

The collage features several distinct visualizations:

- Top Left:** A historical map titled 'THE BEST MAP' showing geographical regions in various colors.
- Top Center:** A circular diagram with colored segments and a legend listing numerical data points.
- Top Right:** A screenshot of the 'COLORBREWER 2.0' web application interface, showing a color palette for a map.
- Middle Left:** A series of overlapping, semi-transparent colored rectangles in shades of red and orange.
- Middle Center:** A large, multi-colored circular diagram with segments in yellow, orange, red, purple, blue, and green, labeled with letters M, C, and B.
- Middle Right:** A map visualization showing a swirling pattern of purple and blue with red arrows indicating flow or direction.
- Bottom Left:** A 3D visualization of a DNA double helix structure.
- Bottom Center:** A grid of colored squares transitioning from green to purple, with an arrow pointing to a similar grid.
- Bottom Right:** Two smartphone screens displaying weather maps and a color selection tool.

Applying Color Theory to Visualization

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IN THIS TUTORIAL, WE HIGHLIGHT 5 TOPICS:

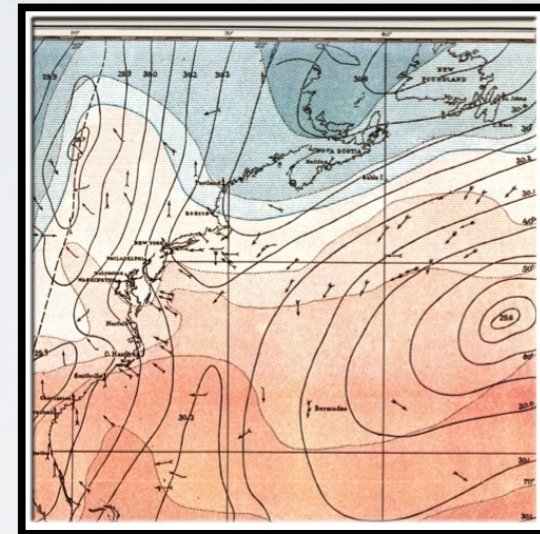
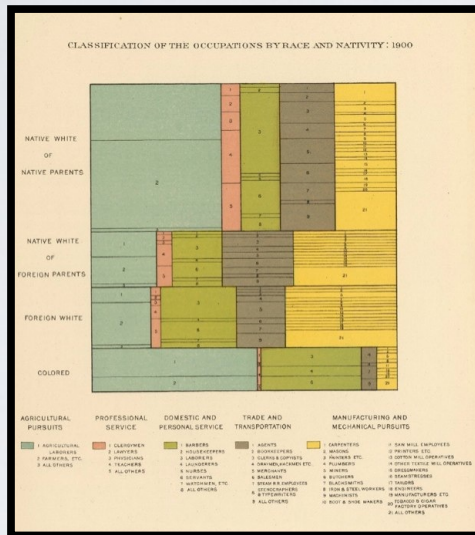
- Defining & Redefining Color Gamut, Spaces and Systems.
 - Historical Progression of Color Models.
 - Visualization Case Studies.
- Hands on Workshop Using Online and App Color Tools.
 - Wrap-Up & Other Resources.

FOR THE IEEE VIS 2014 USB, WE PROVIDE A CASE STUDY EXAMPLE:

- **Analyzing Historic Infographics and Maps.**

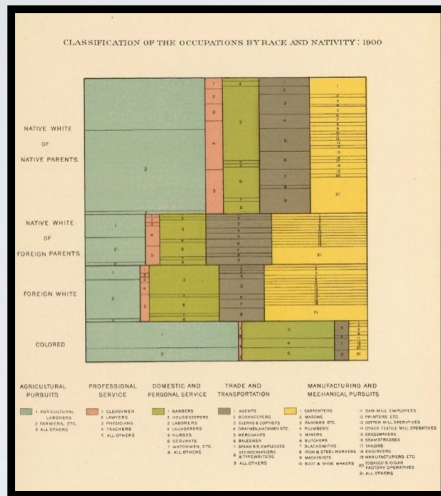


CASE STUDY #2: HISTORIC INFOGRAPHICS AND MAPS



Visualizations based on Census Data of 1870 and 1900 as well as historic weather data of an 1888 storm.

CASE STUDY #2A: CLASSIFICATION OF OCCUPATIONS



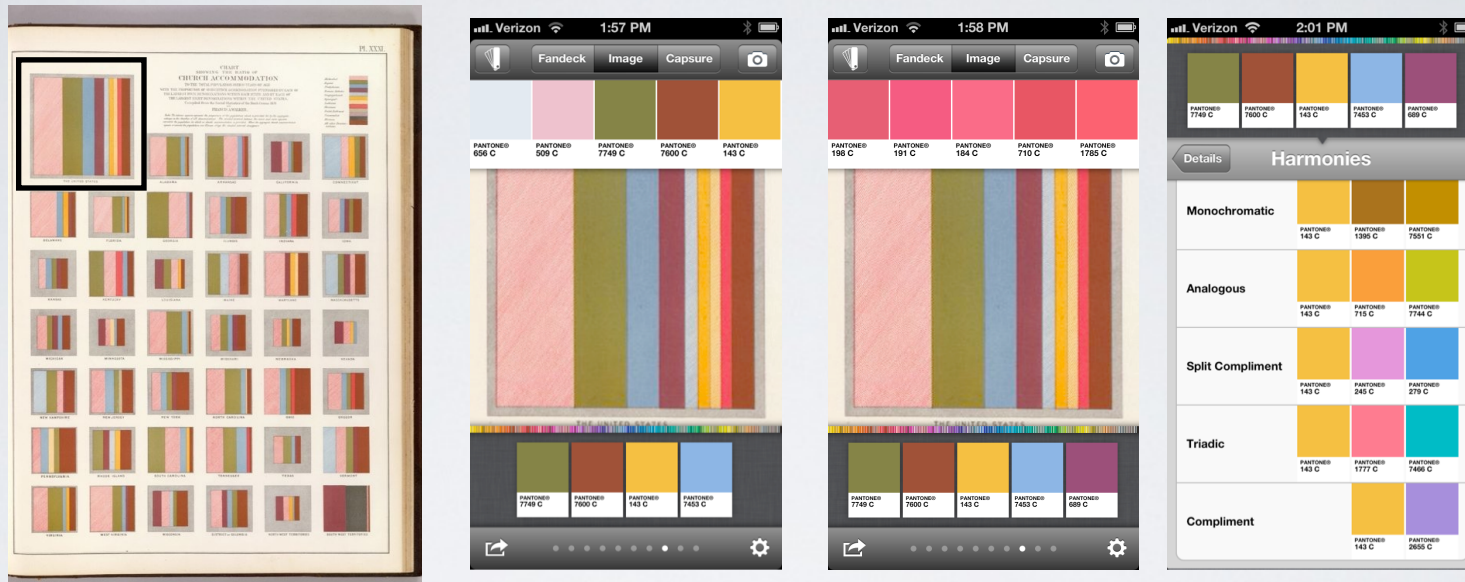
Color Study of Classification of the Occupations by Race and Nativity from 1900 Census Data, prepared by Henry Gannett (Chief Geographer for the US Census in 1890 and 1900).

Notice the Analogous Color Scheme with the use of a small quantity of Pink to highlight Professional Service Data.

We used the Adobe Color app on an iPad for our Color Study.

Infographic available from the David Rumsey Map Collection: (<http://www.davidrumsey.com/>)

CASE STUDY #2B: CHURCH DEMOGRAPHICS



Color Study of Ratio of Church Accommodation to Total Population over 10 Years of Age from 1870 Census Data, prepared by Francis Walker (Superintendent for the 1870 US Census and author of Statistical Atlas of the United States. published in 1874).

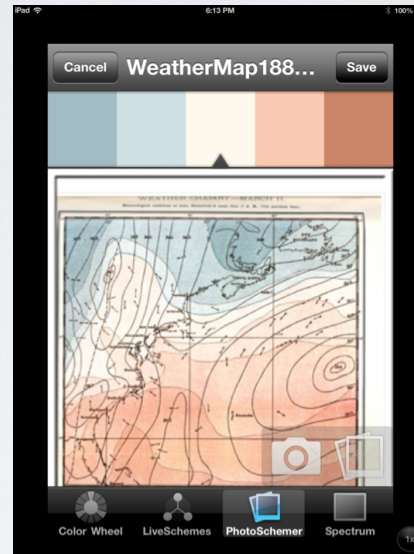
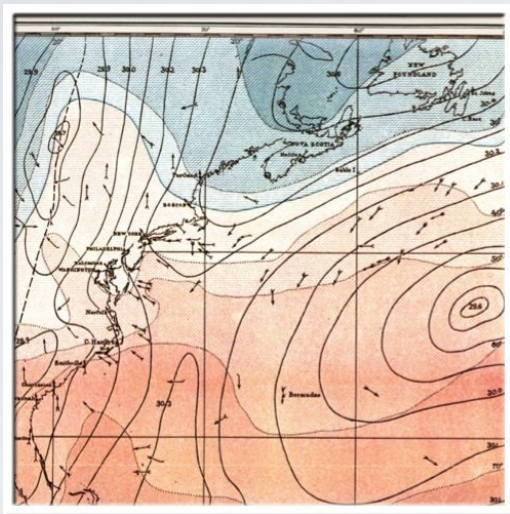
Notice the broad array of colors used in the categorical data visualization. Walker was careful to keep the colors perceptually distinct by avoiding a rainbow display as well as color contrast.

We used the myPantone app on an iPhone for our Color Study.

Infographic available from the David Rumsey Map Collection: (<http://www.davidrumsey.com/>)



CASE STUDY #2C: WEATHER VISUALIZATION

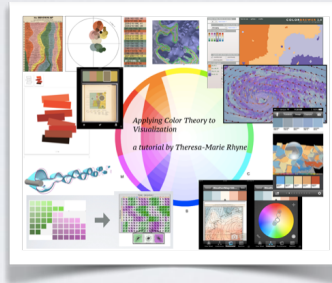


Color Study of a Weather Map showing Pressure, Temperature and Wind for the “The Great Storm of March 11-14, 1888”. This was one of the most severe storms in the US with 20 to 60 inches of snow fall from the Chesapeake Bay to New England.

Notice the Complementary Color Scheme of Blue and Orange tones (in Painters’ Color Space).

We used the Color Schemer Touch app on an iPad for our Color Study.

This Weather map appeared in the October 1888 (the first issue) of National Geographic: (<http://juanvelascoblog.com/category/vintage/>)



ACKNOWLEDGEMENTS:

- Thanks to many colleagues in visualization & digital media who have helped me learn so very much over many years.
- As well as family members who have encouraged me to continue with these efforts.

With much gratitude and appreciation.

Theresa-Marie Rhyne