (Fig. 4)

The **Accuracy** tab uses a tool called MapAnalyst to compute and illustrate the "accuracy" of the georeferencing. A mathematical comparison between the original, historic map and the actual distances and placement on the ground is made. This will vary over the map, and can be a valuable tool for map historians to quickly ascertain how spatial representation differs between areas on a map. For more information on how this works, see http://mapanalyst.org/

If you have questions about this project or about the maps, send an e-mail to the British Library using the dedicated account georeferencer@bl.uk. To connect with other users of this technology and participate in discussions, join the User Group of Klokan Technologies at http://help.georeferencer.com/user-group.

---

[i] If you prefer to select your own map, go to the British Library Online Gallery (http://www.bl.uk/onlinegallery) to search. In addition to your search terms, include the word "map".