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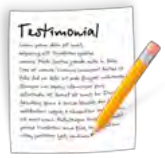

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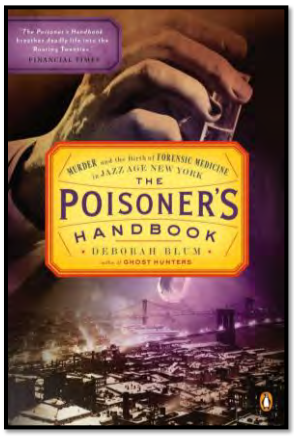

A fascinating Jazz Age tale of chemistry and detection, poison and murder, The Poisoner's Handbook is a page-turning account of a forgotten era. In early twentieth-century New York, poisons offered an easy path to the perfect crime. Science had no place in the Tammany Hall-controlled coroner's office, and corruption ran rampant. However, with the appointment of chief medical examiner Charles Norris in 1918 and the help of a toxicologist Alexander Gettler, the duo changed poison game forever.

Find ***The Poisoner's Handbook*** on Amazon.com today!

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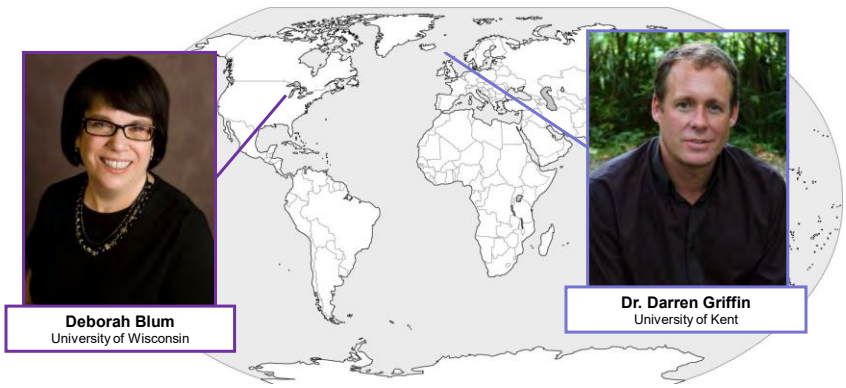

Deborah Blum
University of Wisconsin

Dr. Darren Griffin
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How to Catch A Poisoner: The Sequel

Deborah Blum

ACS Webinar

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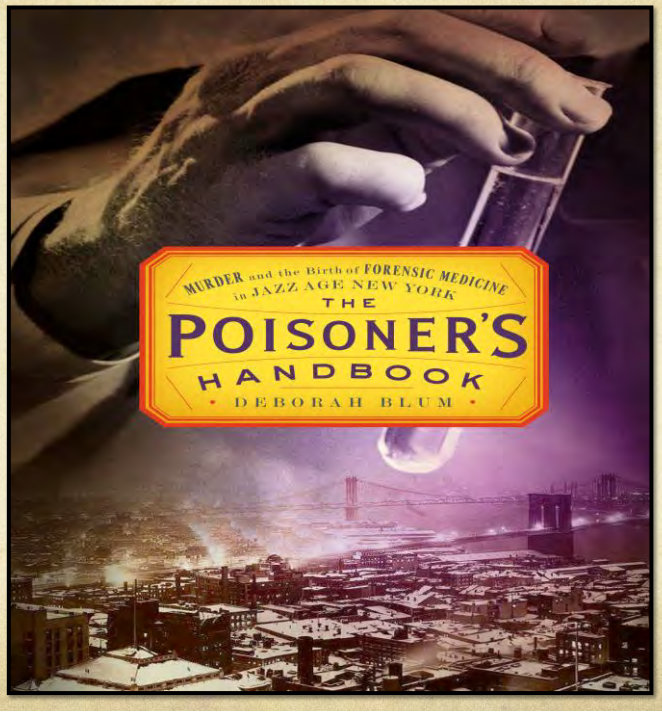


COMMENTARY | INSIGHT

Communicating chemistry for public engagement

Matthew R. Hartings and Declan Fahy

The communication of chemistry to wider society is difficult because of 'chemophobia', its inherent complexity and its lack of unifying grand themes. To engage with citizens about the benefits and related dangers of the field, chemists must improve their dialogue with broader sections of the public — but how?

When Pulitzer Prize-winning science journalist Deborah Blum wrote *The Poisoner's Handbook* (2010), which described the evolution of forensic science in 1920s America, she proposed as its subtitle 'A True Story of Chemistry, Murder and Jazz Age New York'. But when the book was published, its subtitle was 'Murder and the Birth of Forensic Medicine in Jazz Age New York'. Blum explained the reasoning behind the title choice: "The Penguin sales team said that the word chemistry on the book's cover would tank sales".

It's not that chemistry is too intellectually challenging for wider audiences. Bestselling books on complex, specialized scientific topics published in 2010 included Rebecca Skloot's *The Immortal Life of Henrietta Lacks*, which covered the biology of cancer, to Stephen Hawking's *The Grand Design*, which detailed the physics of the universe's beginnings, and Sam Kean's *The Disappearing Spoon: And Other True Tales of Madness, Love, and the History of the World from the Periodic Table of Elements* (note that chemistry is not mentioned explicitly in this title).

It seems that, paradoxically, books about chemistry need to avoid mentioning it to order to be popular. This is symptomatic of what chemist and popular science writer Pierre Laszlo termed 'chemophobia' on the part of the public[1], with the popular associations of the field, according to the editors of *The Public Image of Chemistry*, ranging from "poisons, hazards, chemical warfare and environmental pollution to alchemical pseudo-science, sorcery and mad scientists"[2].

This often-pejorative connotation of chemistry is partly a consequence of its history. Steve Miller, a chemist and planetary scientist at University College London, and co-author of *Science in Public* (1998), noted that "during the nineteenth century there was great excitement in the results of

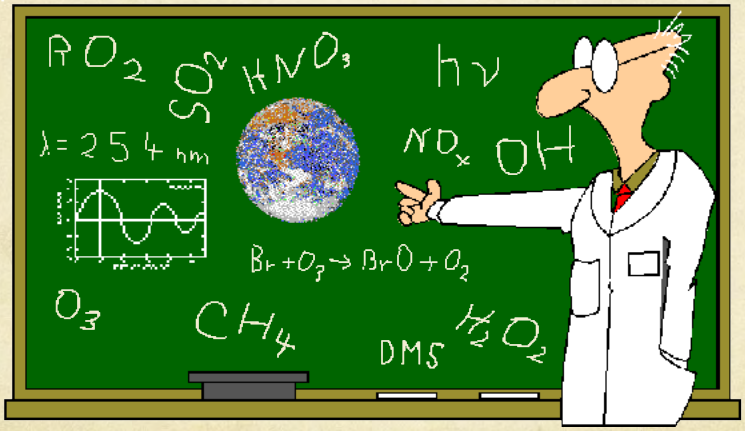
chemistry — dyes, drugs, new materials — that carried on into the early twentieth century. Perhaps the turning point was the First World War, often termed The Chemists' War, in which dynamite, high explosives and poison gas took such a terrible toll. That very much coloured public perspectives on chemistry."

Other twentieth-century controversies followed. Lasting damage to the reputation of chemistry was caused by the thalidomide scandals, the Bhopal catastrophe and the pollution of both the Rhine in Europe and Love Canal in the US. The reaction of the chemical industry to some events often compounded the controversy: some chemical lobbyists tried unsuccessfully to smear the credibility of Rachel Carson after her book *Silent Spring* (1962) described the environmental consequences of pesticides, particularly DDT — and similar instances occurred with Nobel-winning Rowland and Molina after they published their study on CFC destruction of the ozone layer[3].

Communicating chemistry in contemporary culture, where the historical associations of chemophobia exist alongside a dependence on the products of chemistry, is challenging and complex; there is no guaranteed formula for success. A suitable metaphor for thinking about how to communicate chemistry is retrosynthesis: a chemist starts with their target audience and the desired outcome of their communication and works backwards, without assumption, to design the most appropriate communication strategy. To do this, we argue that chemists should move from viewing communications as being solely about improving scientific literacy to seeing it as a means of engaging audiences with their work. We argue that 'vague notions of a general public' should be understood more as a collection of different segments of the public, or different publics, each with its own values, knowledge, beliefs and motivations. Moreover, we argue that chemists should draw on the reservoirs of knowledge from research in science communication to better communicate their work in a way that fosters trust, builds relationships and creates a dialogue with multiple audiences — in a contemporary communications landscape that is social, pluralistic and participatory.

Challenges in communicating chemistry

Aside from chemophobia, the communication of chemistry faces several obstacles. Chemistry itself is a fundamentally difficult subject. For someone who has not immersed themselves in the field, it is not easy to develop a feel for how chemistry works. Take, for instance, chemists' reliance on molecular structures to communicate. To the initiated, a chemical structure is a wealth of information contained within an efficiently minimal package; each structure has chemical properties implicit to its representation.



Google Search says…

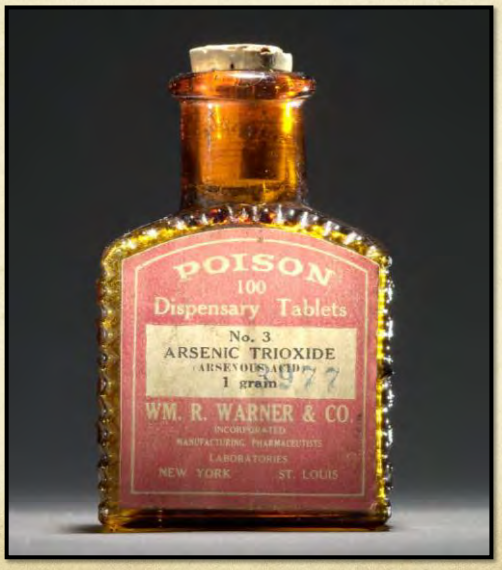
chemistry's reputation:


POISON
100 DISPENSING TABLETS
No. 14
ATROPINE
SULFATE
1/4 Grain (0.016 Gm.)
For use in compounding prescriptions only
Lilly
No. 643—100 SMALL
POISON
DIAMOND
ANTISEPTICS
BERNAYS
FOR EXTERNAL USE ONLY
BLUE
Lilly
POISON
100 DISPENSING TABLETS
No. 80
STRYCHNINE
SULFATE
1/4 Grain (0.016 Gm.)
For Use in Compounding Prescriptions Only
Lilly
ELI LILLY & CO., INDIANAPOLIS, U. S. A.

NYPD Evidence Collection, New York Municipal Archives, 1918

Toxicology Laboratory, Office of the Chief Medical Examiner, NYC, c1930

Arsenic Trioxide



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The Marsh Test

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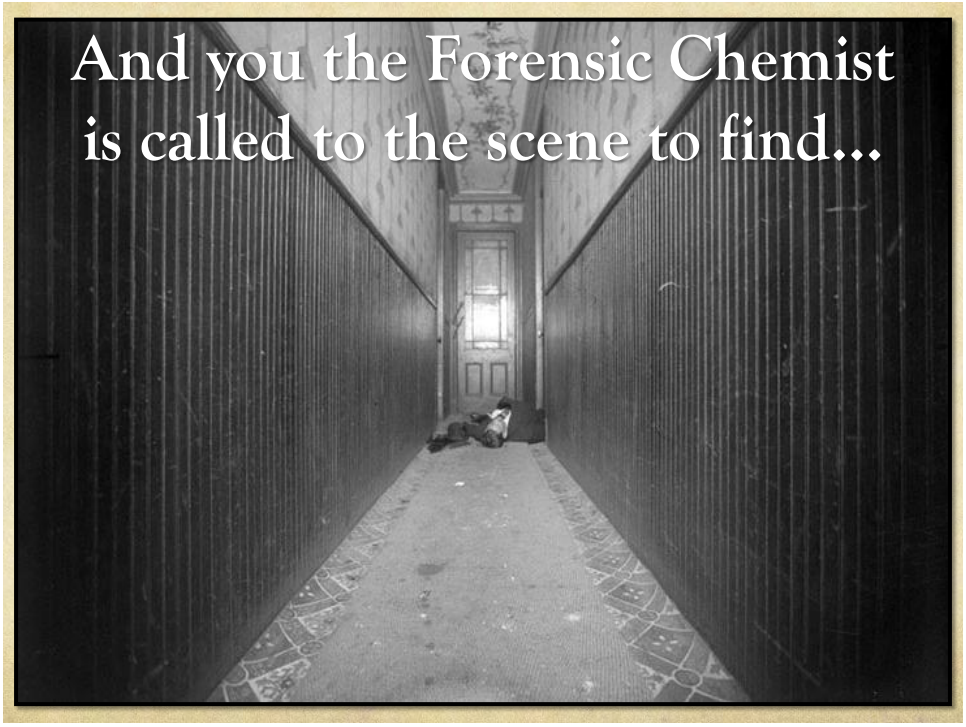
Crowded and Poor Living Conditions

Abandoned Room

Tenement House Museum, Lower Manhattan

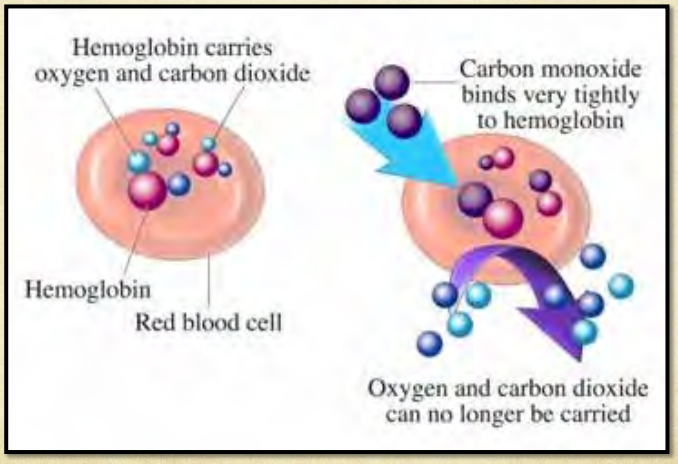
Illuminating Gas



What are the chemical clues that tell how she really died?

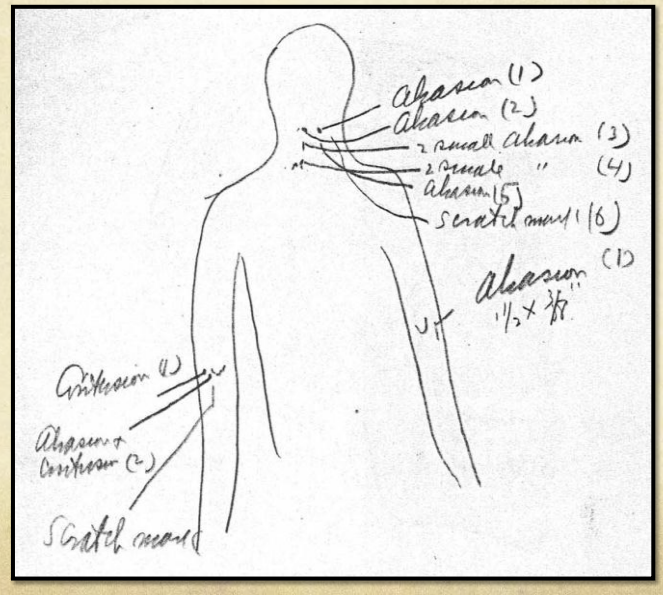
- Not enough carbon monoxide in the blood
- Her skin, blood and tissue aren't red enough
- There's too much carbon dioxide in her blood.

Death by CO Poisoning



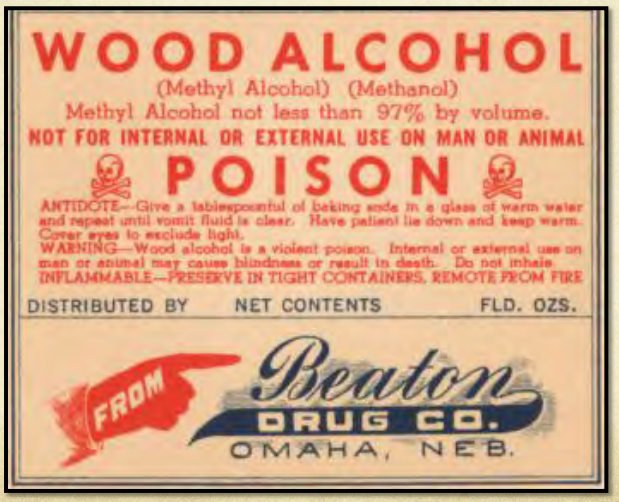
Brilliant Cherry Red Blood Cells

Autopsy sketch, Leah Freindlich, 1923, Office of the Chief Medical Examiner, NYC



The Beginning of our CSI World

Methyl Alcohol



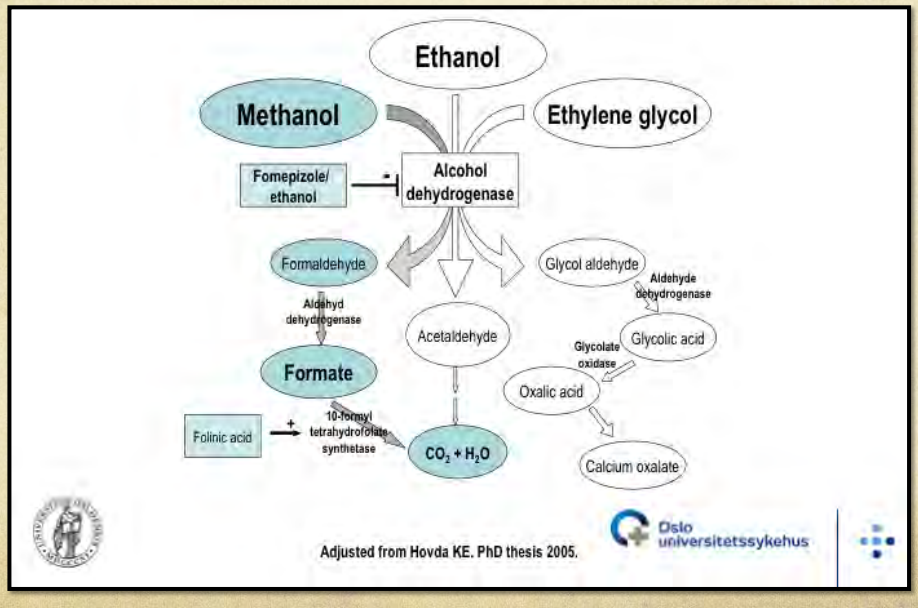
What is the active poison in Corrosive Sublimate

- Hydrocyanic acid
- Mercury bichloride
- Hexavalent chromium

Bootlegger's Booze...

may cause more than a hangover!

Methanol and Metabolism



Radium and Beauty!

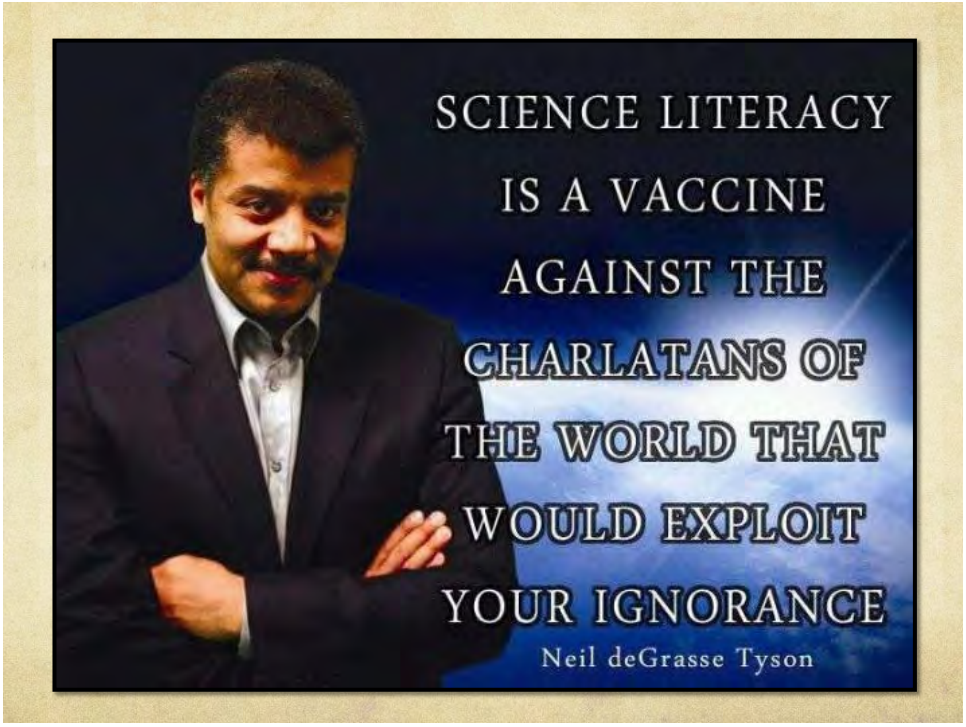
Random Cigarettes

Radium watch dial

U.S. Radium Corporation, Orange, N.J.

"Hear All About It!"

Alexander Litvinenko


SCIENCE LITERACY
IS A VACCINE
AGAINST THE
CHARLATANS OF
THE WORLD THAT
WOULD EXPLOIT
YOUR IGNORANCE
Neil deGrasse Tyson

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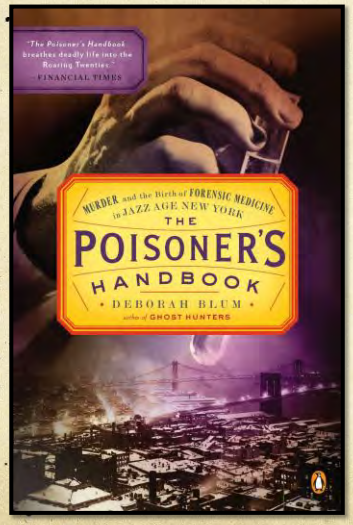

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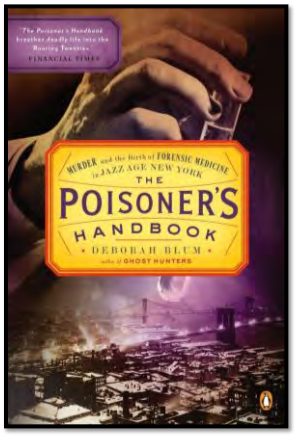

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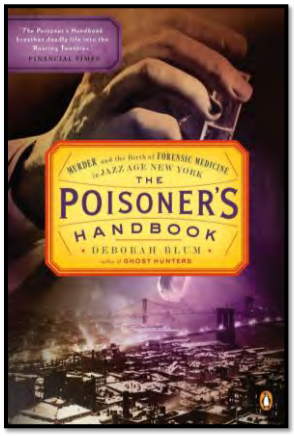

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