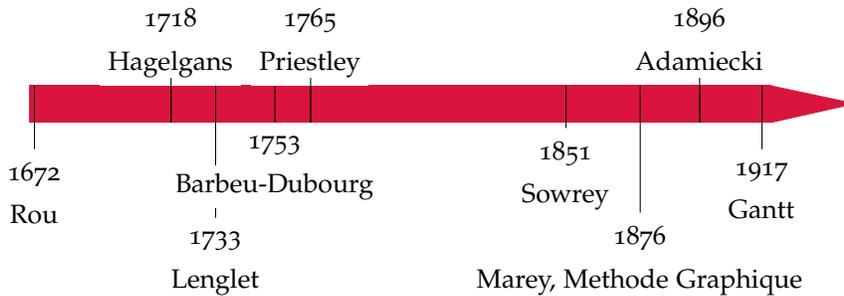

Data Visualization Timeline: TIME LINE CHART

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This slick covers a brief history of the the TIME LINE CHART, including a timeline of notable events.¹.

The TIME LINE CHART is also known as a TIMELINE, CHRONOLOGY GRAPH OR SEQUENCE CHART. Not to be confused with TIME SERIES PLOTS, FLOW CHARTS² or CIRCULAR TIME CHARTS³, it is a one-axis chart, indexed chronologically and oriented in any one direction, using any scale, although a linear scale is the most common (*continuous or not*). Multiple parallel time lines can also be depicted on a single chart.



Details

A TEXTUAL DESCRIPTION of one of the earliest graphic representation of a time line can be found in the Bible book of Daniel, in the description of a statue made of different materials, representing different ruling kingdoms in time⁴. Once scrolls were replaced by the codex, primitive tables covered events in time in the form of annals⁵. Would follow many innovations in presentation (Oresme), in printing (Gutenberg) along with improved engraving techniques.

THE FIRST TIME LINE CHART in the modern sense of the term would have to be the works of Jean Rou in the 1670s. Religious pressure put a halt on these for a while, but in 1718, Johann Georg Hagelgans published "Atlas Historicus", with parallel chronologies, and multiple color illustrations, followed by "Tables Chronologiques de l'Histoire Universelle" of Nicolas Lenglet du Fresnoy published in 1733⁶. Another publication of note is the "Chronographie" of Jacques Barbeau-Dubourg

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¹ <http://dionresearch.com/timeline/time>

² such as the classic by Charles Joseph Minard, *carte figurative des pertes dans la campagne de Russie 1812-1813*

³ to be covered in future Data Visualization Timelines



Figure 1: Scroll in case and detail of Jacques Barbeau-Dubourg's "Chronographie" from 1753.

⁴ Daniel 2:36-45, also Scroll 4QDan, Hasmonean Dynasty^a

⁵ the oldest surviving is the Chunqiu, circa 5th century BC, but most annals were distributed in the 10th-15th centuries AD

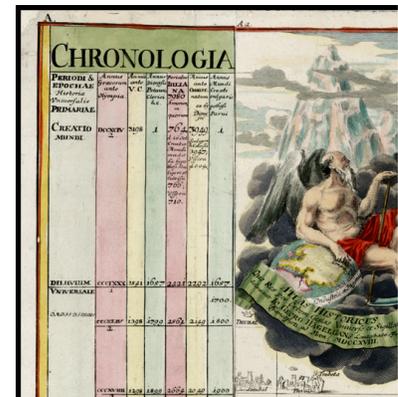


Figure 2: Detail of "Atlas Historicus".

⁶ made in 1729

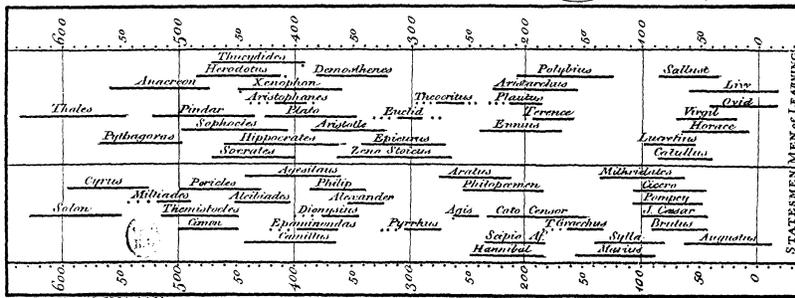
from 1753. Interestingly, this was published as book and in scroll⁷ form, with a folding case with cranks, to move through time.

PRIESTLEY'S TIME LINE CHARTS are now well known, unlike most of the previously cited examples, but that was not always the case. Marey, in his "Methode Graphique" refers to Sowrey⁸ as a type of chart that should be rapidly gaining traction, but makes no mention of Priestley's work. By the early 1900s, Priestley's work was mostly unknown. Willard Brinton's 1939 book acknowledges learning about Playfair but makes no mention of Priestley⁹.

A SPECIAL CASE of the timeline presents a schedule, usually with parallel tasks and annotations. This is known as the HARMONOGRAM¹⁰ or GANTT CHART.

CREATING A TIMELINE is now fairly easy, using either L^AT_EX with the package CHRONOSYS, with PYTHON and the package MATPLOTLIB, or with R and GGPlot. For an example with a large number of individual entries in a timeline, see "Japanese Periods (9) and Eras (248)"¹¹. It is a timeline in Romaji, covering eras in Japan from the Taika era (645) to the Heisei era (1989), codifying the periods, eras and Southern and Northern courts.

A Specimen of a Chart of Biography.



Additional References

Willard Brinton, *Graphic Presentation*. Brinton Associates, 1939
 Stephen Ferguson, *The 1753 Carte chronographique of Jacques Barbeu-Dubourg*. Princeton Lib. Chron., vol. 52, 1991.
 Robert L. Harris, *Information Graphics: A Comprehensive Illustrated Reference*. Management Graphics, 1996.
 Anthony Grafton, Daniel Rosenberg, *Cartographies of Time*. Princeton Architectural Press, 2012.

⁷ over 50ft long - see also Figure 1

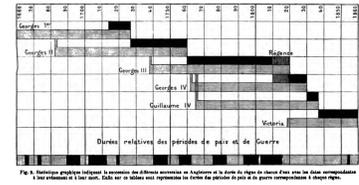


Figure 3: Sowrey's chart in "Marey".

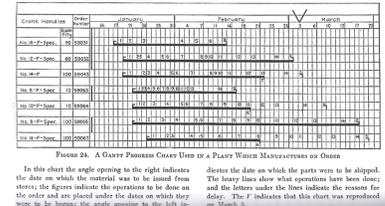


Figure 4: Early "Gantt" chart.

⁸ "Chronological, Historical and Statistical Diagram from the year 1600 to the present time" by J. Russell Sowray, in "La methode Graphique dans les sciences experimentales by E.J. Marey

⁹ He was known at the time principally for his work in Chemistry

¹⁰ Karol Adamiecki invented the precursor to the Gantt chart in 1896

¹¹ <http://dionresearch.com/timeline/eras>

Figure 5: "A Specimen of a Chart of Biography", a small sample of Priestley's "Chart of Biography" of over 2000 names.