

Raiders of the Lost Tombs

The Search for Some Heroes of the History of Data Visualization

Michael Friendly and *Les Chevaliers des Albums de Statistique Graphique*¹

Groucho Marx famously asked guests on his TV quiz show, *You Bet Your Life*, what should be a no-brainer: “Who is buried in Grant’s Tomb?” In this article we take up the thornier question of the final resting places of some un-memorialized heroes of data visualization. We are the raiders of lost tombs, but only in the most benign and reverent sense.

For Groucho’s question, a correct answer turns out to be more complicated than he imagined. Ulysses S. Grant, the Civil War general and 18th President of the United States, died on July 23, 1885. The mausoleum on Riverside Drive in New York City called “Grant’s Tomb” (official name: General Grant National Memorial) was not completed until August 1896. Grant’s remains had a temporary tomb in Riverside Park by 1893, but he certainly had been actually buried earlier, perhaps elsewhere. On April 17, 1897, his remains were quietly transferred to a red granite sarcophagus in the mausoleum. Grant’s wife, Julia Dent Grant died in 1902 and her remains were placed in a matching sarcophagus. Hence, Grant never had an actual interment in the tomb that bears his name. The pedantically correct answer to Groucho’s question regarding “burial” could have been: (a) Nobody; (b) his wife, Julia; (c) Grant, by a stretch.

So too, our quest for burial sites some of our heroes has turned out to be more complicated than we initially imagined. Yet it yielded some greater insight into their personal histories and unexpected connections.

Heroes of the History of Data Visualization

In any account of the history of data visualization, there are many individuals who stand out for their contributions to the emerging combination of empirical data and visual thinking to try to answer important scientific and social questions of their day. In different ways they all advanced the idea that data, shown in a graphical display could “speak to the eyes” (and brain) in ways that numbers, tables of numbers and even words could not. In the process, they created novel graphic methods and used these

¹ *Les Chevaliers* is an international conspiracy of friends of the history of data visualization. It was originally founded by the first author in 1998 to arrange a group purchase of a complete set of the *Albums de Statistique Graphique* published by the French Ministry of Public Works, 1879—1899 under the direction of Émile Cheysson. Antoine de Falguerolles and Gilles Palsky provided the initial glue. The entire collection of these albums was recently put online by David Rumsey, <https://www.davidrumsey.com/luna/servlet/s/nl72bu>. Tomb Raiders is the only slightly ghoulish subset of chevaliers who find pleasure in commemorating some heroes in this history by discovering their burial sites. Another branch, *Les Chevaliers des Pays Catalan* continues to meet annually for a Chevalier lunch, often with bottles of Chateaux Minard or Chateaux Guerry.

to provide new insight and answers to questions of the day. We show a small selection of some of these heroes in Figure 1, using the style of a timeline chart introduced by Joseph Priestley.

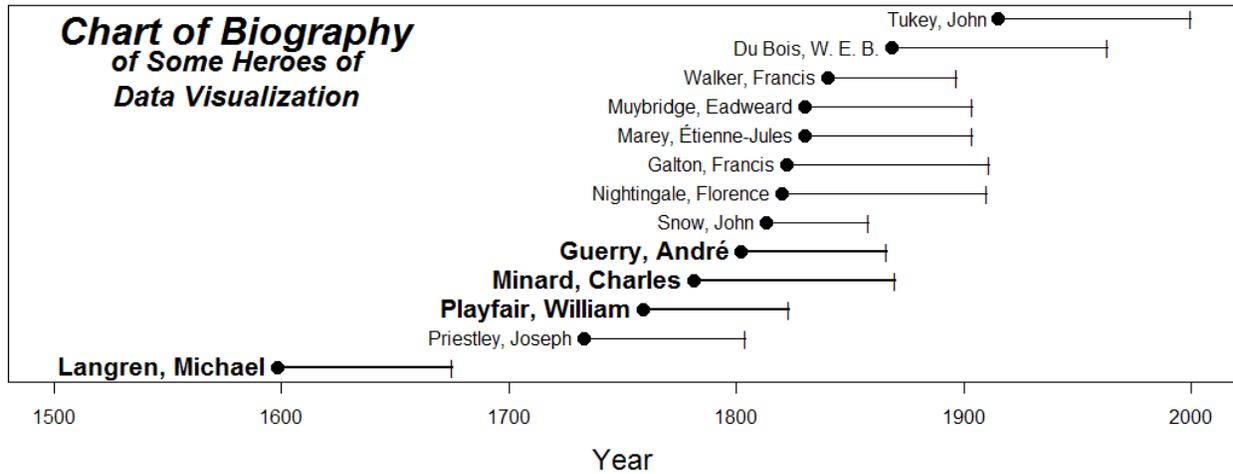


Figure 1: Lifespans of some main heroes in the history of data visualization, using a timeline chart introduced by Joseph Priestley. Those described here are named in a larger font.

What is noteworthy here is that some of these are well-known and were celebrated in their lifetimes for contributions to scientific discovery and visual explanation. Their place in history is cemented, first by the historical record: what they accomplished and published; second by what other writers at the time or later historians said about them; and finally by some public recognition of the places where they lived or were buried.

For example, Francis Galton was a pioneer in many diverse fields (anthropometrics, meteorology, eugenics, psychometrics, statistics, forensic science). In his lifetime, he received among the highest awards from learned societies in England (Royal Society, Anthropological Institute, Linean Society of London) and France (Geographical Society) and was knighted in 1909. Galton died at age 88 on Jan. 17, 1911 and was buried at his family site in St. Michael and All Angels Churchyard, Claverdon, England. A plaque erected in 1931 at 42 Rutland Place, Knightsbridge, London proclaims, "Sir Francis Galton, Explorer, Statistician, Founder of Eugenics, Lived here for Fifty Years."

The written history and revered burial places are less kind to some of our other, largely unsung, heroes. Their contributions were neither widely celebrated in their own lifetimes nor publicly recognized today in memorials of any kind. Their legacies are contained in a few biographies by modern scholars, but often lacking personal details or portraits. Figure 2 highlights the contrast between four well-sung heroes of data visualization and the four unglorified ones whose burial sites were the subject of a ~ 10 year quest by the Raiders of the Lost Tombs. This article is the beginning of a public tribute to their memory and recognition of our debt to them.



Figure 2: Some heroes of the history of data visualization, identified by whether their portraits and burial places are known

Michael Florent van Langren (1598--1675)

Michael Florent van Langren, born on April 27, 1598 in Amsterdam, was the youngest member of a family of Dutch globe makers well-known in the history of cartography. We celebrate him here as the author of the first graph of statistical data: a one-dimensional dot-plot of estimations of the distance in longitude between Toledo and Rome (Figure 3). The full story of this graph and M. F. van Langren was first told in Friendly et al. (2010), but the graph was brought to our attention by Tufte (1997, p. 15).

As a cosmographer, his goal was to provide a more accurate way for mariners to find their position at sea by observing the craters and mountains on the Moon that were illuminated by solar rays in different phases of the Moon. However his graph had a simpler purpose: it was designed as a visual explanation to King Phillip IV of Spain showing why the problem of longitude was important (large errors among the observations) and why he should be supported for trying to solve it.

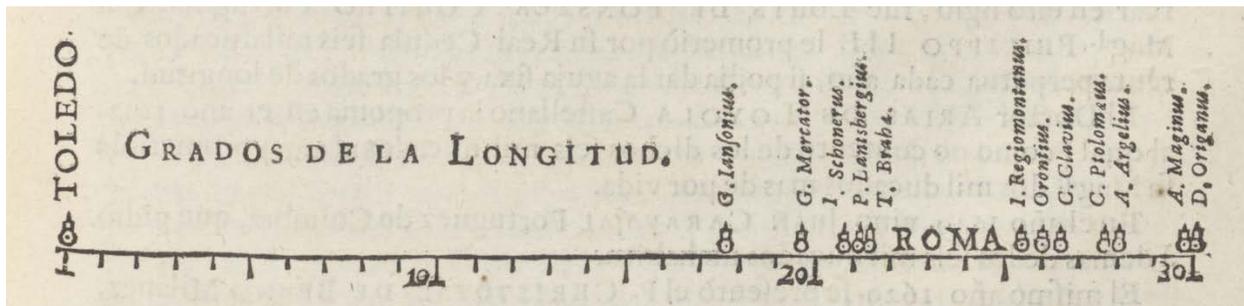


Figure 3: The first statistical graph. Van Langren's 1644 graph of 12 determinations of the longitude distance from Toledo to Rome. The correct distance on this scale is 16.5°. Image courtesy of the Koninklijke Bibliotheek van België

The historical record on Michael van Langren as a person was very thin: We knew he died in May 1675, reportedly in Brussels, but little was known of his personal life, no portrait of him exists, and no location for his burial site had been found.

However, recent research commissioned by Les Chevaliers² has uncovered a wealth of previously unknown details: Michael married Jeanne de Quantere and they had four known children between 1626 and 1635. At age 29, he also had an illegitimate daughter with Jeanette van Deynze, whom he later acknowledged and legitimized in 1657. We also discovered biographies of van Langren by Alphonse Wauters written in 1891 and 1892. From these we now know that Michael had most recently lived on rue Haute, Brussels. He died in the first days of May, 1675, and was buried on May 9, in the church of

² Gustavo Vieira is credited with most of the research on van Langren leading to these discoveries.

Notre-Dame de la Chapelle, Brussels. But by 1890 there was no trace of his burial there. So, the answer to the question “Who is buried in van Langren’s tomb?” is “We don’t yet know his exact tomb location”. Those interested in the history of data visualization or in beautiful Dutch/Belgian churches are invited to pay a visit to Notre-Dame de la Chapelle. Set your GPS to 50.8416° N, 4.3511° E and follow the map in Figure 4.

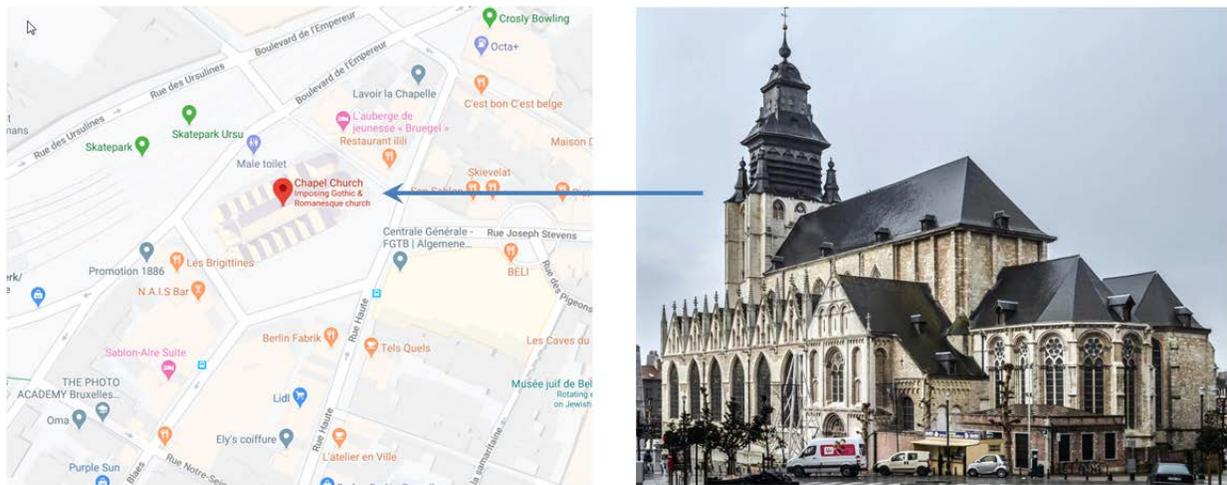


Figure 4: Map and picture of Notre-Dame de la Chapelle in Brussels, where Michael Florent van Langren was buried May 9, 1675.

William Playfair (1759—1823)

William Playfair is so widely cited as the “father of modern graphics” – the inventor of the pie chart, line graph and bar chart --- that it is hard to believe that there is no publicly-known burial site or any physical memorials. No plaque (“William Playfair lived here ...”) adorns any London building vs. those commemorating Francis Galton and Florence Nightingale. John Snow is recognized in an eponymous tavern not far from the Broad Street pump, but William Playfair’s remains had been lost to history until very recently.

We report here that the Playfair branch of *Les Chevaliers* gave a **Best Info Available Solution (BIAS)** to the Playfair Question. In 2017 a three person team (Spence, Fenn & Klein, 2017) of Playfair enthusiasts tracked down his final resting place to plot location W115 N3, of the Baywater cemetery belonging to the church of St. George, Hanover Square (see Figure 5), and records from the Westminster City Archives show that he was interred on the 14th of February 1823.

Unfortunately, clandestine exhumation and reburial was widely practiced by the sextons and gravediggers of London parish graveyards, and so-called “resurrection men” commonly plundered graves for corpses to sell to medical schools for dissection by anatomists. Consequently, it isn’t known for certain if Playfair’s remains are where they were first interred or if they were removed elsewhere.

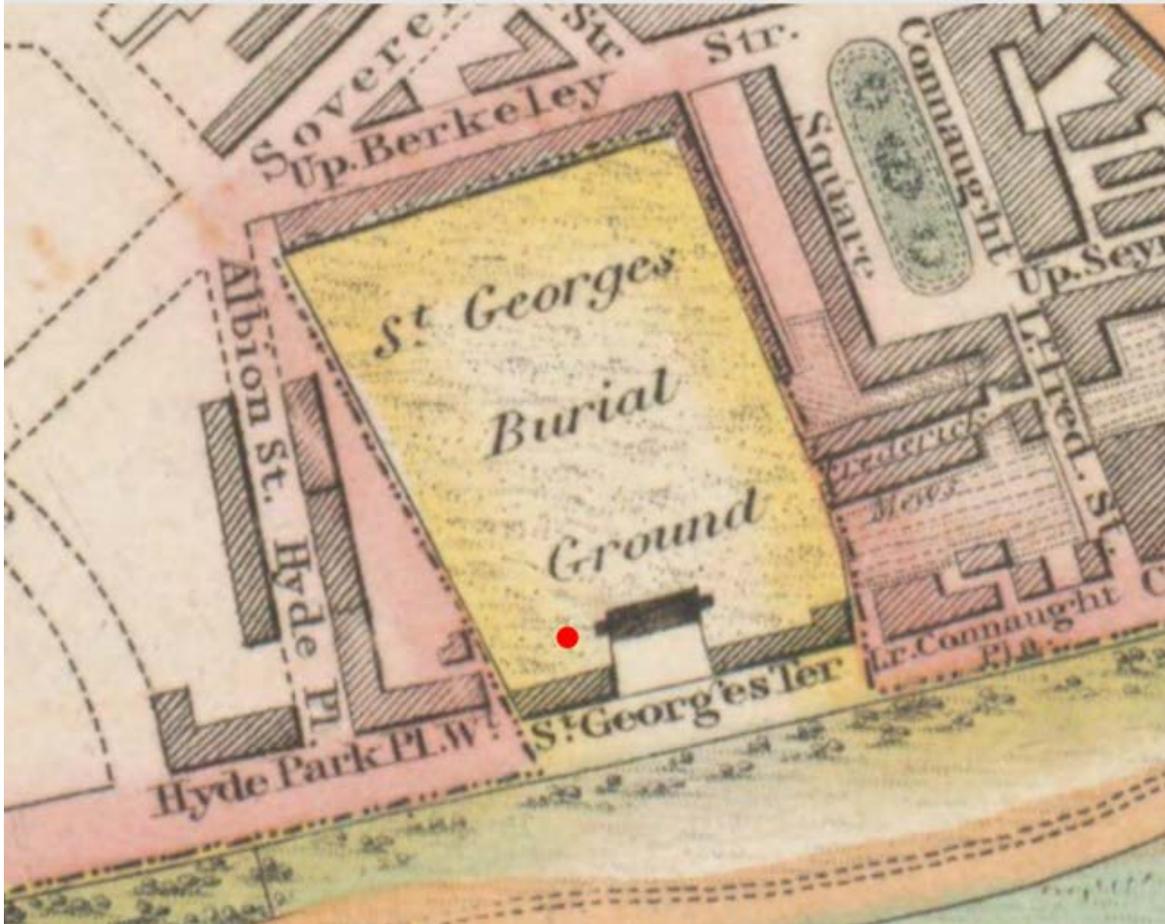


Figure 5: Map detail of the St. George, Hanover Square burial ground in 1824, the year after Playfair's death. Approximate location of Playfair's grave is shown by the red spot. Image courtesy of the Harvard Map Collection.

To make things even more challenging for our Tomb Raiders, the SGHS burial grounds were closed in 1854 over fears of noxious smells. Spence et al. (2017) describe the various transformations of the site during at the close of the 19th century (to tennis courts and an archery range) and into World War I and II (to vegetable gardens). In 1964, the SGHS site was deconsecrated by an Act of Parliament, allowing the Church Commissioners to sell the former burial ground to developers.

Team Playfair traced the possible trajectory of Playfair's bones and concluded that the correct answer to the Playfair Question could be any of "William Playfair", "Somebody else", or "Nobody". Yet, they conclude with the recommendation that if there was to be a modern public plaque erected in his honor in London, he might prefer something on the walls of the Lanesborough Hotel. This is the contemporary site, previously occupied by St. Georges Hospital.

Les Chevaliers and our partners Friends of Playfair plan to hold annual Playfair Teas there on his birthday, February 23. The Lanesborough is just a two minute walk from the Hyde Park Corner tube station. Please call +44 20 7259 5599 to book for this festival.

Charles Joseph Minard (1781--1870)

Next on the Raiders radar was what some consider the Holy Grail: the burial site of Charles Joseph. Minard is best known for his now iconic gripping visual depiction of the terrible fate of Napoleon's Grande Armée in the 1812 campaign to Moscow and back. It is not a stretch to claim that this flow map added new dimensions to thematic cartography and graphic storytelling. When this graphic was first published, Étienne-Jules Marey, physiologist and author of the first book on the "graphic method" (Marey, 1885) was awestruck, saying that it "defied the pen of the historian by its brutal eloquence"; Edward Tufte (2001) later dubbed this "the best statistical graphic ever drawn".

So, it is surprising that Paris---which honors its French sons and daughters of any merit with plaques, street and place names: rue Cauchy, rue Descartes, rue Laplace,³ ... and even recognizes that Sigmund Freud lived at the Hotel de Brasil in 1885 to study with Charcot---does it not publically recognize anywhere its foremost son in the history of data visualization.

A first step towards the solution to the Minard Question was the discovery by Antoine de Falguerolles (AdF) of a minor notice in the *Journal des Économistes* in 1864 giving Minard's address as 32 rue du Bac in the 5^{eme} arrondissement. But Minard died in Bordeaux on 24 October 1870, only six week after he fled the anticipated bombardment of Paris in the new Franco-Prussian war on September 11. Was he buried in Bordeaux or was he transported back to Paris? The search was on; the scent was strong.

Les Chevaliers, but principally AdF, researched burial records for cemeteries in Bordeaux and later in Paris. Success came in early Spring, 2017, shortly following Minard's birthday (#MinardDay, March 23). Thanks to Jean-Pierre Airey Jouglard, the unofficial historian of Montparnasse Cemetery, it was confirmed that Minard had been buried there, and his tomb was still standing. On June 5, 2017, a group of Amies de Minard, met for a Chevalier Lunch at the Closerie des Lilas and then proceeded to the nearby cemetery (see Figure 6). A small plaque, shown in Figure 6 was planted at his tomb. Some words of appreciation were said and all felt happy to have been part of this tribute. To complete the public honor to Minard, it remains only to christen a Parc Minard somewhere in Paris or install this plaque at 32 rue du Bac.

So the answer to the Minard Question is clearly "Charles Joseph Minard is buried in Minard's grave." His burial site in Montparnasse Cemetery is in Section 7 (48.83879° N, 2.325163° E), shown in Figure 8. Minard keeps good company; he was buried not far from Jean Paul Sartre and Simone de Beauvoir, Charles Baudelaire, Eugène Ionesco, and Alfred Dreyfuss, but also in close proximity to our final guest in this article.

It is a pleasure to report some Chevalier developments in Minard's history. Following Gilles Palsky's monumental *Des Chiffres et des Cartes* (1996), I prepared the first comprehensive bibliography of Minard's works (<http://www.datavis.ca/gallery/minbib.php>). From this, Raymond Andrews prepared a lovely interactive visual catalog of Minard's graphic works classified by time and topic, <https://infowetrust.com/seeking-minard/>. Sandra Rendgen (2018) published *The Minard System: The*

³ See <http://mathshistory.st-andrews.ac.uk/Honours/ParisNames.html> for a list and map of Paris streets named for mathematicians.

Complete Statistical Graphics of Charles-Joseph Minard, containing all his known works in a beautiful volume.

Jean-Pierre Airey-Jouglard

Antoine de Falguerroles



MF

Gilles Palsky

Figure 6: Commemorative photo of the discovery of Minard's tomb, June 5, 2017. Photo credit: Martha Friendly.

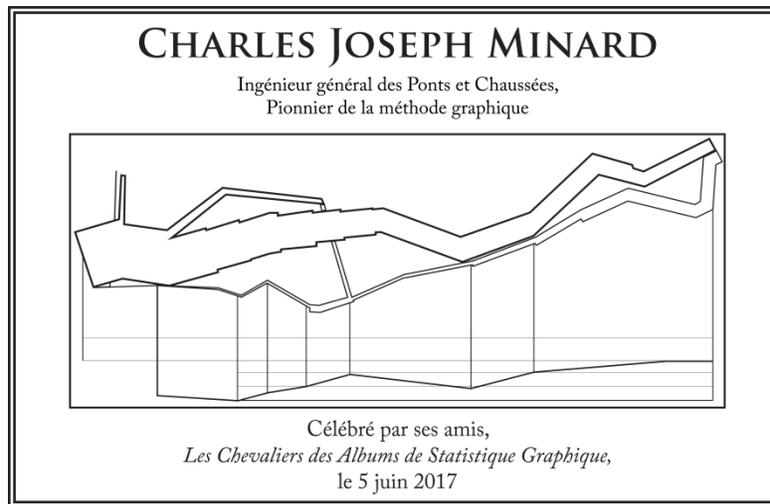


Figure 7: Detail: plaque in honor of Minard planted at his grave site. Credits: Concept: Michael Friendly; text: Les Chevaliers; graphic design: Matthew Sigal.

André-Michel Guerry (1802—1866)

Our last under-sung hero of data visualization is André-Michel Guerry, born in Tours, France on December 24, 1802. Guerry's place in the history of data visualization is described in detail in Friendly (2007a) and his principal biography is given in a companion article (Friendly, 2007b).

We credit Guerry with a number of significant accomplishments, but most of all putting “moral statistics” on the map (so to speak) by tracking and analyzing data on crime, suicide, and other social variables in ways that created the foundation for modern social science. His two main works (Guerry, 1833, 1864) were both awarded the prestigious Montyon Prize in statistics from the Académie Française des Sciences. As befits his interest to our group, in 1847 he was elected as a Chevalier de la légion d'honneur of the academy.

The Guerry story turned out to be among the most challenging (and therefore interesting) among the Raiders projects. What is remarkable is that the 2007 publication of my *Statistical Science* article prompted several contacts with amateur French historians. First Jacques Borowczyk, a retired mathematician and member of the Académie des Sciences, Arts et Belles Lettres de Touraine, facilitated local contacts and arranged for my paper on Guerry's life and works to be translated and read to the academy. In the process, with considerable help from others,⁴ I was able to trace Guerry's genealogy back 7 generations on his father's side to an Étienne Guerry born in 1590⁵.

⁴ Influential here were Gilles Palsky, who initiated my interest in Guerry and Olivier Dibos, whose family tree intersected with that of Guerry and who helped fill in many Guerry details.

⁵ See: <http://www.datavis.ca/gallery/guerry/genealogy/andre-michel-guerry-ancestry.pdf>

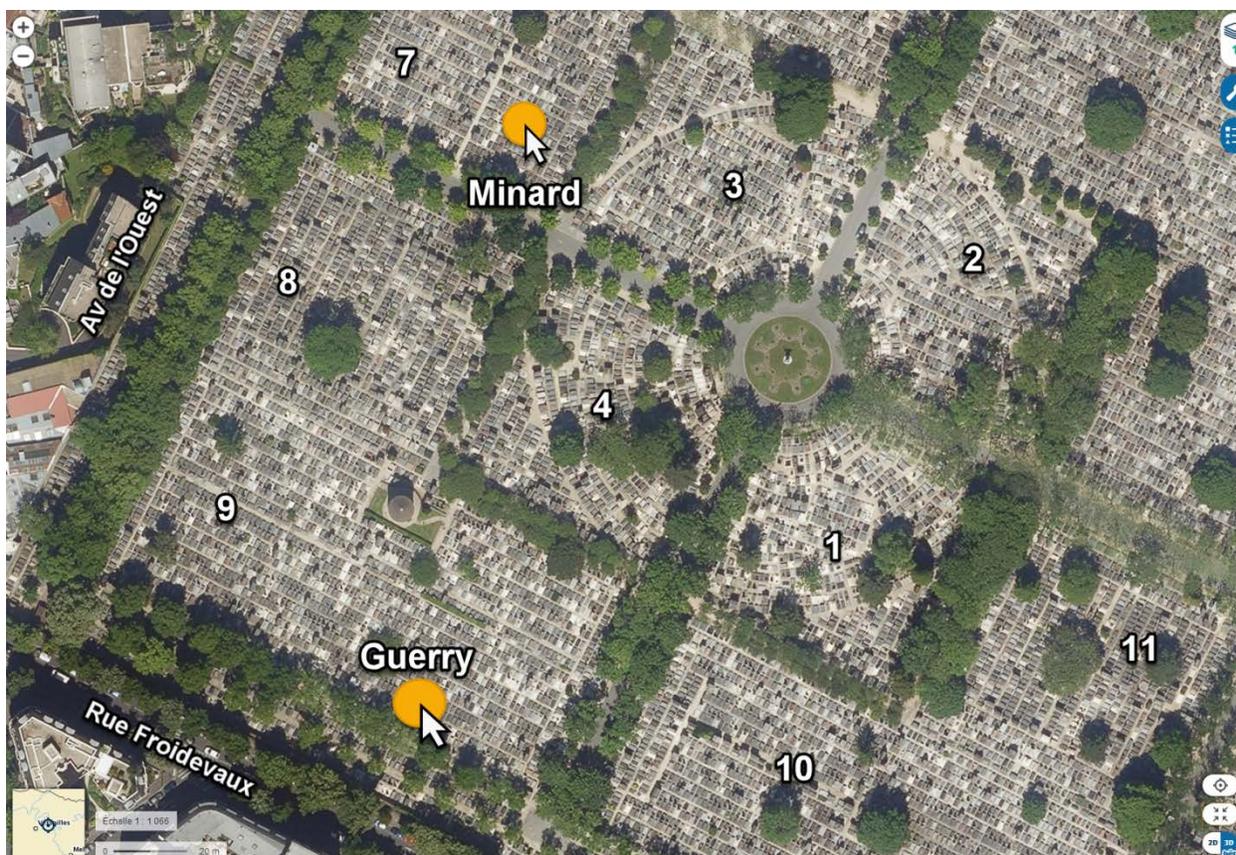


Figure 8: Detail of the SW corner of Montparnasse Cemetery showing the burial sites of Charles Joesph Minard and Andre Michel Guerry. Numbers on the map show the section numbers in the cemetery. Source: Author graphic, annotated from Géoportail, www.geoportail.gouv.fr.

This rich family history stood in marked contrast to the near total lack of knowledge into Guerry's personal life. Was he ever married? Did he have children? Where did he live in Paris? Who were his friends? Where was he buried? Once again the Raiders of the Lost Tombs were called into action.

The first inkling of a Guerry-sighting came in Sept. 2012 when Michel Moser, an amateur historian in Beaumont-sur-Dême (not far from Tours) learned of my interest in Guerry. He informed me that Guerry moved from Paris to Beaumont, and served as mayor of this small town from 1846—1855; he owned and lived in the Priory Vauban⁶.

Further research led to Guerry's death notice⁷. This gives his death on April 9, 1866, at his residence, 123 Boul. St. Michel in the 5^{eme} arrondissement of Paris. It also indicates that he was not married, and the witnesses were his cousins, André René Poisson and Pierre Vaslin.

From this information, we determined that Guerry was buried in Montparnasse Cemetery, in Section 9, 3rd row South, the 18th grave, at GPS coordinates 48.83731°N 2.324875°E (see Figure 8). Thus, we have

⁶ The details are described at <https://moserm.free.fr/beaumont/bio3.html>. Among Guerry's Beaumont neighbors, Alexis de Tocqueville wrote "Democracy in America" in 1833.

⁷ See: <https://moserm.free.fr/beaumont/acte3.html>. A transcription and English translation appears at <https://datavis.ca/papers/Guerry-death-notice.pdf>.

discovered that Guerry was a near neighbor of Minard, both in life and death. We know that Minard was impressed with Guerry's work, and reproduced the Balbi & Guerry (1829) shaded maps showing crime and literacy in France in his 1861 treatise, *Des tableaux graphiques et des cartes figuratives*.⁸

Les Chevaliers imagine (perhaps fancifully, as is our bent) that Minard and Guerry met periodically for an early morning coffee or a late *petite verre* to discuss their latest graphic works and those of others in the budding international community of data visualization, where things were jumping in what we now call the Golden Age of Statistical Graphics (Friendly, 2008).

Sadly for his fans, due to overcrowding, Guerry's grave was opened on December 28, 1971 and his remains transferred to the ossuary of the Père Lachaise cemetery (not accessible to the public). The present occupant of the site is Nadine Oxnard, an American painter who served with the Free French Forces. Thus, the correct answer to Groucho's question for Guerry is: "Nadine Oxnard is buried in Guerry's grave".⁹ As of this writing, a project to erect a plaque to commemorate Guerry is underway.

Conclusions

This article is meant to celebrate two threads:

- **Les Inconnues:** Some important contributors to the history of data visualization, but were under-appreciated in their times or whose impact on this history was not recognized until recent time.
- **Les Chevaliers:** A group of scholars, initially individual colleagues, now friends, who coalesced around a collection of the *Albums de Statistique Graphique*, an exquisite sampler of the best data and map graphics of the late 1800s and perhaps of all time.

It was written to honor Minard's 239th birthday, #MinardDay, March 23, 2020.

References

Balbi, A. & Guerry, A.-M. (1829). *Statistique comparée de l'état de l'instruction et du nombre des crimes dans les divers arrondissements des Académies et des Cours Royales de France*. Paris: Jules Renouard.

Friendly, M.; Valero-Mora, P. & Ulargui, J. I. (2010). The First (Known) Statistical Graph: Michael Florent van Langren and the "Secret" of Longitude. *The American Statistician*, **64**, 185-191.

Friendly, M. (2007a). A.-M. Guerry's *Moral Statistics of France*: Challenges for Multivariable Spatial Analysis *Statistical Science*, 2007, 22, 368-399.

Friendly, M. (2007b). The life and works of André-Michel Guerry (1802--1866) . Online: <http://www.datavis.ca/papers/GuerryLife.pdf>

Friendly, M. (2008). The Golden Age of Statistical Graphics. *Statistical Science*, **23**, 502-535

Guerry, A.-M. (1833). *Essai sur la Statistique Morale de la France*. Paris: Crochard.

⁸ Translated and illustrated by R. J. Andrews, <https://infowetrust.com/project/minard1861>

⁹ We are grateful to Jean-Pierre Airey Jouglard for research on Montparnasse graves.

Guerry, A.-M. (1864). *Statistique morale de l'Angleterre comparée avec la statistique morale de la France, d'après les comptes de l'administration de la justice criminelle en Angleterre et en France, etc.* Paris: J.-B. Baillière et fils.

Marey, E.-J. (1895). *La méthode graphique*. Paris: G. Mason.

Minard, C. J. (1861). *Des Tableaux Graphiques et des Cartes Figuratives* Paris: E. Thunot et Cie.

Rendgen, S.(2018). *The Minard System: The Complete Statistical Graphics of Charles-Joseph Minard* Princeton Architectural Press.

Spence, I.; Fenn, C. R. & Klein, S. (2017). Who is buried in Playfair's grave? *Significance*, **14**, 20-23.

Tufte, E. R. (1997). *Visual Explanations: Images and Quantities, Evidence and Narrative*. Graphics Press.

Wauters, A. (1891). LANGREN (Michel-Florent VAN) In Brulant, E. (Ed.) *Biographie Nationale, Academie Royal de Belgique*, **11**, cols. 276-292.

Wauters, A. (1892). Michel-Florent van Langren. *Ciel et Terre*, **12**, 297-304.