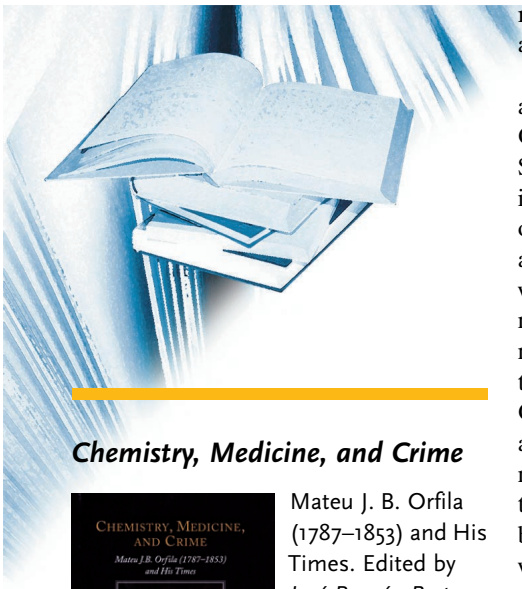
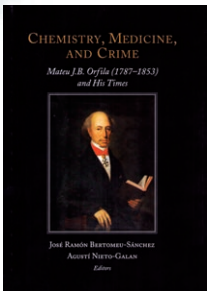


Chemistry, Medicine, and Crime



Mateu J. B. Orfila (1787–1853) and His Times. Edited by *José Ramón Bertomeu-Sánchez* and *Agustí Nieto-Galan*. Watson Publishing, Sagamore Beach, MA 2006. 306 pp., hardcover $ 52.00.—ISBN 0-88135-275-6

Although Mateu Josep Bonaventura Orfila y Rotger (1787–1853) was a well-known figure in 19th-century medicine, and his active participation in famous poisoning trials led to his renown far beyond the academic community, his work is rarely mentioned in publications about the history of science or about science in general. However, this neglect is now being rectified.

On February 23, 2004 the Academic Medical Library of Paris announced the electronic publication of a number of Orfila's works on its website (http://www.bium.univ-paris5.fr/histmed/medica/orfila.htm), with introductions by José Ramón Bertomeu-Sánchez of the University of Valencia and Danielle Gourevitch of the École Pratique des Hautes Études, Paris. On March 19–20, 2004 an international meeting bearing the title of the book under review here was held in Mahon, Minorca, Orfila's birthplace, on the occasion of the 150th anniversary of his death. This collection of 11 essays by ten prominent European historians of science from that conference demonstrates that his contributions exerted a profound influence on the relations between chemistry, medicine, and toxicology.

In "Mateu J. B. Orfila (1787–1853) and his Times", coeditors Agustí Nieto-Galan and José Ramón Bertomeu-Sánchez analyze Orfila's autobiographical writings, obituaries written by others, other historiographical records, and the appropriation of his life and work by the Catalan nationalist movement. In "The Didactic Uses of Experiment: Louis-Jacques Thenard's Lectures at the Collège de France", Antonio García-Belmar places Orfila in the large audience of students of chemistry and of medicine who attended Thenard's lectures. Drawing on two student notebooks, which are almost contemporary with Orfila's early years in Paris, he analyzes Thenard's lectures, teaching strategies, and use of experiments, and he sheds light on Orfila's formative years as a student of medicine and his first steps as a teacher of chemistry.

In "Medical Chemistry in Paris in the Early Nineteenth Century: Fourcroy's Program and the Reaction of Vitalism", María José Ruiz-Somavilla describes how the attitudes to medical chemistry by Orfila and early 19th-century physicians and pharmacists were shaped largely by the contemporary debate on vitalism. She also analyzes social and institutional issues, such as career opportunities, peer pressure, and educational background, which influenced this debate in France. In "Continuing a Tradition: Mateu Orfila's Plant and Animal Chemistry", Ursula Klein considers the relationship between "medical chemistry" and the emergence of the new culture of organic chemistry. After a broad introduction to early 19th-century plant and animal chemistry, she discusses in detail Orfila's attitude to organic chemistry and the changes that he introduced through the revisions of his textbook of 1817.[1]

In "After Mateu Orfila: Adolphe Wurtz and the Status of Medical, Organic, and Biological Chemistry at the Faculty of Medicine, Paris (1853–1884)", Ana Carneiro describes how Wurtz, Orfila's successor as the Chair of Medicine, together with his research school, continued to emphasize organic chemistry, but by the end of Wurtz's career were contributing to the transition from organic chemistry to biochemistry through the intermediate stage of biological chemistry. Orfila's most important contributions to toxicology were summarized in his *Traité des poisons*,[1] one of the most popular textbooks of the first half of the 19th century, which could only be compared in terms of fame and influence with the *Treatise on Poisons* written by his Scottish interpreter and rival Christison.[2] In "The Toxicology of Robert Christison: European Influences and British Practice in the Early Nineteenth Century", Anne Crowther analyzes Orfila's reputation and public image as a toxicologist and scientific expert in Britain.

In "Organisms that Matter: German Toxicology (1785–1822) and the Role of Orfila's Textbook", Bettina Wahrig analyzes a number of German toxicology textbooks between 1780 and 1830, explains how authors dealt with the delicate problem of defining poison in relation to the general medical theories supported by textbook authors, compares German views of Orfila's ambiguous definition of poisons and their classification, and shows that he used ideas that had been highly contested in Germany. In "Criminal Poisoning in England and the Origins of the Marsh Test for Arsenic", Katherine D. Watson presents a detailed study of the development, adoption, and application of one of the most important research tools for 19th-century toxicologists, as well as a summary of the English legal system on poisoning cases and a statistical survey of 278 criminal trials for the period 1815–1860. Orfila used the Marsh test in some of the most famous trials in which he served as an expert witness. In "Sense and Sensitivity: Mateu Orfila, the Marsh Test and the Lafarge Affair", coeditor José Ramón Bertomeu-Sánchez describes how Orfila transformed the Marsh test for his studies of poison absorption, which he thought could contribute to physiology and forensic research. The test involved practical laboratory knowledge and training, which were not readily available to local physicians. In 1841, after the celebrated Marie Lafarge trial, a furious controversy broke out at the Paris Academy of Sciences and Paris Academy of Medicine, fueled by many different causes. One of these, ironically, was the great sensitivity of the Marsh test.

In "Bones of Contention: Mateu Orfila, Normal Arsenic and British Toxicology", Ian A. Burney reviews the British reaction to Orfila's unexpected report of his discovery, using the ultrasensitive Marsh test, that arsenic was a natural constituent of the human body. He describes how the Lafarge episode led British toxicologists to construct a reliable framework for producing medical and legal evidence. One of the last controversies in which Orfila was involved was his dispute with Belgian toxicologist Jean Servais Stas concerning the test for nicotine, a poison belonging to the alkaloids group. In "Alkaloids and Crime in Early Nineteenth-Century France", Sacha Tomic recounts the problems for toxicologists caused by this recently discovered group of compounds, for which chemical tests had to be devised. Beginning with Orfila's article of 1818 on morphine, Tomic discusses Orfila's research in this field and the limitations of the tests for alkaloids used in the 1820s and 1830s, which induced the Société de pharmacie to sponsor a prize for the best new test. The development of this new group of organic poisons demonstrates the role that both medicinal chemistry and toxicology played in the evolving philosophy and practice of organic chemistry.

Bertomeu-Sánchez and Nieto-Galan explain the purpose of the book as follows: "This collective volume attempts to analyze Orfila's life and works from a perspective that is more in tune with recent trends in the history of science. We have tried to show that chemistry, medicine and toxicology cannot be historically understood as fixed and independent disciplines, and that Orfila's contributions had a profound impact on the relationships between these subjects during the first half of the nineteenth century" (p. viii).

In my opinion the editors have eminently achieved their goal, and I highly recommend this attractive, prolifically illustrated, and most reasonably priced collection to toxicologists, forensic scientists, persons concerned with courtroom expertise, chemists (especially analytical chemists), and everyone interested in the life and work of the founder of toxicology.

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[1] M. Orfila, *Traité des poisons*, Crochard, Paris, **1814–1815**
[2] R. Christison, *A Treatise on Poisons*, Adam Black, Edinburgh, **1829**.