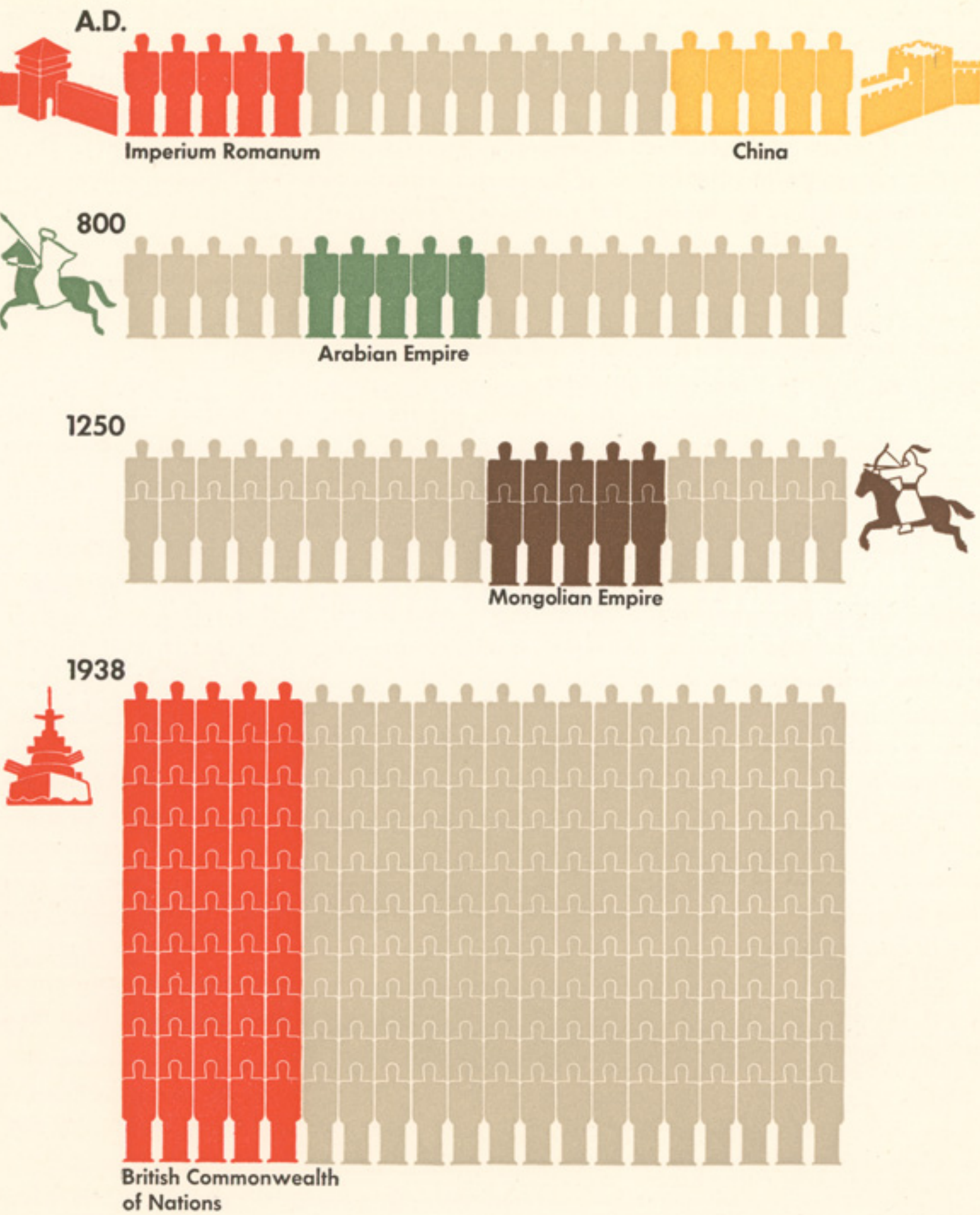# Data Visualization & Design

Week 7

1. A brief history of **Isotype**
2. Studio: Visualizing **Time** in Tableau

1. A brief history of **Isotype**
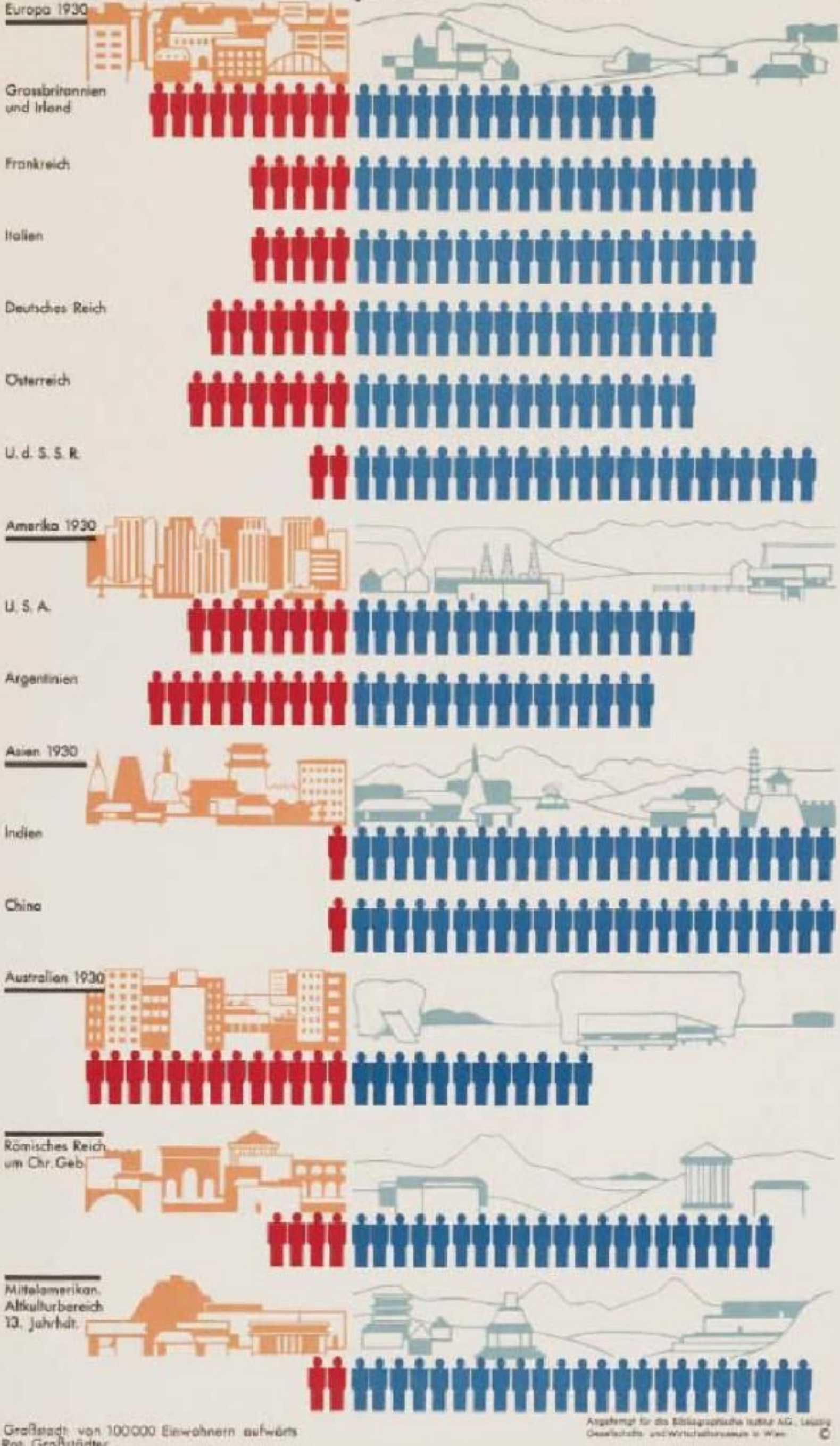2. Studio: Visualizing **Time** in Tableau

Isotype:

"International System Of TYpographic Picture Education"

World Imperia

A.D.
Imperium Romanum   China

800
Arabian Empire

1250
Mongolian Empire

1938
British Commonwealth of Nations

Each man symbol represents 10 million population

Großstädter unter je 25 Personen

Europa 1930

Grossbritannien und Irland

Frankreich

Italien

Deutsches Reich

Österreich

U.d.S.S.R.

Amerika 1930

U.S.A.

Argentinien

Asien 1930

Indien

China

Australien 1930

Römisches Reich um Chr.Geb.

Mittelamerikan. Altkulturbereich 13. Jahrhdt.

Großstadt von 100000 Einwohnern aufwärts
Rot: Großstädter

Angefertigt für das Bibliographische Institut AG, Leipzig
Gesellschafts- und Wirtschaftsmuseum in Wien

Silhouettes of War Economy

	United States, Great Britain, France, Soviet Union	Other countries	Germany, Italy, Japan, Spain, Poland, Rumania, Hungary, Yugoslavia, Turkey, Iraq, Iran
Coal			
Petroleum			
Iron (content of ores)			
Copper (content of ores)			
Cotton and wool			
Grain and rice			

	United States, France, Soviet Union, Turkey, Iraq, Iran	Other countries	Great Britain, Germany, Italy, Japan, Spain, Poland, Rumania, Hungary, Yugoslavia
Coal			
Petroleum			
Iron (content of ores)			
Copper (content of ores)			
Cotton and wool			
Grain and rice			

Each symbol represents 10 % of world production

Central Power
Germany, Austria, Hungary, Bulgaria, Turkey

Great War 1914-18

Each figure 1 million soldiers
(killed, wounded, others returning home)

Allies
USA, British Empire, France, Belgium,
Italy, Serbia, Romania, Russia, Japan a.s.o.

ISOTYPE

The **isotype** was initiated by **Otto Neurath** in collaboration with **Gerd Arntz**.

Origins of Isotype

- Developed at the Social and Economic Museum of Vienna between **1925**-**1934**
- Neurath believed the museum should be a teaching museum, not a repository of artifacts
- First known as the **Vienna Method of Pictorial Statistics**
- Its aim was to "represent social facts pictorially" and to bring "dead statistics" to life, by making them more visually memorable
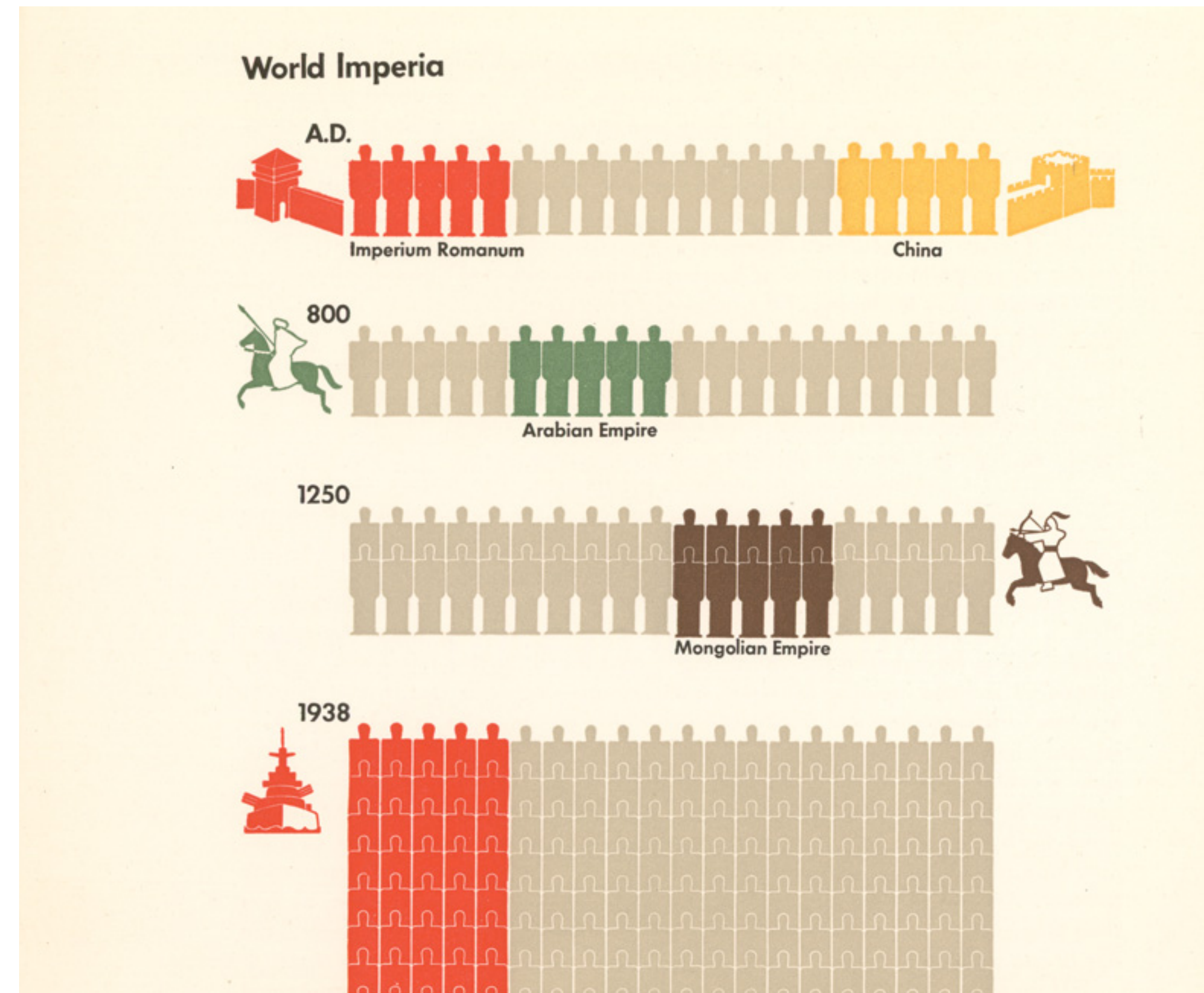
Principles of Isotype

- Greater quantities are not represented by an enlarged pictogram, but by **a greater number of the same-sized pictogram**
- In Neurath's view, variation in size does not allow accurate comparison
- Variation in multiples does, because multiple pictograms can be counted
- To avoid distortion, pictograms are represented as flat (rarely in perspective)
- Focused on **visual education**

When incorporating Isotype into data-driven designs, be **rigorous**, **transparent**, and **precise**.
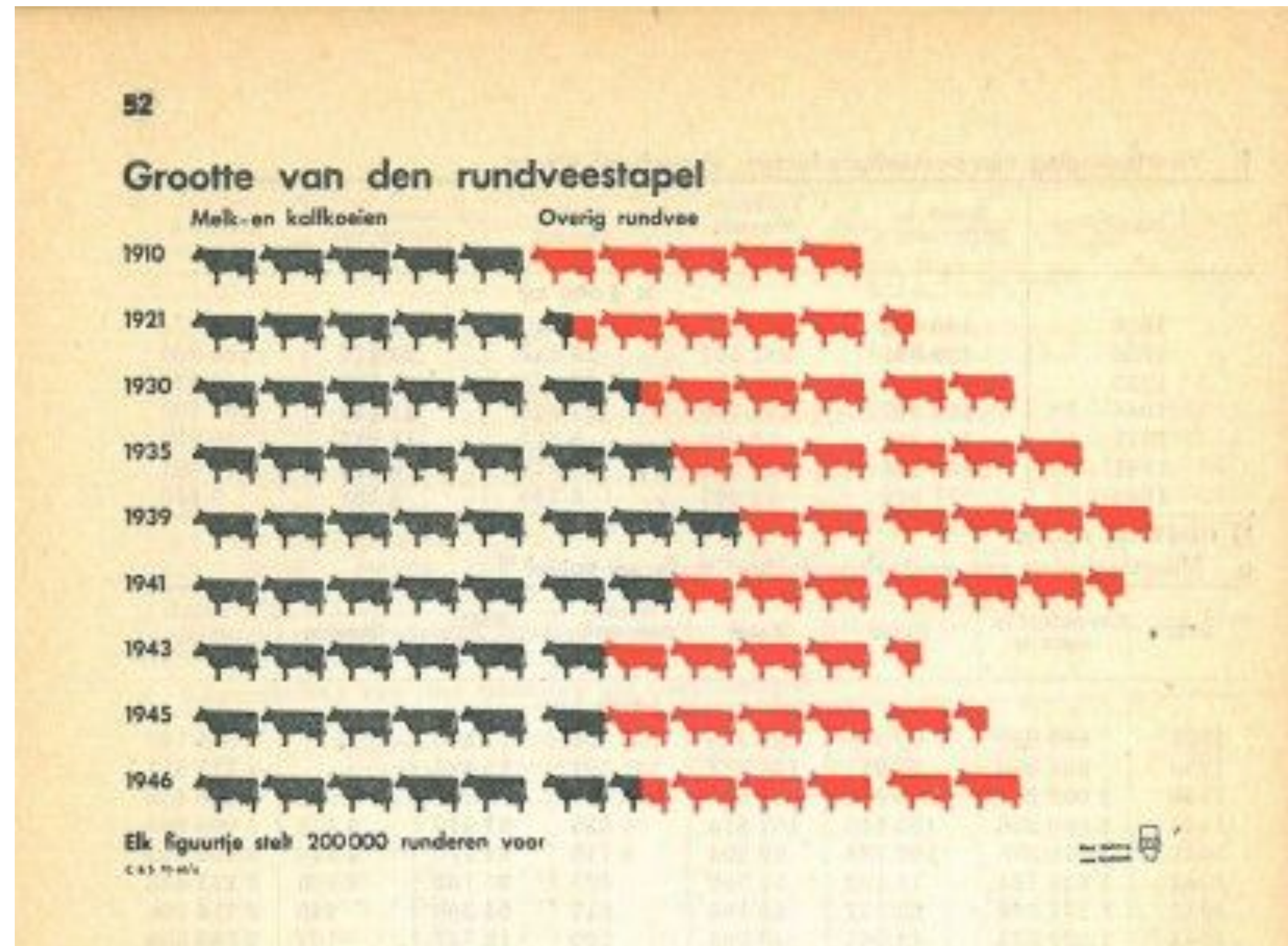
1. Make the icons the same size
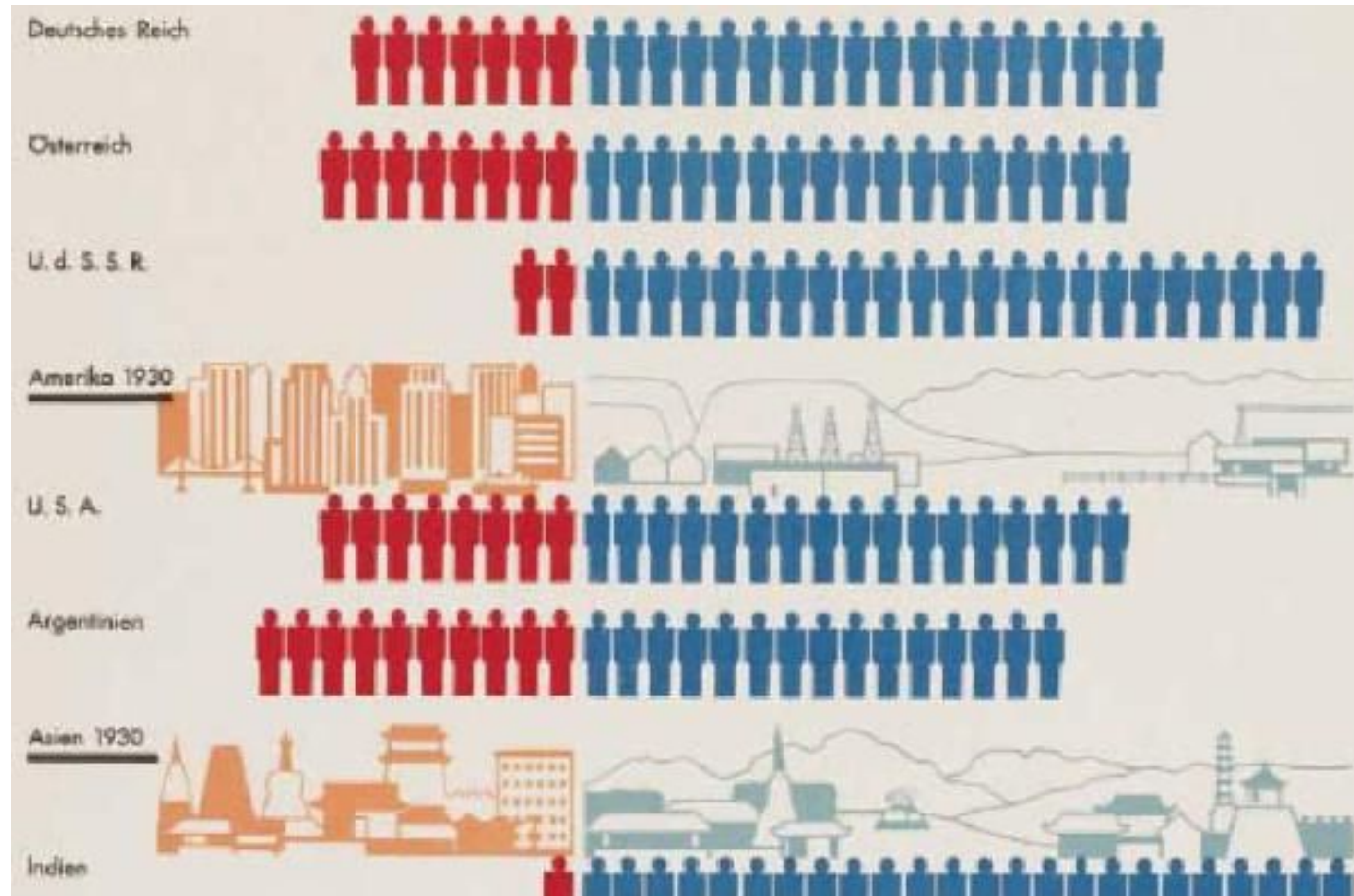
2. Use color sparingly (for categories)

World Imperia

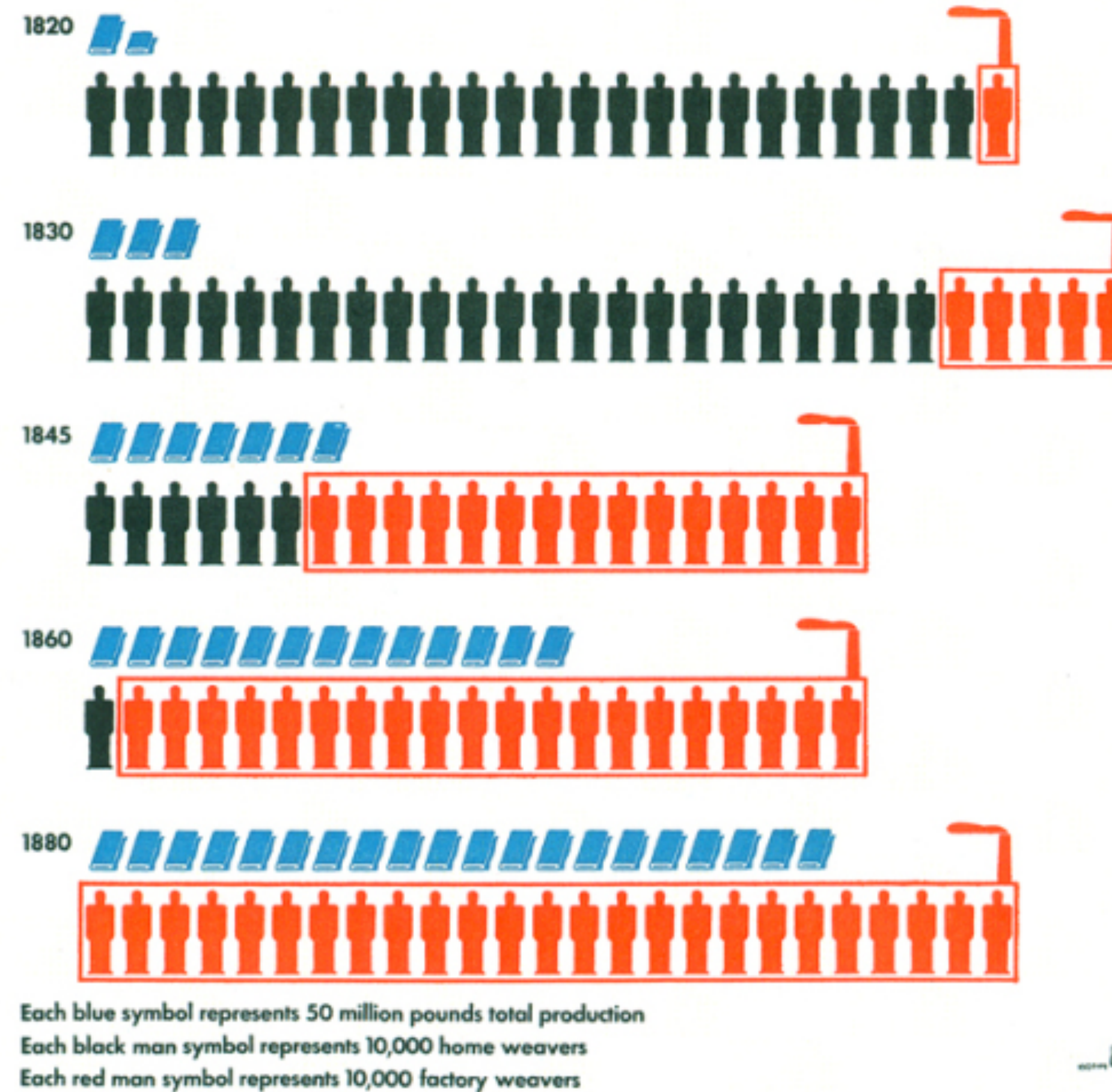# 3. ALWAYS include a legend

Coal

Petroleum

Iron (content of ores)

Copper (content of ores)

Cotton and wool

Grain and rice

Each symbol represents 10 % of world production
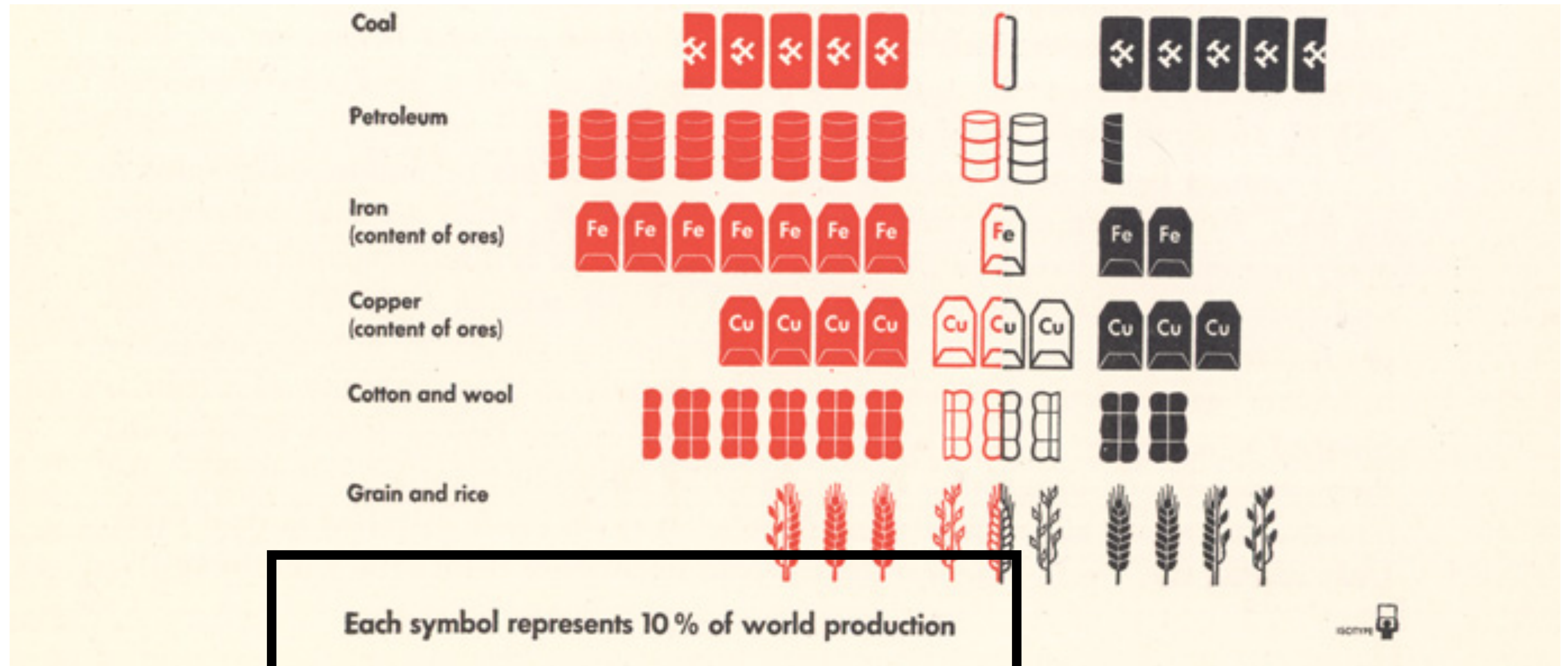
4. Include *partial* icons if needed

5. Include *enough* symbols

Home and Factory Weaving in England

Each blue symbol represents 50 million pounds total production
Each black man symbol represents 10,000 home weavers
Each red man symbol represents 10,000 factory weavers

1. A brief history of **Isotype**
2. Studio: Visualizing **Time** in Tableau

Preview:
Visualization Methods

- Time Series Plot
- Connected Scatterplot
- Animated Scatterplot
- Parallel Coordinates

Method: **Time Series Plot**

- Illustrates the evolution of a variable at successive increments of time
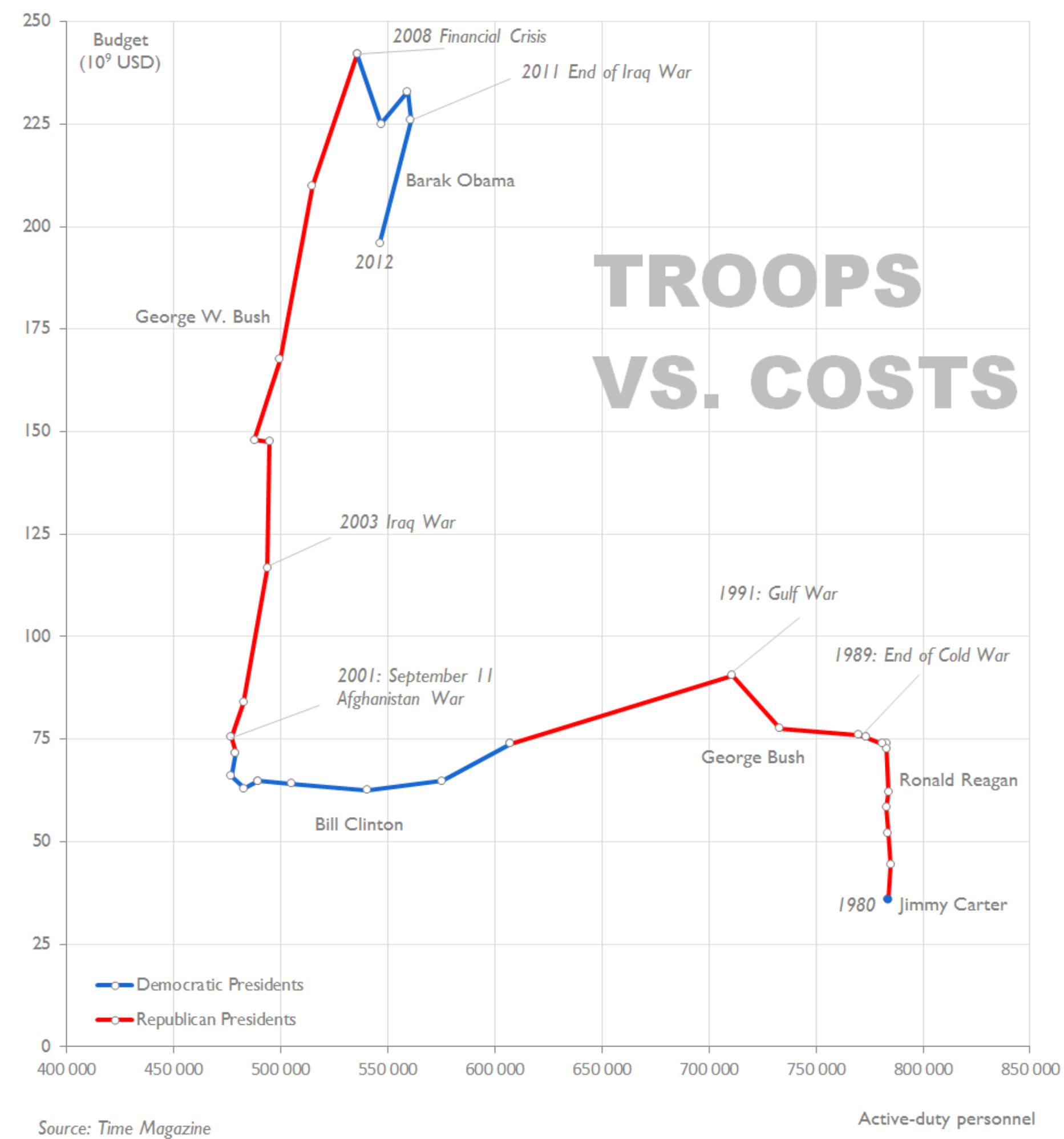- Each point in the chart corresponds to a **time** and a **quantity measured**

Method: **Time Series Plot**
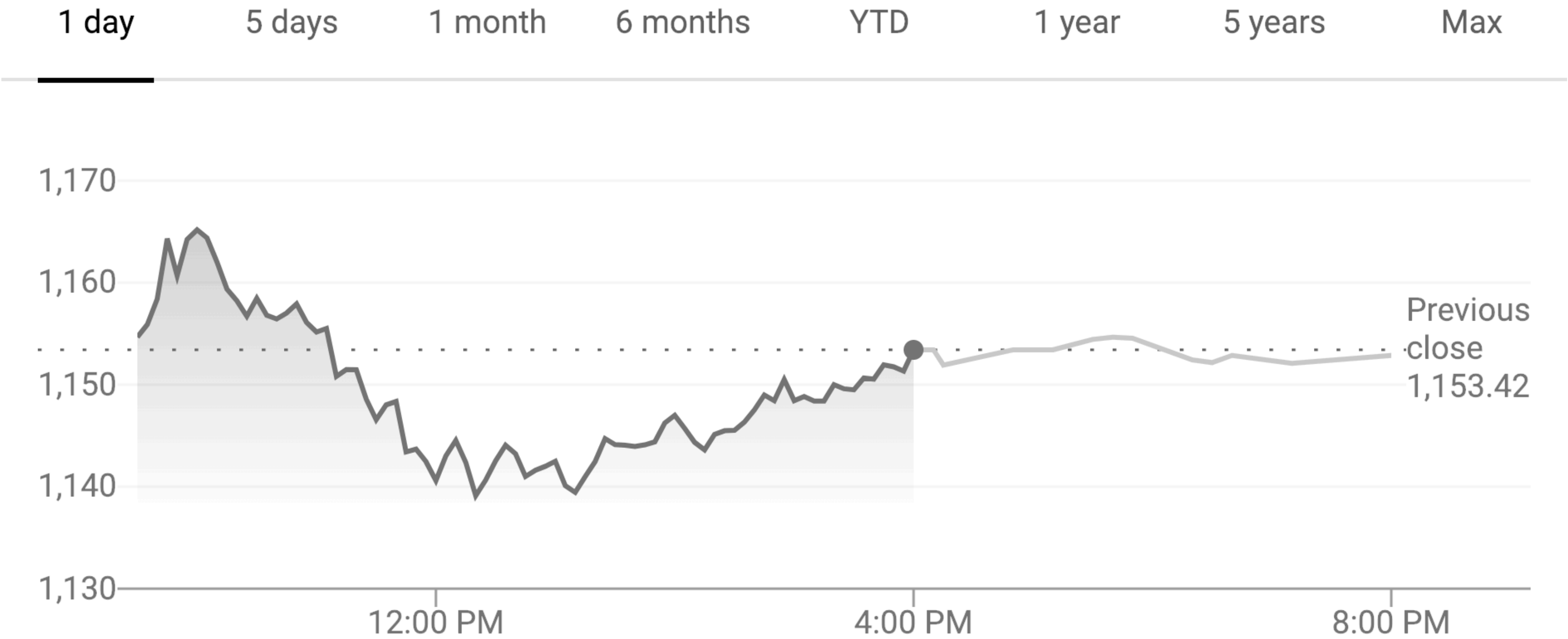
Method: **Connected Scatterplot**

- Time is **not** represented along an axis
- Points in a scatterplot are connected in the order in which they occur
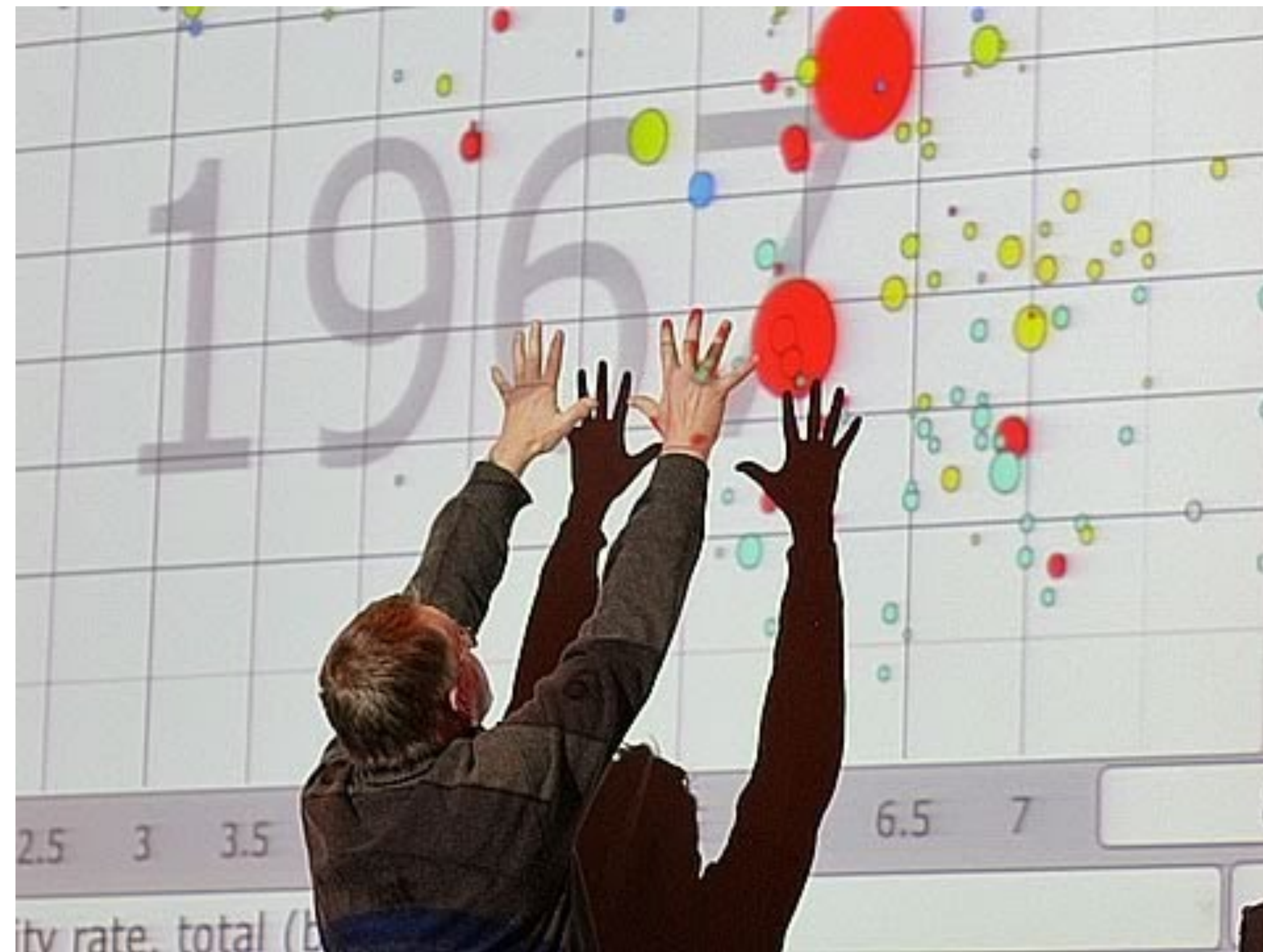- Coloring line segments can break out category

Method: **Connected Scatterplot**

Method: **Animated Scatterplot**

- Illustrates how two variables evolve over time
- Relies on viewer's memory
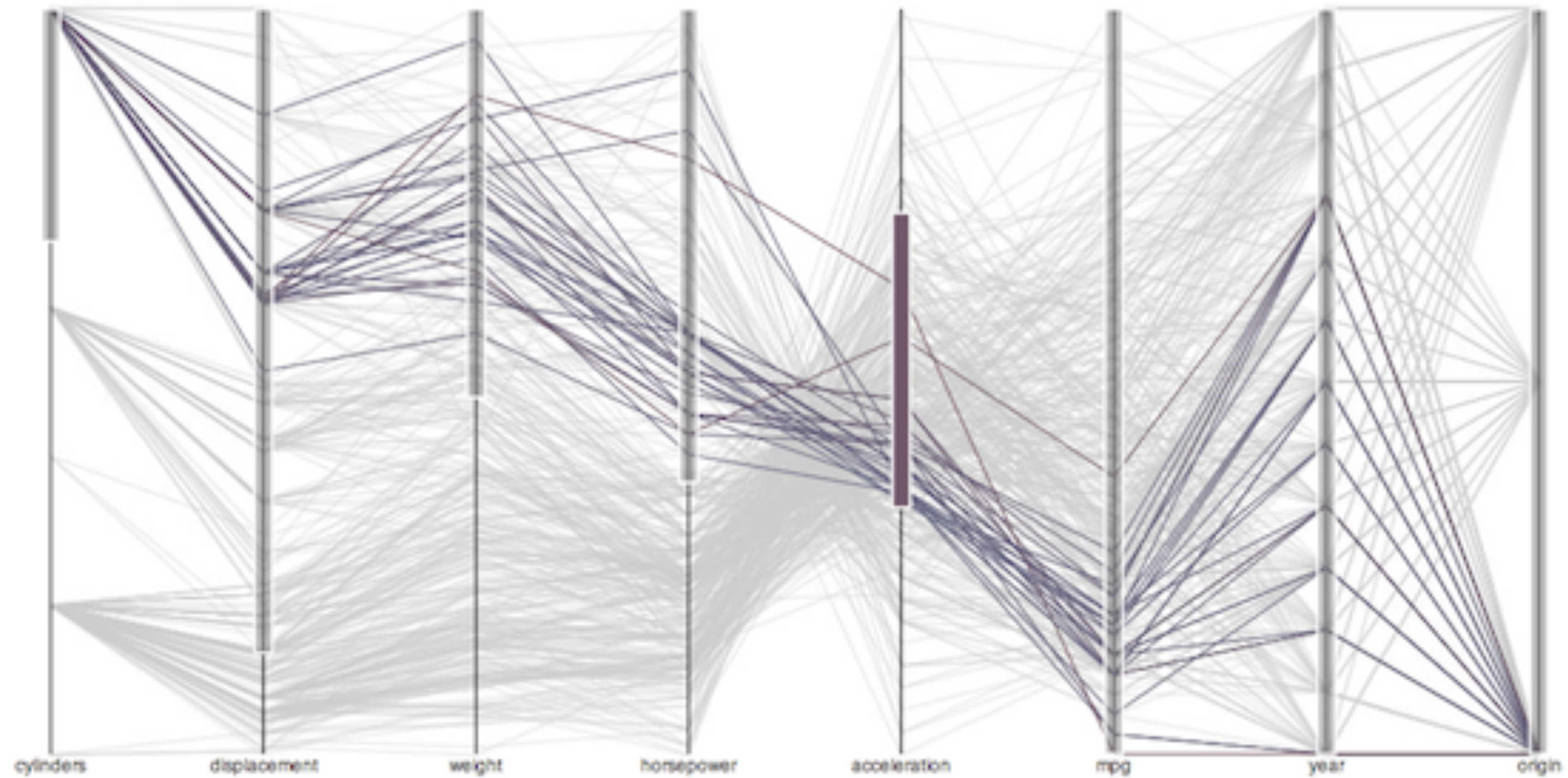
Method: **Animated Scatterplot**

Method: **Parallel Coordinates**

- Good for discerning correlations in multivariate, numerical data
- Within a single timestamp, can compare a hundreds of entries across chosen dimensions

Method: **Parallel Coordinates**

Studio

https://github.com/emilyfuhrman/datavis_design/blob/master/2018_Fall/Studios/04_Visualizing_Time_in_Tableau.md