

Isn't That Spatial

Joseph J. Kerski
Geographer
USGS
jjkerski@usgs.gov

Teaching Historical Geography and Landscape Change Using Historical Topographic Maps

Here at the USGS, we have created hundreds of fascinating maps of Mercury, the Moon, Mars, Ganymede, and other objects in the solar system. I have a few of the best of these showcased in the planetary section of the USGS Education Map Catalog on:

<http://rockyweb.cr.usgs.gov/outreach/mapcatalog/planetary.html>

As I work with students using these maps, I ask them how often these maps need to be updated. The answer: Not very often! Aside from an occasional volcanic eruption on Io and a meteorite striking the surface of Mercury or the Earth's moon, these maps will stand the test of time pretty well.

Maps of the Earth, by contrast, are woefully out of date as soon as they're published. The Earth is a dynamic planet—not only do we have historic and currently active volcanism, landslides, earthquakes, floods, erosion, and other forces shaping the landscape, we have over 6 billion humans constructing buildings, canals, reservoirs, transportation systems, and otherwise affecting the planet. All of this activity affects the Earth in a myriad of indirect and inadvertent other ways, from local to global scale, for example, everything from sea level rise to aquifer depletion and subsidence to acid rain. The USGS slogan “Science for a Changing World” captures this concept quite well—the Earth *is* changing, and the dynamic nature of the planet is something that is at the very heart of the discipline of Geography.

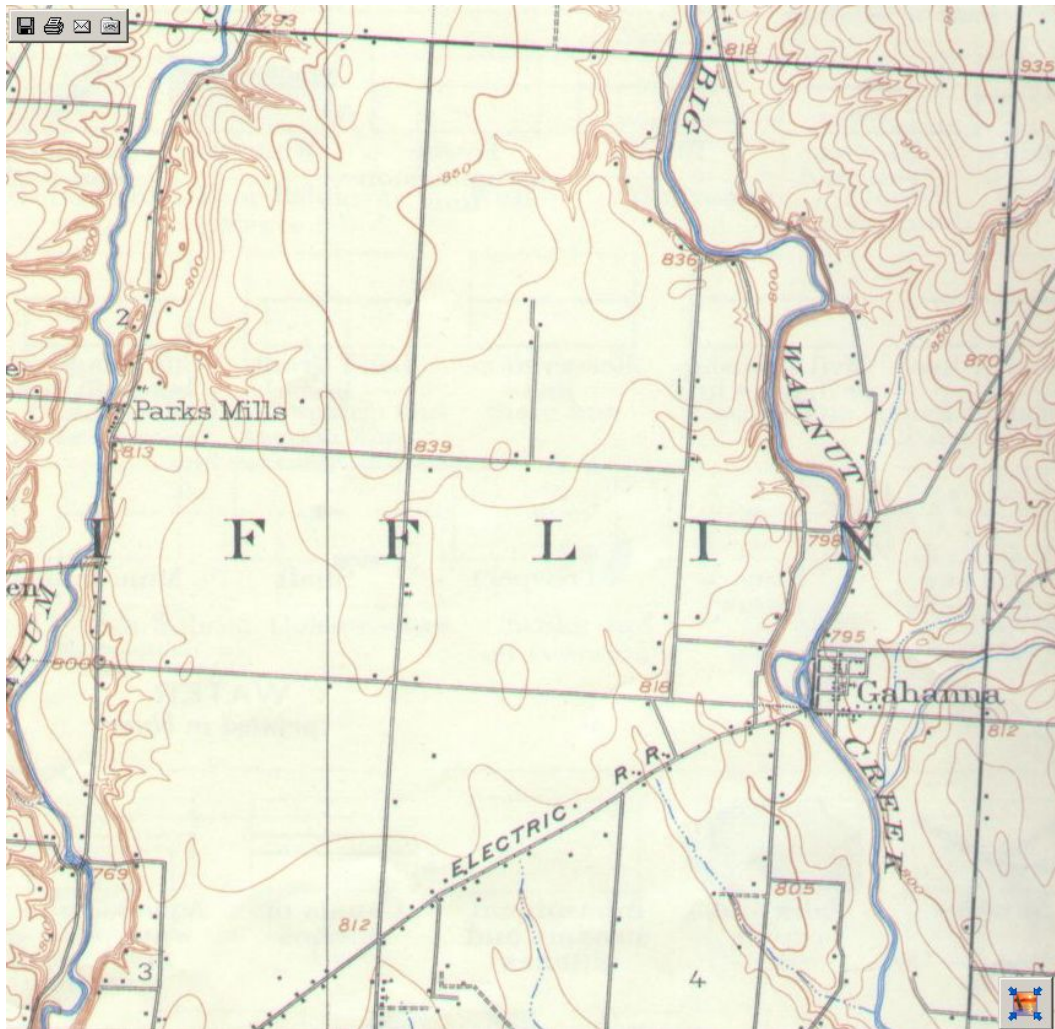
Because the USGS began making topographic maps soon after its creation in 1879 and continues to do so today, these maps provide over a century of historical snapshots of any community, region, or landform. Today's commonly used 1:24,000 map scale was only produced after 1940, so for earlier maps, you will have to adjust for scale. However, the symbols on these maps are fairly consistent, allowing for easy comparison of how communities and rural areas changed.

Comparing historical to current topographic maps open up a wide range of geographic issues for student inquiry. What place names were used on the landscape, and what is their origin? What names are no longer used today, and what new names exist? Why is my community located where it is? Where did

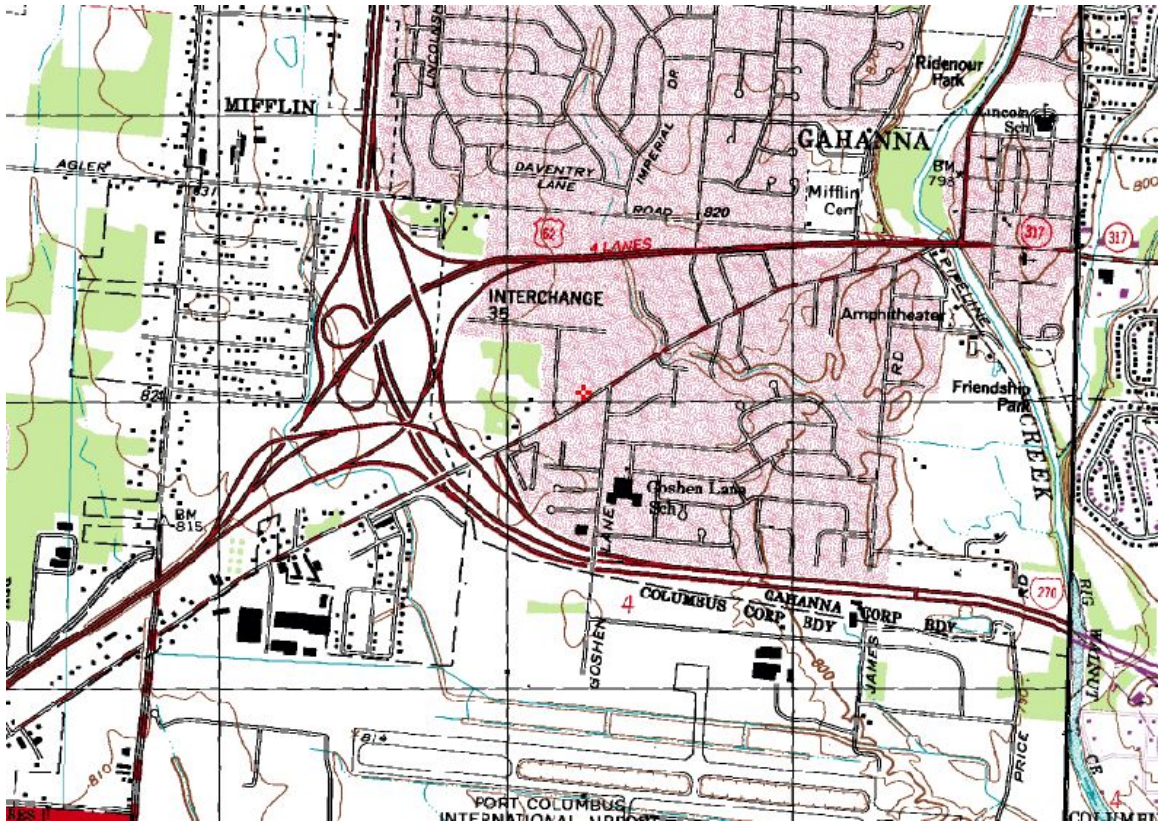
my community begin, in which direction(s) did it expand, and why? Will it grow in the future, and how? What will my community look like on the ground and on a map in 2010? In 2050? What was the historic land use in a given region, and how has it changed over the decades? What influence did physical features such as rivers and mountains have on the development of communities and regions? What influence did early roads, and later freeways have on the development of cities? Why did some areas of cities develop as industrial, others commercial, and others residential? How have city neighborhoods change over time? How do such forces as tourism, mining, and agriculture shape the land use as depicted on a map?

The power of using historical maps to analyze these questions is that it changes the format of the lessons from lecture to hands-on inquiry. Furthermore, it is frankly much more interesting to investigate changes using maps than hearing about or reading statistics on change. Using topographic maps often uncovers mysteries that were not part of the original lesson, and raises questions and issues that often cannot be easily answered.

These images illustrate these concepts for a community in Ohio, but the investigation beginning with the questions noted above can be used in any location where the historical topographic maps exist.



Gahanna, in central Ohio, was founded along the Big Walnut Creek in 1849 by John Clark, who named his property the Gahanna Plantation. The name Gahanna is derived from a Native American word for three creeks joining into one, and was the former name of the Big Walnut Creek. By 1904, when this USGS topographic map was made, Gahanna was still separated from Columbus by miles of farmland, but changes were coming. People could reach Columbus to the southwest via a new “Electric Railroad” indicated on the map.



By 1995, Gahanna and Columbus shared corporate boundaries, as indicated on this USGS topographic map. Gahanna's old town core can still be seen, but is dwarfed by freeway interchanges and the Columbus International Airport.

To obtain a historical topographic map, call 1-888-ASK USGS. For a minimal cost, you can obtain a black-and-white print of a historical topographic map. We also maintain an agreement with some USGS business partners who scan historical maps and can provide them in color, as digital files or prints.

In addition, some private companies and universities serve archives of historical topographic maps on the Internet. One such service from MapTech, on: <http://historical.maptech.com/>, offers historical topographic maps for free download for much of the terrain from Maine to Ohio. NOAA's Office of Coast Survey's Historical Map and Chart Collection contains over 20,000 maps and charts from the late 1700s to present day. The collection includes some of the nation's earliest nautical charts, hydrographic surveys, topographic surveys, geodetic surveys, city plans and Civil War battle maps, on: <http://chartmaker.ncd.noaa.gov/csdl/ctp/abstract.htm>.

While the above discussion focuses on USGS maps, older historical maps made by other organizations and individuals do exist. The above discussion focuses on the USA, but historical maps do exist for other parts of the world. One of the best sources is the David Rumsey Historical Map Collection

(www.davidrumsey.com), which includes over 11,000 maps online. The collection focuses on rare 18th and 19th century North and South America maps and other cartographic materials, but also includes historic maps of the World, Europe, Asia, and Africa. Collection categories cover antique atlases, globes, school geography, maritime charts, state, county, city, pocket, wall, children's and manuscript maps. Another rich source is the University of Texas' Perry-Castaneda Map Library, on: <http://www.lib.utexas.edu/maps/historical/index.html>, and the University of Georgia, on: <http://www.libs.uga.edu/darchive/hargrett/maps/maps.html>. Resources on historical maps continue to expand.

A perfect supplement to examining historical maps is the use of historical aerial photographs. My next column will explore how to obtain and use historical aerial photographs in geography education.