

# Engravings of USGS Maps and Other Illustrations Available for Public Sale through “GSA Auctions”

## Summary

On behalf of the Federal Government, the U.S. General Services Administration (GSA) is selling to the public by auction excess engravings once used to reproduce U.S. Geological Survey (USGS) topographic and geologic maps and other scientific illustrations (see Figure 1).

USGS posts supporting information about the first public sale of engravings at

[ftp://ftpext.usgs.gov/pub/er/va/reston/Engravings/Release\\_2\\_Public\\_Sale/](ftp://ftpext.usgs.gov/pub/er/va/reston/Engravings/Release_2_Public_Sale/).

USGS also posts supporting information about the process for making engravings available for (1) donation to federal organizations and to state and local governments, eligible non-profit organizations, and public agencies (through their state’s State Agency for Surplus Property) and (2) subsequent public sales at <ftp://ftpext.usgs.gov/pub/er/va/reston/Engravings/>. The USGS updates information about status and activities weekly.

## Uses for the engravings

The most likely uses for the engravings are to:

- Document and interpret the history of earth science data collection and compilation, maps and mapping techniques, and engraving and printing techniques.
- Educate those interested in mapping and printing technology, and the engraving and print making arts.
- Enhance a collection of map or printing artifacts or engravings.
- Commemorate places mapped on the engravings.

Organizations and individuals interested in maps and map making, printing, and the arts of engraving and print making have shown the most interest in the engravings. These include Federal and state agencies; universities and colleges; libraries; museums; educators and professionals; societies dedicated to earth science, mapping, printing, and local history; and collectors.

Organizations that have engravings frame and hang them (see Figure 2) or put them in transparent cases for display, or store and retrieve them for interpretation and study as needed.

## The engravings

### *What is the subject of the engravings?*

Each engraving has information about mapped features (for example, cultural, transportation, and boundary features, topography, hydrography, or geology) or other scientific information for a place.

Most of the engravings are for topographic maps. Almost all are of places in the United States. They can include adjacent areas in Canada and Mexico. For some places there are engravings at different map scales.

### *For what were the engravings used?*

From the 1880s to the 1950s, the USGS engraved map and other images created from scientific measurements and information. The engravings (see Figure 3) were used to reproduce topographic and geologic maps, cross sections, and other illustrations.

### *What do the engravings look like?*

The engravings have point and line symbols and text. Almost all the engravings are the mirror image (left-to-right reversed) of the final



Figure 1. A portion of an engraving (top) used to print the black ink for a USGS topographic map (bottom). (Photo courtesy of Bruce Geyman, USGS.)

illustration. The words and text characters are backwards. For maps, “east” is on the left side of the engraving.

### *How do the engravings relate to the printed image?*

The engravings are color-separated; that is, there is an engraving for each color of ink on the print. A single-color illustration requires one engraving. A multicolor illustration typically requires an engraving for each color.

The engravings also can be feature-separated to allow the printing of different versions of an illustration. For example, topographic and geologic maps for a place were printed with different combinations of engravings.

Engravings for large illustrations are partitioned to be a manageable size.



Figure 2. (Above) A typical wall display of three cleaned, polished, enhanced, and framed engravings. These engravings are some of those used to print the USGS 1:31,680-scale topographic map "Washington, D.C. and vicinity". From left to right are the engravings used to print cultural, transportation, and boundary features and text with black ink; contours with brown ink; and hydrography with blue ink. (Photo courtesy of Bruce Geyman)

Each engraving measures 18 inches wide and 26 inches long. When framed each measures 22 inches wide, 30 inches long, and two inches deep. The glare in the rightmost engraving is from the light in the room reflecting off the mirror-like surface of the polished plate.



Figure 3. (Left and above) Close up of the engraving used to print cultural, transportation, and boundary features and text with black ink. The inset shows the mirror-image reversal of the point and line symbols and text. The engraved symbols and text have been enhanced by coloring them white to improve their visibility for display. (Image courtesy of Bruce Geyman.)



*Are photographs of the engravings for a particular map available? If not, is there a way to visualize what the engravings for a particular map look like?*

Photographs of engravings for individual maps are not available. Pictures of engravings that were cleaned and enhanced for display are elsewhere in this document.

There are some resources available that can help a person to visualize the engravings for a particular map.

On page 4, the section titled “Information about the engravings and related USGS mapping activities” provides links to web sites from which users may download and view scanned images of prints of historical topographic and geologic maps reproduced with the engravings.

Use the scanned map images to visualize the engravings by:

1. Viewing the scanned image of the map.
2. In your mind’s eye, reversing the image left-to-right; that is, imagine the mirror image.
3. In your mind’s eye, separating the reversed map image by the black, blue, and brown ink colors.

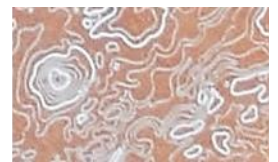
View the scanned map → Reverse the image →



black ink engraving



blue ink engraving



brown ink engraving

Separate by color

*What is the condition of the engravings?*

The condition of an engraving usually is good. The USGS did not print illustrations directly from the engraving; it transferred the image from the engraving to a lithographic stone and printed from the stone. This approach preserved the quality of the engraving so that it could be used to reprint and revise the illustration.

*Who owns the rights to the images on the engravings?*

The images are in the public domain.

**The plates**

*On what material are the engravings made?*

The engravings are on metal plates. Most plates are made from a copper alloy and a few are made from zinc.

*What do the plates look like?*

The face of a plate has a unique engraving. In addition to the engraved image, an identifier often is engraved on the edge of the plate.

There usually is one illustration engraved on a plate. In a few cases a plate has engravings for several small illustrations or for multiple colors or features for one small illustration. This practice conserved materials.

The reverse side of the plate usually is blank. The backs of some plates have identification information painted on them or are dimpled in places where the engraving was changed.

*What are the dimensions and weights of the plates?*

Most plates are 17-by-21 inches and have a thickness that ranges from 0.09 inches to 0.18 inches. Plates of this size typically weigh about 12.5 pounds.

The remaining plates vary in size from 4-by-5 inches to 36-by-40 inches. Their weights vary with their size.

*What is the condition of the plates?*

Most of the plates are tarnished and dusty. The copper plates often have the color of an old penny. Some plates are warped, pitted, scratched, or otherwise damaged.

Most plates are stored horizontally in wooden cabinets (see Figure 4). The plates rest on wooden ledges inside of a cabinet that prevent the plates from touching and hinder them from warping.

Some plates have coverings or coatings to protect the engravings.

Commercial services are available to clean, polish, and preserve artifacts like the plates and treat them to improve the legibility of the engraving.



Figure 4. A zinc plate in its storage cabinet. Most plates are stored horizontally in wooden cabinets to prevent them from touching and hinder them from warping. They have been stored for 60 years and so will need a good but gentle cleaning. (Photo courtesy of Bruce Geyman, USGS.)

## Available as “sets”

### *In what units will the engravings be available?*

The engravings are available in *sets*. A set has engravings used to print an illustration.

The set for a typical topographic map has three engravings. Each engraving is on a 17-by-21 inch plate. The three plates for the set weigh about 37.5 pounds (that is, three plates at 12.5 pounds each).

Incomplete sets occur because some engravings are not available, or are combined on a plate with engravings for another set.

### *In what condition will the sets be available?*

The sets are available in “as is” condition.

### *What descriptive information for the sets is available?*

The sets are described with the title of the map or publication or other description, state(s) included in the map or publication (if known or applicable), map scale (if known or applicable), and number of plates.

## The sales (auction) process

### *What process will be used to sell the sets?*

GSA manages the processes through which the Federal Government sells excess property.

For the sets, GSA will use its online auction process called “GSA Auctions”. General information about the GSA Auctions process and a link for technical assistance is available through <http://www.gsa.gov/portal/content/100747>.

The GSA Auctions web site is available at <http://gsaauctions.gov/gsaauctions/gsaauctions/>. At the bottom of this web

page are links to a description of the auction process, help, frequently asked questions (FAQs), and payment options.

Bidders must register with the GSA Auctions site before placing a bid.

Refer questions about the GSA Auctions web site, the auction process, and the terms of a sale to GSA. USGS cannot answer questions about the site, process, or terms of the sale.

### *What is the price of a set?*

The sets are sold by auction. The price will be highest bid above the reserve amount established by GSA. GSA discloses when bids reach the reserve amount during the auction. It does not disclose the amount.

### *What costs will a winning bidder incur to obtain a set?*

The winning bidder will incur the costs of:

- The terms of the sale.
- The logistics of receiving, packing, loading, and transporting sets to their location.

### *From where will the sets be distributed?*

The sets will be distributed from a warehouse in Herndon, Virginia. Herndon is located in the western Fairfax County suburbs of Washington, DC, near Dulles International Airport. The ZIP code is 20170. GSA will provide the street address, days and hours of operation, and contact information for the warehouse to bidders.

### *How and when will the sets be shipped to the bidder’s location?*

Within the limitations established by the terms of the sale, the winning bidder decides how and when to ship their property and arranges for shipping.

**BIDDERS ARE RESPONSIBLE FOR RECEIVING THEIR PROPERTY AT THE WAREHOUSE AND SHIPPING**

## THE PROPERTY TO THEIR LOCATION!

The terms of the sale include limitations on the time period during which a bidder must remove their property. See the FAQs for GSA Auctions for information about the consequences of the refusal to pay for or remove an item.

GSA and USGS will NOT accept a bidder’s shipping account number and will NOT make packing and shipping arrangements on the bidder’s behalf.

GSA and USGS will provide information about the size(s) of the plates in a set and the estimated weight of a set to help bidders calculate their shipping costs.

Bidders may appear personally to receive and remove their property. They also may appoint and document a personal or commercial agent to perform these tasks on their behalf.

The Internet and the yellow pages are ways to find commercial sources, such as parcel and express delivery services and freight forwarding and trucking companies, that receive, pack, and ship property on behalf of their customers. GSA and USGS may not recommend such companies by name.

## Information about the engravings and related USGS mapping activities

Organizations that interpret artifacts for their patrons asked for information about the engravings. Sources of information are listed below. The web sites listed were accessed on February 15, 2015.

### *Prints reproduced from the engravings*

Scanned images of prints may be found, viewed, and downloaded through the following USGS web sites:

- Historical topographic maps: Historical Topographic Map

Collection at  
<http://nationalmap.gov/historical/index.html>.

- Geologic and topographic maps: The National Geologic Map Database at [http://ngmdb.usgs.gov/ngmdb/ngmdb\\_home.html](http://ngmdb.usgs.gov/ngmdb/ngmdb_home.html).
- Bulletins, monographs, professional papers, water supply papers, and other USGS publications: USGS Publications Warehouse at <http://pubs.er.usgs.gov/>.

Images available for download may be displayed digitally or printed.

Some prints are not available from these sites. Other organizations have scanned images of USGS maps and publications available online.

USGS, university and college, and public libraries with large map collections have prints of USGS maps.

Firms and individuals that service map collectors sell prints of old USGS maps.

Organizations that would like the current USGS 7½-minute topographic maps to complement the engravings can find, view, and download the maps, called “US Topos”, through <http://nationalmap.gov/ustopo/index.html>.

### **Publications**

Birdseye, C.H., 1928, Topographic instructions of the United States Geological Survey: U.S. Geological Survey Bulletin 788, 432 p. Available online in seven parts (Introduction and Parts A through F) through <http://pubs.er.usgs.gov/>. The engraving process is discussed in Part E on the pages numbered 336-337.

Evans, R.T., and Frye, H.M., 2009, History of the Topographic Branch (Division): U.S. Geological Survey Circular 1341, 197 p. Available at

[http://pubs.usgs.gov/circ/1341/pdf/circ\\_1341.pdf](http://pubs.usgs.gov/circ/1341/pdf/circ_1341.pdf).

Gannett, H., 1893, A manual of topographic methods: U.S. Geological Survey Monograph XXII, 300 p. Available at <http://pubs.usgs.gov/mono/0022/report.pdf>.

Gannett, H., 1906, Manual of topographic methods, U.S. Geological Survey Bulletin 307, 88 p. Available at <http://pubs.usgs.gov/bul/0307/report.pdf>.

Kübel, S.J., 1908, The engraving division of the United States Geological Survey: *in* Meadon, J., ed., The graphic arts and crafts year book (vol. 2): Hamilton, Ohio, The Republican Publishing Company, pp. 75-78. Available through <http://books.google.com>.

Olson, J., 2015, The genesis of USGS topographic maps (blog): Syracuse, New York, Syracuse University. Available at <http://library-blog.syr.edu/drs/2015/01/16/the-genesis-of-usgs-topographic-maps/>.

Phillips, H., 1997, Copperplate engraving for the production of topographic maps at the United States Geological Survey 1890-1953: Meridian, no. 11, pp. 5-21.

Rabbit, M.C., 1989, The United States Geological Survey: 1879-1989: U.S. Geological Survey Circular 1050, 52 p. Available at <http://pubs.er.usgs.gov/publication/circ1050>.

Reed, J., 2011, A brief history of geologic mapping in the USGS (web site): [http://ncgmp.usgs.gov/geomaps/history/brief\\_history.html](http://ncgmp.usgs.gov/geomaps/history/brief_history.html).

Ridgway, J.L., 1920, The preparation of illustrations for reports of the United States Geological Survey:

Washington, Government Printing Office, 101 p., 6 sheets. Available at <http://pubs.er.usgs.gov/publication/70047685>.

U.S. Geological Survey, [1955], Map reproduction: Washington, U.S. Geological Survey, 15 p. (illustrated pamphlet)

Annual reports of the Director of the Geological Survey provide the status of mapping and related publication activities. They are available through the USGS Publications Warehouse at <http://pubs.er.usgs.gov/>.

### **Web sites**

- 125 Years of Topographic Mapping, <http://nationalmap.gov/ustopo/history.html>
- History of Geologic Mapping at the USGS, <http://ncgmp.usgs.gov/geomaps/history/history.html>

### **Photographs**

Photographs of mapping, engraving, and printing activities are available at:

- <http://library.usgs.gov/photo/#/> (Use the search terms “map”, “topographic”, and “hoop” (the name of a building). Use a different term for each search.)
- [http://online.wr.usgs.gov/outreach/historicPhotos/historical\\_photos.html](http://online.wr.usgs.gov/outreach/historicPhotos/historical_photos.html) (See the photographs in the 1890-1924 and 1925-1953 sections.)
- <http://gallery.usgs.gov/sets.asp> (Under the heading “employees at work,” see “historical”)
- <http://gallery.usgs.gov/collections.asp> (See “Geography”)
- [http://pubs.usgs.gov/circ/1341/pdf/circ\\_1341.pdf](http://pubs.usgs.gov/circ/1341/pdf/circ_1341.pdf) (Links to the document “History of the Topographic Division (Branch)”)