

The Life and Works of André-Michel Guerry (1802-1866)¹

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Abstract

André-Michel Guerry was born and raised in Tours in a family whose touraine roots go back at least to the early 1600s. He can be considered one of the founders of the empirical study of criminology and modern social science. His accomplishments were honored in his lifetime, yet he remains largely unrecognized and under-appreciated today, both in history and in his native city. This article traces his life and the contributions he made to social science, thematic cartography and statistical graphics. Moreover, we provide the first account of his family background and genealogy.

Key words: thematic cartography, crime mapping, touraine genealogy, history of social science

Introduction

In the history of science, it is not often that events occur that become turning-points, or give rise to entirely new fields of study. When this happens, the author of such a work is typically widely recognized in his or her lifetime. Later, these accomplishments typically become renown in the communities of scholars and historians; they are also honored in the person's place of birth with the naming of a street or school or the placement of a wall-plaque. Unfortunately, history is sometimes unkind, particularly when the author is not well-connected in the social and academic establishments, or is someone of modest ambition and demeanor, or is over-shadowed by a well-connected, ambitious contemporary.

Such is the case with André-Michel Guerry, born in Tours in 1802. Guerry can be considered as the founder (or at least co-founder, together with the Belgian, Adolphe Quetelet (1796-1874)) of the scientific study of criminology and ultimately modern sociology and social science. Yet, for the reasons mentioned above, the histories of social science accord great honor to Quetelet, while Guerry is often mentioned just briefly or in footnotes, and seems unrecognized in his home city.

The 'turning-point' event to which I refer above occurred on July 2, 1832, when Guerry, a 29 year old lawyer, presented a slim manuscript to the Académie française des

¹ I am immensely indebted to Jacques Borowczyk, without whose active collaboration and extensive historical research this article could not have been conceived, no less written; I use the word "we" to indicate historical facts that he helped to discover. I am also grateful to Gilles Palsky, who initiated my interest in Guerry, and to Olivier Dibos, whose family intersected with that of Guerry, and whose online family genealogy helped to fill in many details. My thanks also go to Antoine de Falguerolles and Christian Genest for careful readings of the initial draft and to Gustavo Vieira for research assistance.

sciences titled *Essai sur la Statistique Morale de la France*. His findings, regarding crime, suicide and other moral aspects, were both startling and compelling. His presentation, in tables and *cartes figuratives*, showed that the rates of crime and suicide remained remarkably stable over time, when broken down by age, sex, region of France and even month or season of the year; yet, these numbers also varied systematically across departments of France. This regularity and variation of 'social numbers' created the possibility to conceive, for the first time, that human actions in the social world were governed by social laws, just as inanimate objects were governed by laws of the physical world. His results were startling because they contradicted some widespread beliefs about the nature and causes of crime and its relation to other factors such as education and poverty. To social thinkers in the 1830s in France, with widespread political and social upheaval and a fear of crime heightened by the press and popular writers (Chevalier, 1958), Guerry provided powerful demonstrations that answers to social questions could be provided by a new science rather than philosophy.

Until quite recently, very little of Guerry's personal life have been known. The main primary sources are the necrology by Alfred Maury and notices on his work by Hypolyte Diard and Ernest Vinet published collectively in (Diard, 1867) and brief biographies published in the *Grand dictionnaire universel* (Larousse, 1866), Vapereau (1858), and Carré de Busserolle (1878-1884). The purpose of this article is to describe the life and family background of André-Michel Guerry in more detail than has ever been recorded. We can now trace his family and that of his cousin, André-René Poisson (1808-1875), who will figure later in this story, back at least six generations. In addition we provide a brief overview of his work and accomplishments, for which he deserves wider recognition. A more complete, modern appreciation of his contributions to social statistics and data visualization is provided by Friendly (2007). A companion website to that article (<http://www.math.yorku.ca/SCS/Gallery/guerry/>) provides links to further information and some high-resolution images.

Guerry's Life

André-Michel Guerry was born in Tours in the parish of Saint-Martin on December 24, 1802, a pre-Christmas present to his parents, Michel Guerry and Catherine Thérèse Bouquin. His birth certificate (from the Archives of Tours) records that his father was a building contractor (entrepreneur de travaux publics) and that the family resided in Tours at rue Corneille n° 62 (after 1816, that became rue Bernard-Palissy). As far as can be determined, he was their only child (no other birth or christening records relating to his parents have been found) and his family circumstances were comfortable, though modest. About 1817-1820 he studied at the communal secondary school (founded 16 Feb. 1807 by Napoleon, which became the collège impérial de Tours in 1830, and is now the lycée Descartes) and was regarded by his peers as a serious student².

² Diard (1867, p.8): « Il était enfant de la Touraine, et tous ses condisciples ont gardé le souvenir des habitudes sérieuses de sa jeunesse. Son goût pour la statistique s'est manifesté sur les bancs de l'école. »

He then studied law at the University of Poitiers, and perhaps also literature and physiology; he went to Paris where he was admitted to the bar as a Royal Avocat. In 1825, the Ministry of Justice instituted the first centralized *national* system of crime reporting, the *Compte général de l'administration de la justice criminelle en France*, an event that would define Guerry's professional life.

The *Compte général* was based on records collected quarterly from each department giving the details of every criminal charge laid before the French courts: age, sex, occupation of the accused, nature of the crime, etc. Guerry was employed at the Ministry of Justice and in 1827 was required to compile the data on crimes for Paris. He became so captivated by these data and the possibility to discover empirical laws that govern social behavior that he quickly abandoned the practice of law to devote himself to the study and interpretation of moral statistics from this and other sources.

Guerry served initially under Jacques de Guerry de Champneuf (1788-1852), appointed Director of Criminal Affairs and Pardons in the Ministry of Justice on August 16, 1821 by Count d'Peyronnet. But after the abdication of King Charles X in the July 1830 revolution, Guerry de Champneuf was removed from office (along with many other public officials), and Guerry himself was appointed Director of Criminal Statistics in the reorganization in that year. The similarity of their names has caused some writers to conclude that Guerry and Guerry de Champneuf were related, but we have not found any genealogical records to confirm this.

Shortly before that time, at age 27, he published his first work on moral statistics (Balbi & Guerry, 1829), with the Venetian geographer Adriano Balbi (1782-1848). This was a large one-page set of maps of France comparing the level of education in the departments of France with those of crimes against persons and property (see Fig. 3) For reasons I discuss below, this would be the first of several important contributions to moral statistics by Guerry.

In these early years, Guerry had many wide-ranging interests, including music, folklore, medicine and meteorology. In 1830 he published, *Sur les anciens chants populaires de Poitou* in the *Mémoires de la Société des antiquaires de France* containing musical notations of these songs. Over the next few years he published several works on relations among phenomena of weather and season, and mortality from different diseases or characteristics of persons confined to insane asylums and prisons.

By 1832, at age 29, Guerry completed the draft of his manuscript, *Essai sur la statistique morale de la France*, which he presented to the Académie française. The *Essai* was awarded the prestigious Prix Montyon and published by the Académie in 1833 with a laudatory report by the committee that had recommended him for the prize. Within a short period of time, this work attracted considerable attention in European statistical circles. Guerry was elected corresponding member of the *Académie des sciences morales et politiques* and subsequently awarded the cross of chevalier of the Legion of Honor. Of particular interest was a series of 6 beautiful shaded maps that showed the distribution of crimes against persons and against property, suicide, education, children born out of wedlock (*enfants naturels*) and donations to the poor over the departments of France.

By most accounts, Guerry's fame rests with the *Essai*. But he also deserves to be recognized, perhaps more so, for his final and most ambitious work, *Statistique morale de l'Angleterre comparée avec la statistique morale de la France*, which appeared in print in (Guerry, 1864). This magnificent volume was published in grand format (about 56 x 39 cm., the size of a large coffee table). It contained 17 plates: 15 shaded maps of England and France on aspects of crime (personal crime, property crime, murder, rape, larceny, arson), education and suicide, and two complex *tableaux graphiques*, summarizing the distribution and trends in these two countries over 30 years. This work had been crowned by the Académie in 1860, and Guerry was again awarded the Prix Montyon the following year.

In the 30 years between these works, Guerry displayed his maps and charts in several expositions in Europe. In 1851, he had two exhibitions—an honored public one in the Crystal Palace at the London Exhibition and a second one at the British Association for the Advancement of Science (BAAS) in Bath, England. He gained access to court records for England with the help of William Farr (1807-1883), president of the British Association. In this time he worked tirelessly, compiling and summarizing the voluminous records of crime and other moral variables for England and France. Along the way, he invented a mechanical device, the *ordonnateur statistique*, to help with these tabulations.³ One cannot fail to be impressed by the sheer volume of data summarized in this work; it includes, for example, 226,000 cases of personal crime in the two countries over 25 years and over 85,000 suicide records, each classified by apparent motive and other circumstances. Guerry estimated that if all his numbers were written down in a line, they would stretch over 1170 meters!

In October of 1864, Guerry, who had been made an honorary member of the Statistical Society of London, was invited by William Farr to attend the BAAS meetings in Bath. The *Statistique morale de l'Angleterre...* and its splendid plates were put on public display for the nearly 2800 members who attended, and became the subject of a commentary by W. Heywood, vice-president of the Society.

The following August, while consulting the archives of the Hôtel de Ville in Paris, Guerry suffered a stroke. He survived, but grew progressively weaker, and died on April 9, 1866. His childhood friend, Alfred Maury, gave the funeral oration (published in Diard, 1967) and said,

André-Michel Guerry a succombé sous les poids du rude labeur qu'il s'était imposé. Il a sacrifié sa santé, compromis sa fortune, usé sa vie pour l'avancement d'une science dont il a posé les premières et les plus solides assises.

From this brief biographical sketch, the reader may see that we know quite a lot about Guerry's professional and work life, but relatively less about his personal life. Where did he live in Paris? Who were his friends? Where was he buried? On these questions, we are still searching.

³ Maury (1864, p5) says the machine was offered by Guerry's heirs to the Conservatoire des Arts et Métiers in Paris. No trace or record of this has been found.

Guerry's Family

As I noted earlier, Guerry's family history had been completely unknown until the research that prompted this article. From his birth certificate, we learned the names of his parents, Michel Guerry (1761-1830) and Catherine Thérèse Bouquin (1761-1842), and also that the first witness was his cousin, André Poisson, occupation tanner, residing in Amboise, 25 km east of Tours. The only published personal information (Diard, 1867, p.14-15) mentioned André and Charles Poisson as his heirs:

Parmi les papiers laissés par M. Guerry, offerts par ses héritiers, MM. Charles et André Poisson, à la Société des sciences, arts et belles-lettres d'Indre-et-Loire, et analysés devant cette Compagnie par M. Diard, figurait une liasse contenant des papiers que M. Guerry avait classés, et qu'il avait évidemment l'intention de conserver.

This footnote becomes important in connection with Guerry's work, described in the final section, but it was also a key source in tracing his family history. The genealogical information detailed below comes from a variety of sources, including the Centre généalogique de Touraine (2002), Bordat (1989), l'Arbre Généalogique de Olivier Dibios (<http://olivier.dibios.club.fr/IDNDLOTO/index.htm>), and local archives and church records in and around Tours.

André-Michel Guerry was the only known child born to his parents. He never married and had no children, so his direct lineage ended with him. However, from the sources just mentioned, it has been possible to trace his family back to the early 1600s on his father's side and to the early 1700s on his mother's side. An ancestry chart for André-Michel Guerry is shown in Figure 1.

Guerry's father, Michel Guerry (1761-1830), was born in Neuillé-Pont-Pierre, where *his* father, Michel Guerry (about 1718-1783+) was the *aubergiste* of La Roue, an inn and way-station for travelers and the mail (*relais de poste aux chevaux*) near the intersection of the routes from Tours to Mans and from Blois to Angers. The occupation of the Guerry family as innkeepers of La Roue in Neuillé-Pont-Pierre goes back at least two more generations to Louis Guerry (1645-1696). Going back two more generations in Neuillé-Pont-Pierre takes us first to Hector Guerry (1622-) and finally to Etienne Guerry (1590-) who is recorded as a grand valet du roi. A post-card image of Avenue de la Roue in Neuillé-Pont-Pierre, likely from the 1930s, is shown in Figure 2.

Ancestry Chart of André-Michel GUERRY

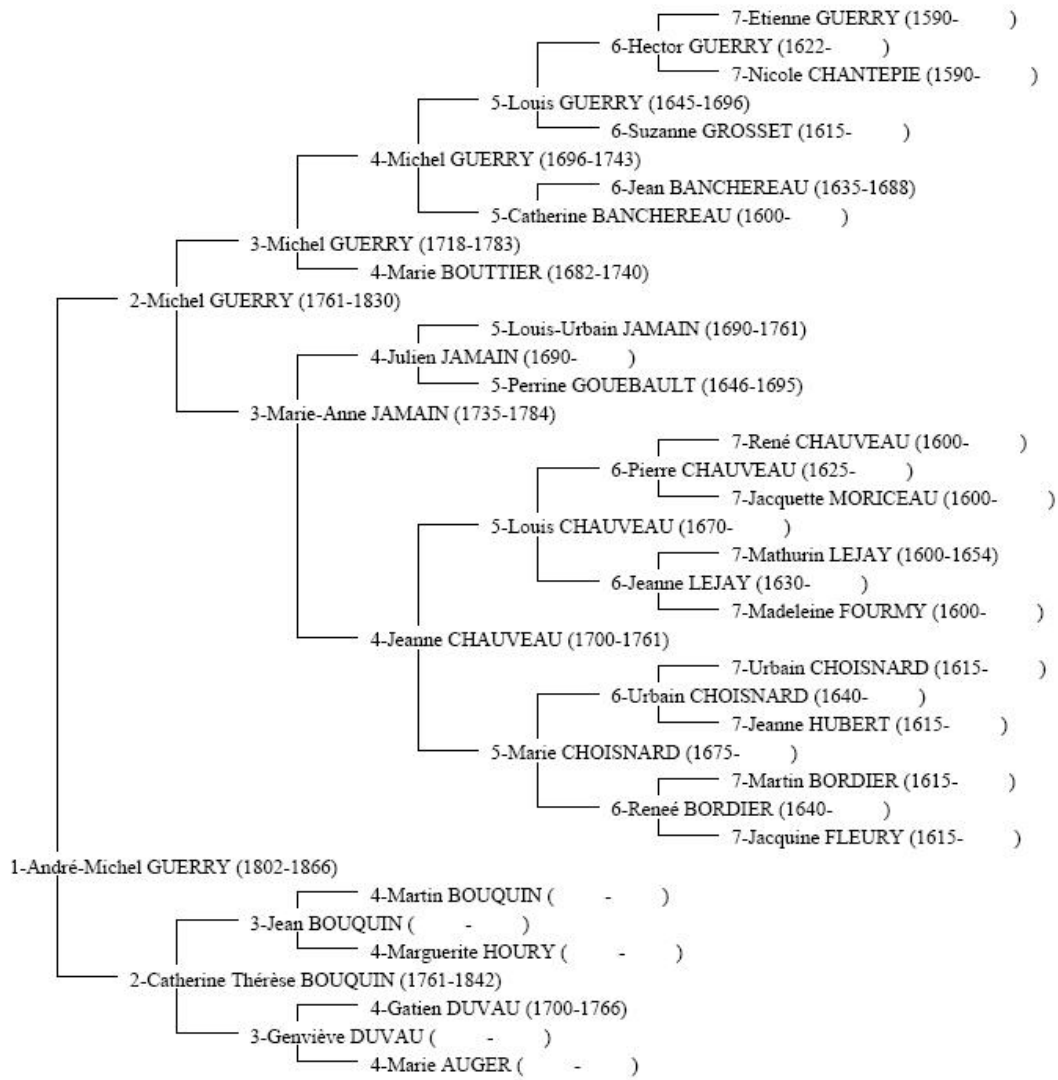


Figure 1: Ancestry chart for A.-M. Guerry.



Figure 2: Avenue de la Roue, Neuillé-Pont-Pierre [Source : <http://web-2.cg37.fr/dipwebv4/adcpst/template/index.htm>]

Among the other ancestors of André-Michel Guerry, most resided in and around Neuillé-Pont-Pierre and made their living as farmers, millers and merchants or the family business, La Roue. But his father, Michel Guerry (1761-1830) apparently wished for a different life and moved to Tours with his wife Catherine Thérèse Bouquin, daughter of the gardener Jean Bouquin. In Tours he was apparently quite successful as a civil contractor, for he was able to afford to send his son, André-Michel to the local secondary school and then to university. It is likely that André-Michel was the first in his family to attend a university or perhaps even a college-royale.

Meanwhile, in Neuillé-Pont-Pierre, the running of La Roue passed to his aunt, Anne-Marie Guerry (1764-1790), the younger sister of Michel Guerry (1761-1830), who married André Poisson (1760-1842+) from Bannes (72) in Neuillé-Pont-Pierre on 2 Aug 1783. Anne-Maire Guerry and André Poisson had five children. Among these, André Michel Poisson (1784-1841) and Désirée Françoise Poisson (1790-) would serve as god-parents to their cousin André-Michel Guerry at his christening on 25 Dec 1802 in the parish of Saint-Martin, Tours.

In turn, André Michel Poisson (1784-1841) had at least three children, of whom the brothers André René Poisson (1808-1875) and Charles Poisson (1818-1882) would become the heirs to which André-Michel Guerry bequeathed his unpublished papers, the *ordonnateur statistique*, and other possessions. André René Poisson continued the family tradition as *hôte de la Roue*, and also served as mayor of Neuillé-Pont-Pierre in various years from 1825-1840. His brother Charles served as justice of the peace in Neuillé-Pont-Pierre over this same period.

The genealogical information we have discovered so far about the families of Guerry and Poisson ends with André-Michel Guerry (who had no children) and André René Poisson who married Marie-Françoise Vaslin (children unknown). La Roue continued to be maintained by the families of Poisson and Cormery; at some point it became the Hotel Sainte-Barbe. We have been unable to uncover any further details about l'hôtel Sainte-Barbe.

The only clues we have now about the future of these families come from Bordat (1989) and an examination of the cemetery in Neuillé-Pont-Pierre. There we find, among the soldiers killed in battle in World War I, Henri Pierre Guerry (1893-1915), Marcel René Poisson (1885-1915), killed in Alsace, and Georges Paul Alexandre Poisson (1896-1917).

Guerry's Work

In this final section I describe some further details and examples of Guerry's work in order to extend the biographical sketch presented earlier. In particular, I try to illustrate Guerry's contributions, to social science and also to cartography and statistical graphics. His published works were relatively few, but all were significant developments that deserve to be recognized as milestones in the histories of these fields. The portrait I would like to convey is that of a dedicated and creative amateur (in the best sense of the word) statistician, working at a time when real quantitative data on crime and social issues was new, as was the very idea of showing such data on charts and maps. In this work, he consistently sought to go beyond mere **description** of individual phenomena, but rather to understand the **relations** among factors that affected, and might explain, human behavior in the social and moral realms.

Guerry's earliest statistical and graphic work examined the relation between weather and seasonal phenomena on the one hand, and admission to hospitals and mortality from various diseases on the other (Guerry, 1829), based on 8-10 years of observations from the Royal Observatory, the central bureau of hospitals in Paris, and other sources. Included here was a remarkable set of 26 charts in a large *tableau graphique*⁴ showing monthly temperature, days of rain, snow, fog, sunshine, etc., to be compared with similar charts of causes of hospital admission, and also births, deaths, marriages and even suicides.

The version of the *tableau graphique* published in the *Annales d'Hygiène Publique...* is apparently a reduced and simplified copy of the original. Nevertheless, it is important because it included six diagrams of a new and original form: what he called *courbes circulaires* (now called polar area charts); these look like bar charts wrapped around a circle, designed to show the cyclic pattern of directions of the wind in different months, or births and deaths in Paris by hour of the day. The invention of this novel graphic display should belong to Guerry, but it is universally credited to Florence Nightingale (1857), who used the same design to compare the patterns of deaths in the British army in the Crimean War from actual battle vs. other, preventable causes, and argue for improved hospital conditions in the army.

⁴See http://www.math.yorku.ca/SCS/Gallery/images/guerry/guerry_1829.jpg

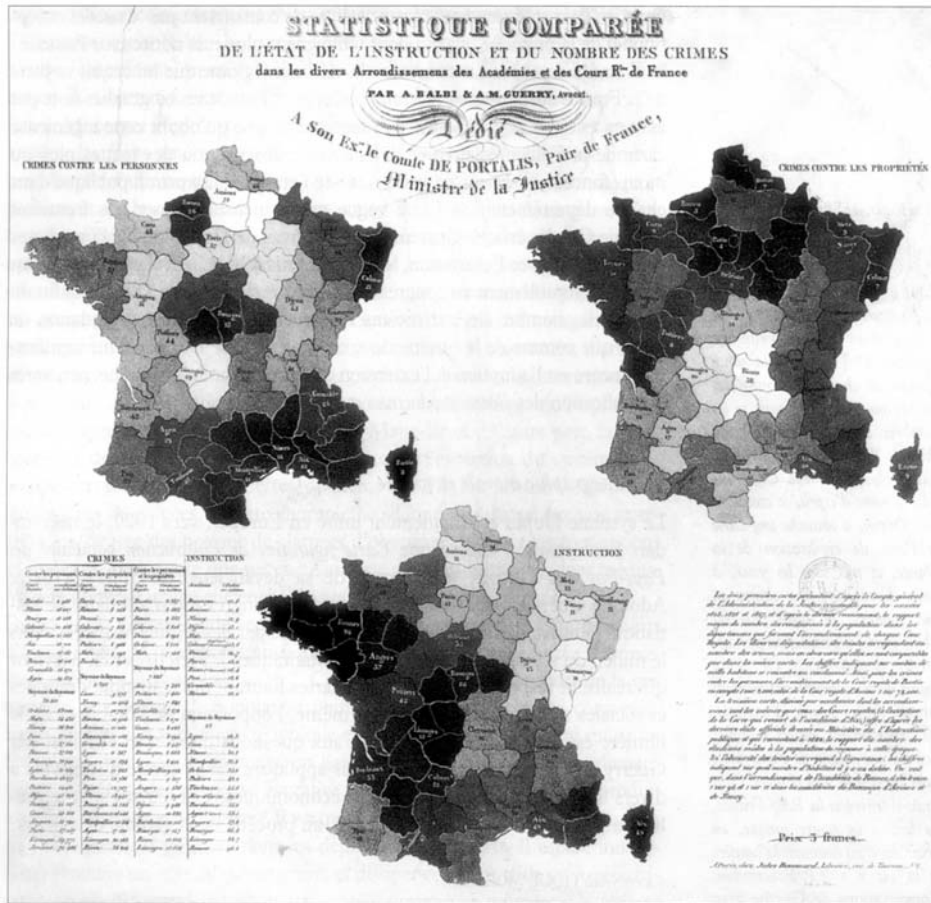


Figure 3: Balbi & Guerry's comparative maps of crime and instruction. The departments are shaded darker, as crime rate is higher or instruction is lower.

Also in 1829, Guerry published *Statistique comparée de l'état de l'instruction et du nombre des crimes...*, with Adriano Balbi (Balbi & Guerry, 1829), the first graphic work on what would later be called *statistique morale*, shown in Figure 3⁵. Only two years before, the idea of showing statistical, non-geographic information on a map by shading (now called a choropleth map) had been invented in France by Baron Charles Dupin⁶.

Guerry wanted to compare rates of crime with the level of instruction across France, to see whether, as some social thinkers had suggested, increased education was associated with lower crime. Rather than drawing separate maps, he composed three maps on a single sheet, showing crimes against persons, crimes against property and level of instruction for each department. The result was quite surprising, because it suggested (a) crime against property and against persons seemed inversely related

⁵ See <http://www.math.yorku.ca/SCS/Gallery/images/guerry/guerry-balbi-600s.jpg> for a higher-resolution version.

⁶ Dupin (1827) used this to illustrate the effects of popular education on France's prosperity, by shading each department lighter in proportion to the more young people who attended schools.

overall, though both tended to be higher in more urban areas; at the very least, one could not speak of "crime" as if it were a single phenomenon. (b) There did not seem to be any apparent direct relation of either type of crime to instruction.

Over the rest of his life, Guerry would occupy himself with the expansion and refinement of these initial results, with extensive tabulation of new data from diverse sources, and with attempts to answer methodological questions. How should literacy and education be measured? Should crime be assessed by the number of indictments (accusés) or by the number of convictions (condamnés)?

His most famous work, the *Essai sur la statistique morale de la France* (Guerry, 1833) contained numerous tables giving the breakdown of crimes by characteristics of the accused (age, gender). To go beyond simple description, he classified the crimes of poisoning, manslaughter, murder and arson according to the apparent motive indicated in court records (for poisoning, the motive was most often adultery; for murder it was hatred or vengeance). This quest to examine motives and causes is most apparent in his analysis of suicide. He obtained all the suicide notes found by police in Paris over a three-year period and classified each according to the sentiments or motives expressed for taking one's life, the first known example of what is now called "content analysis" in social science. This approach to the study of suicide would later be adopted by Durkheim (1897), but without much credit to Guerry and other earlier moral statisticians.

As mentioned earlier, Guerry's final and most ambitious work, *Statistique morale de l'Angleterre comparée avec la statistique morale de la France*, was published in 1864. For reasons that I have discussed in detail elsewhere (Friendly, 2007), I consider this to be a masterpiece, one of the most important contributions to statistical graphics and thematic cartography that occurred in the 19th century. Only a few original, public copies are known to still exist⁷. In addition to the 17 remarkable statistical maps and graphic tables, Guerry's introductory text describes a comprehensive method (which he called "analytical statistics") to study the relations that each type of crime (e.g., fraud, rape, murder) might have to a wide variety of moral and social characteristics (population density, % agricultural, education, aspects of religion, and so forth). His methods were relatively simple by today's standards, but they occurred nearly 30 years before modern statistical methods for dealing with such questions were first invented!

I conclude this brief review of Guerry's works with one final historical mystery. In his introductory text, Guerry did not provide any analysis or conclusions from the enormous quantity of data he summarized in his maps and graphic tables. He stated that such discussion would be the subject of yet another book, but he died two years later and this was never published. So, what happened to his papers and other documents? Here is what we have discovered so far.

⁷ Known original copies are located in the British Library in London (Maps 32.e.34), the BNF in Paris (GR FOL-N-319) and the Staatsbibliothek in Berlin (Fe 8586). Elmer (1956) suggested that the French government attempted to suppress this comparative study of crime in England and France, but this claim is unsubstantiated.

Guerry had no children, no brothers or sisters, and his parents had both died by 1842, so he named his younger cousins, MM. Charles and André Poisson as his heirs. Charles Poisson (1818-1882) was a justice of the peace in Neuillé-Pont-Pierre and his brother André-René (1808-1875) was a conseiller d'arrondissement. Both Charles and André were active members of the Société d'Agriculture d'Indre-et-Loire.

Guerry's papers were entrusted to his long-time friend, Hippolyte Diard, a former magistrate of the court in Riom, who retired to Noizay and who was also active in the Société d'Agriculture. Diard (1866) published a discussion with some analysis and interpretation of results based on Guerry's data. The *Annales de la Société d'Agriculture, Sciences, Arts et Belles-lettres du département d'Indre-et-Loire* show that Diard made two communications, in the sessions of April 1867 and again in 1868, concerning Guerry's unpublished papers. He suggested a project for the Société to edit and publish some of these manuscripts. This project was adopted by the Société in 1869, but it was not completed, and we can find no trace of these works in any local archives.

I stated in the introduction that history is sometimes unkind, as I believe is the case with André-Michel Guerry, but it is also sometimes unkind to historians. In this case, the Franco-Prussian war (July 19, 1870 – May 10, 1871), begun by Napoleon III, was largely fought on French soil, and resulted in large-scale destruction and losses in many parts of France. Guerry's papers (and his death certificate in Paris) may have been lost at this time, but we are still searching.

Conclusions

André-Michel Guerry clearly had a penchant for numbers and an eye for how to make sense of them through presentation in maps and graphic tables. He happened to live at a time when important social and moral questions could first be addressed, by science rather than philosophy, with the empirical data that began to be collected systematically in France in the mid 1820s, just as he arrived in Paris. He was the right man, in the right place, at the right time. His major works broke new ground in thematic cartography, statistical graphics, the study of suicide and criminology and other areas that would eventually become modern social science.

But André-Michel Guerry was a modest man, both by birth and personality. He could have publicly defended his rights for the discovery of the regularity in crime statistics against the well-connected Quetelet, who claimed sole honors for himself.⁸ Quetelet, an eminent astronomer and mathematician, had a larger, bolder vision, and was also a tireless self-promoter. Guerry, the retiring young lawyer and amateur statistician, was content to simply continue his labors.

⁸ Sir Leon Radzinowicz (1965) put it thus: "Quetelet was like the huge tree that tends to dwarf its neighbors... The qualities of the two were, indeed, complementary, and in substance their contributions were virtually parallel. Thus, it may be fairly asserted that the sociology of crime owes its inception to Guerry as surely as it does to Quetelet." (p. 1048)

In the initial article that arose from my study of Guerry's work (Friendly, 2007), I concluded that Guerry deserves greater recognition in the histories of social science, statistics and data visualization than he is generally accorded. The goal of the present article is to suggest that equally he should be better known and celebrated in the place of his birth. I would be very happy, on my next visit to Tours, to see a plaque at the present site of his birth on rue Bernard-Palissy, or even to sip a glass of wine in his honor at a newly-named Place Guerry.

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