

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

On behalf of the Federal Government, the U.S. General Services Administration (GSA) is selling to the public by auction sets of excess engravings once used to reproduce U.S. Geological Survey (USGS) topographic and geologic maps and other scientific illustrations (see Figure 1). GSA will auction the sets through its GSA Auctions<sup>SM</sup> web site, which is available at <http://www.gsaauctions.gov>.

GSA will sell the remaining 1,795 sets in four auctions. Each auction will offer approximately 450 sets that map parts of one of four areas of the U.S.: west, central, south and midwest, and northeast. Each two-week auction will start every 30 days. The first auction, planned for the west area, should begin in late August or early September 2015.

To support the auctions, USGS posts inventory information about the sets, weekly status updates, and other information at <ftp://ftpext.usgs.gov/pub/er/va/reston/Engravings/>.

## 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 methods, 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), display them in cases (see Figure 4), or store and retrieve them for interpretation and study as needed.

## The engravings

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

The engravings have 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

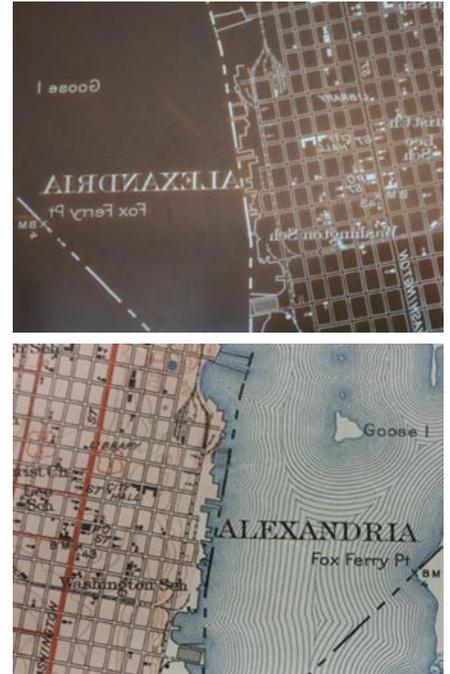


Figure 1. A portion of an engraving (top) used to print the black ink for a USGS topographic map (bottom). (Photo courtesy of Bruce Geyman, USGS.)

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 printed map. 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. The glare in the rightmost engraving is from the light in the room reflecting off the mirror-like surface of the polished plate. (Photo courtesy of Bruce Geyman)



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.)



Figure 4. USGS map engravings displayed in a table. A glass plate covers the engravings. (Photo courtesy of Marcia McNiff, USGS.)

### *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. Some 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. Plates of this size typically weigh about 12.5 pounds. The thicknesses vary from

0.09 inches to 0.18 inches.

The remaining plates vary in size from 4-by-5 inches to 36-by-40 inches. The weight varies with the 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.

The plates were stored horizontally in wooden cabinets (see Figure 5). Most rested on wooden ledges to prevent the plates from touching and hinder them from warping.

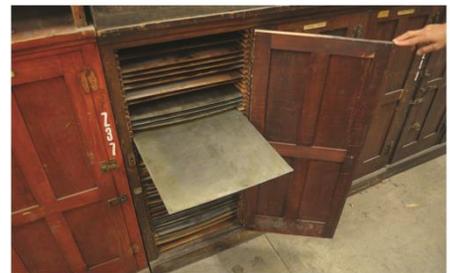


Figure 5. A zinc plate in its storage cabinet. Most plates were stored horizontally in wooden cabinets to prevent them from touching and hinder them from warping. They have been stored for 60 years and so will need a good but gentle cleaning. (Photo courtesy of Bruce Geyman.)

### *Are photographs of the engravings for a map available? If not, is there a way to visualize the engravings for a map?*

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 map.

On page 5, 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. Imagining the mirror image of the map by reversing the image left-to-right.
3. Imagining the engraving on each plate by separating the black, blue, and brown ink colors.

View the scanned map → Reverse the image →



black ink engraving



blue ink engraving



brown ink engraving

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.

## 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. So, a typical set weighs about 37.5 pounds (that is, three plates that weigh 12.5 pounds each).

Incomplete sets can occur because some engravings are not available or were not completed, 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 information, state(s) included in the map or publication (if known or applicable), map scale (if known or

applicable), and number of plates.

## The auction (sales) process

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

GSA will use its online auction process called “GSA Auctions”. The GSA Auctions web site is available at <http://www.gsauctions.gov>. The bottom of the web page has links to a description of the auction process, help, frequently asked questions (FAQs), and payment options. General information about the GSA Auctions process and a link for technical assistance is available through <http://www.gsa.gov/portal/content/100747>.

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.

### *How will the sets be organized for auction?*

Because of the large number of sets available, GSA will hold four auctions. Each auction will offer approximately 450 sets that map part of an area of the U.S.: west, central, south and midwest, and northeast (see Table 1 and Figure 6). GSA intends to auction the west area first.

### *When will the auctions occur?*

GSA anticipates that the first auction will start in late August or early September 2015. Each auction will be open for 14 days, followed by 14 days to process the successful bids and allow successful bidders to receive their property. GSA then will start the next auction, and so the start of each auction should be spaced about every 30 days.

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

The sets are sold by auction. The price will be the highest bid above the reserve amount established by GSA. GSA does not disclose the reserve amount, but it does indicate when bids meet or exceed the reserve amount during the auction.

### *What costs will a successful bidder incur to obtain their sets?*

The successful 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. GSA will provide the address, days and hours of operation, and contact information for the warehouse to successful bidders.

Table 1. States and other jurisdictions assigned to the areas for each auction. No sets that primarily map places in the jurisdictions listed in the “No Sets Available” column are available for auction because they were donated or sold previously.

West Area	Central Area	South and Midwest Area	Northeast Area	No Sets Available
Alaska	Arkansas	Alabama	Connecticut	Delaware
Arizona	Illinois	Florida	Maine	District of Columbia
California	Iowa	Georgia	Massachusetts	Idaho
Colorado	Kansas	Indiana	New Hampshire	Maryland
Hawaii	Louisiana	Kentucky	New Jersey	Missouri
Montana	Michigan	Mississippi	New York	Pennsylvania
Nevada	Minnesota	North Carolina	Rhode Island	South Carolina
New Mexico	Nebraska	Ohio	Vermont	Texas
Oregon	North Dakota	Puerto Rico	Virginia	
Utah	Oklahoma	Tennessee		
Washington	South Dakota	West Virginia		
Wyoming	Wisconsin			

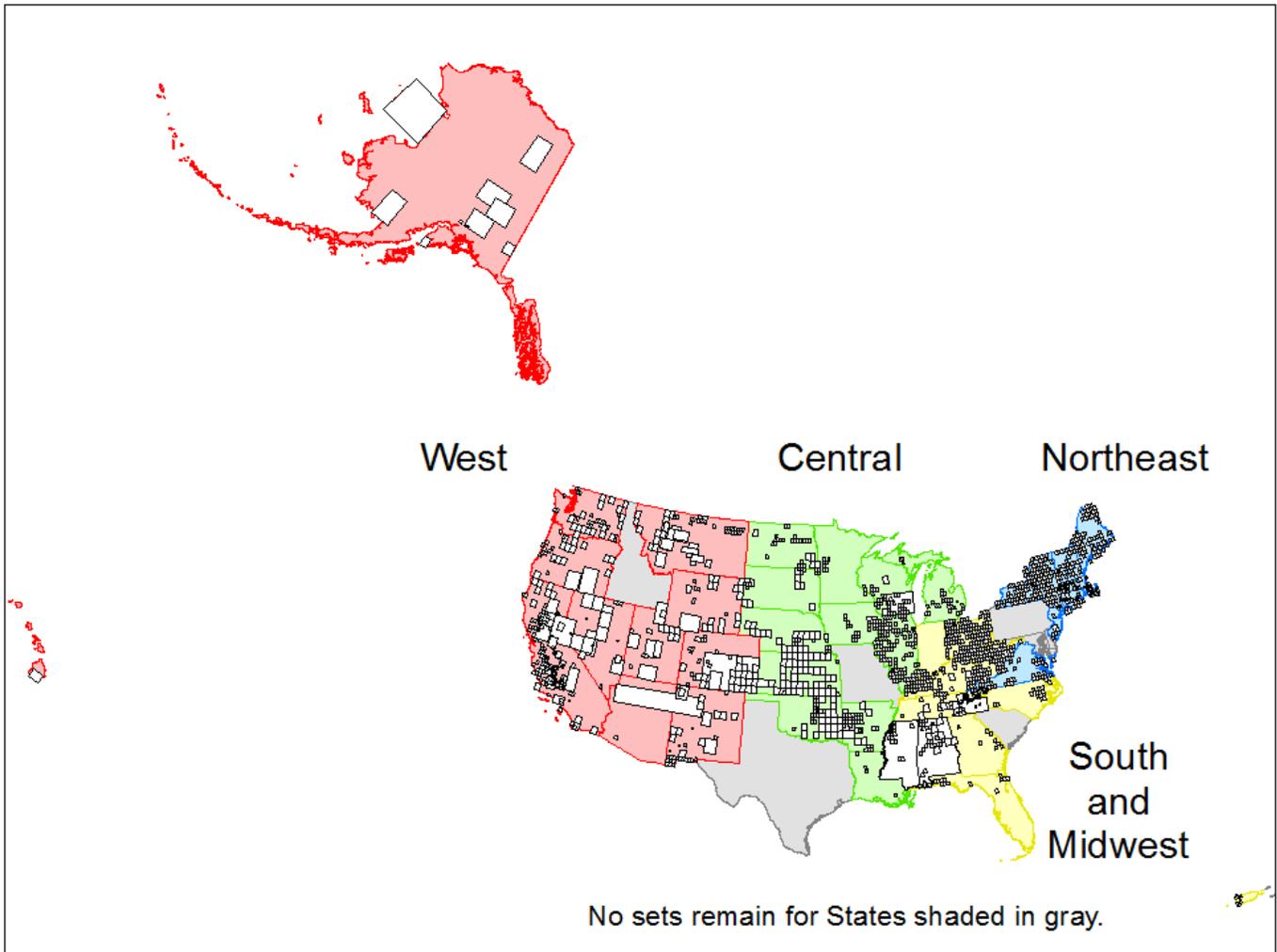


Figure 6. States and other jurisdictions included in the west (colored red), central (green), south and midwest (yellow), and northeast (blue) areas. The footprints of places mapped by sets are colored white and outlined in black. The States of Alabama and Mississippi, for which sets that map the whole state are available, are assigned to the south and midwest area. Some sets are not portrayed in the map. All sets that map areas in the jurisdictions shaded in gray were donated or sold previously.

***How and when will the sets be shipped to the successful bidder's location?***

**SUCCESSFUL BIDDERS ARE RESPONSIBLE FOR RECEIVING THEIR PROPERTY AT THE WAREHOUSE AND SHIPPING THE PROPERTY TO THEIR LOCATION!**

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

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 a bidder's behalf.

GSA and USGS 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.

Successful bidders may appear personally to receive their sets or they may appoint a personal or commercial agent to perform this task. An agent must provide the USGS written proof that the bidder authorized them to receive the sets.

GSA and USGS may not recommend by name companies that provide commercial agent services. The Internet

and the yellow pages are ways to find commercial agents that receive, pack, and ship property on behalf of their customers.

To ship a few sets, look for store fronts of parcel or mail shipping services located in Herndon or the surrounding communities of Reston, Sterling, Vienna, and Fairfax, Virginia. For a large number of sets, look for a ground delivery or trucking firm.

**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 August 10, 2015, unless otherwise noted.

### *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, circulars, professional papers, and other series of USGS publications: USGS Publications Warehouse at <http://pubs.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 other libraries with large map collections often have prints of USGS maps.

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

Those who 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.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>.

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. Available at [http://www.ala.org/magirt/sites/ala.org/magirt/files/content/publicationsab/Meridian/meridian\\_11.pdf](http://www.ala.org/magirt/sites/ala.org/magirt/files/content/publicationsab/Meridian/meridian_11.pdf).

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/cir1050>.

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: with brief descriptions of processes of reproduction: 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.

Usery, E.L., Varanka, D.E., and Finn, M., 2009, Mapping developments and GIS in the USGS, 1884-2009: Proceedings, International Cartography Conference, Santiago, Chile, November, 2009. Available at [http://icaci.org/files/documents/ICC\\_proceedings/ICC2009/html/nonref/7\\_13.pdf](http://icaci.org/files/documents/ICC_proceedings/ICC2009/html/nonref/7_13.pdf).

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.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://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://library.usgs.gov/photo/#/>. Use a different term for each search.
- [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)”.

The pamphlet “Map Reproduction” listed in the Publications section above contains photographs with captions for the steps in the reproduction process.

## Items by recipients of sets of engravings

Allison, L., “Engraved copper plates used to print topographic maps”, Arizona Geology (blog), March 10, 2015. Available at <http://arizonageology.blogspot.com/2015/03/engraved-copper-plates-used-to-print.html>.

American Geographical Society Library, “USGS copper plates” (photographs), no date. Available at <https://www.flickr.com/photos/agslibrary/sets/72157649070312110/>.

Cope, A., “USGS Copper Plates”, American Geographical Society Library (blog), May 18, 2015. Available at <https://agslibraryblog.wordpress.com/2015/05/18/usgs-copper-plates/>.

Olson, J., “The genesis of USGS topographic maps”, Research & Scholarship (blog), January 16, 2015. Available at <http://library-blog.syr.edu/drs/2015/01/16/the-genesis-of-usgs-topographic-maps/>.

Steffenson, J. (jsteffenson). “Map geek Moment, just received the @USGS copper plate master I bought.”

April 22, 2015, 5:13 pm. Tweet. Accessed May 29, 2015.

University of Wisconsin Fond du Lac, 2015 (March 6), Geography/Geology Dept. receives historic engraving plates (news release): Fond du Lac, Wisconsin, Office of Marketing and Communications. Available at <http://fdl.uwc.edu/campus/news/releases/geographygeology-dept-receives-historic-engraving-plates>.

Western Illinois University, 2014 (December 18), Copper printing plate used to make historic local maps now at WIU’s Malpass Library (news release): Macomb, Illinois, Office of University Relations. Available at [http://www.wiu.edu/news/newsreleases.php?release\\_id=12186](http://www.wiu.edu/news/newsreleases.php?release_id=12186).

## Other writings

Hoffer, O., “Historic maps of America up for auction”, The GSA Blog, March 30, 2015. Available at <http://gsablogs.gsa.gov/gsablog/tag/usgs/>.

Newell, M. and Domaratz, M., “USGS engravings offered to the public”, Science Features (blog), March 30, 2015. Available at [http://www.usgs.gov/blogs/features/usgs\\_top\\_story/usgs-engravings-offered-to-the-public/?from=title](http://www.usgs.gov/blogs/features/usgs_top_story/usgs-engravings-offered-to-the-public/?from=title).