

Inorganic poisons

Toxic elements



vs organic poisons

Elements may neither be created nor destroyed



Robert Boyle

Inorganic poisons

Arsenic, antimony, mercury, thallium



Detectable after death



Detectable after burial



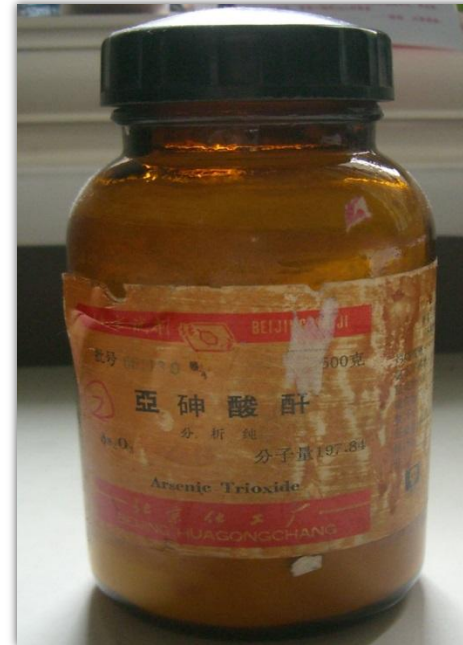
Detectable after cremation

Arsenic trioxide

Once readily and legally available



Fowler's solution



Arsenic trioxide

Arsenic trioxide

Flypaper



Paper coated with glue



Arsenic added to glue



Flypaper

Arsenic trioxide

FDA (U.S.) approved for use in the treatment of some kinds of leukemia



Trisenox

DNA

Fingerprints

Fibre Analysis

Poison

Blood

Arsenic trioxide

Very common poison in the Victorian era

“Inheritance powder”

On This Day June 12, 1869

The Times reports on the investigation of a charge of murder

ALLEGED POISONING OF A HUSBAND.—Yesterday Fanny Frances Maria Oliver,

widow of John Oliver, boiler maker, of Hershill, Dudley, was charged on remand before the magistrates of that town, with the wilful murder of her husband by administering poison. The accused was defended by Mr. Parry, solicitor of Birmingham. The prisoner's husband died on Whit Sunday, and was buried on the following Wednesday, after a certificate had been given by Mr. Timmins, the surgeon that the cause of death was "hepatic congestion." Information, however, which reached the police through persons who lived near the deceased, and relating chiefly to the conduct of Mrs. Oliver before his death, awakened suspicion that her husband had been poisoned, and the inquiries they made led to discoveries which they conceived justified them in arresting her on the charge of murder. It appeared

from the evidence that the deceased was a shareholder in a building and investment company in Wolverhampton, and his wife drew out in the past twelve months about 100l. in eight different sums, after having had letters, giving notice for the withdrawal of the money, written in her husband's name, by a young man who she strictly charged never to tell her husband. The deceased became ill and the prisoner nursed him, always preparing the food. About the time of the illness the prisoner obtained arsenic from a drugist's, professing to be for bonnet cleaning. The deceased was often very sick. Once, when taking his milk he complained it was hot with pepper. He vomited very much and so too did his mother and another person. The body was exhumed. The prisoner, who is about 20 years of age, and who seemed to take little interest in the proceedings, was committed for trial at the Assizes.

Arsenic poisoning confused with liver disease?

To test for arsenic

A lot of money in 1869

And adding arsenic?

To drug him?

Due to arsenic?

Travelling court

Arsenic trioxide

Widespread use of arsenic in poisoning



Reliable method of testing for arsenic?

Marsh Test for arsenic

Marsh Test

Specifically designed
for forensic science

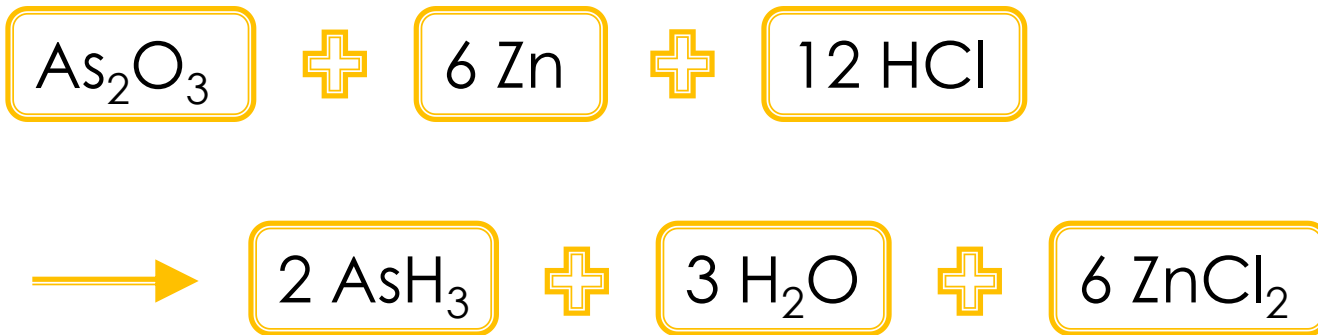
Developed by James Marsh

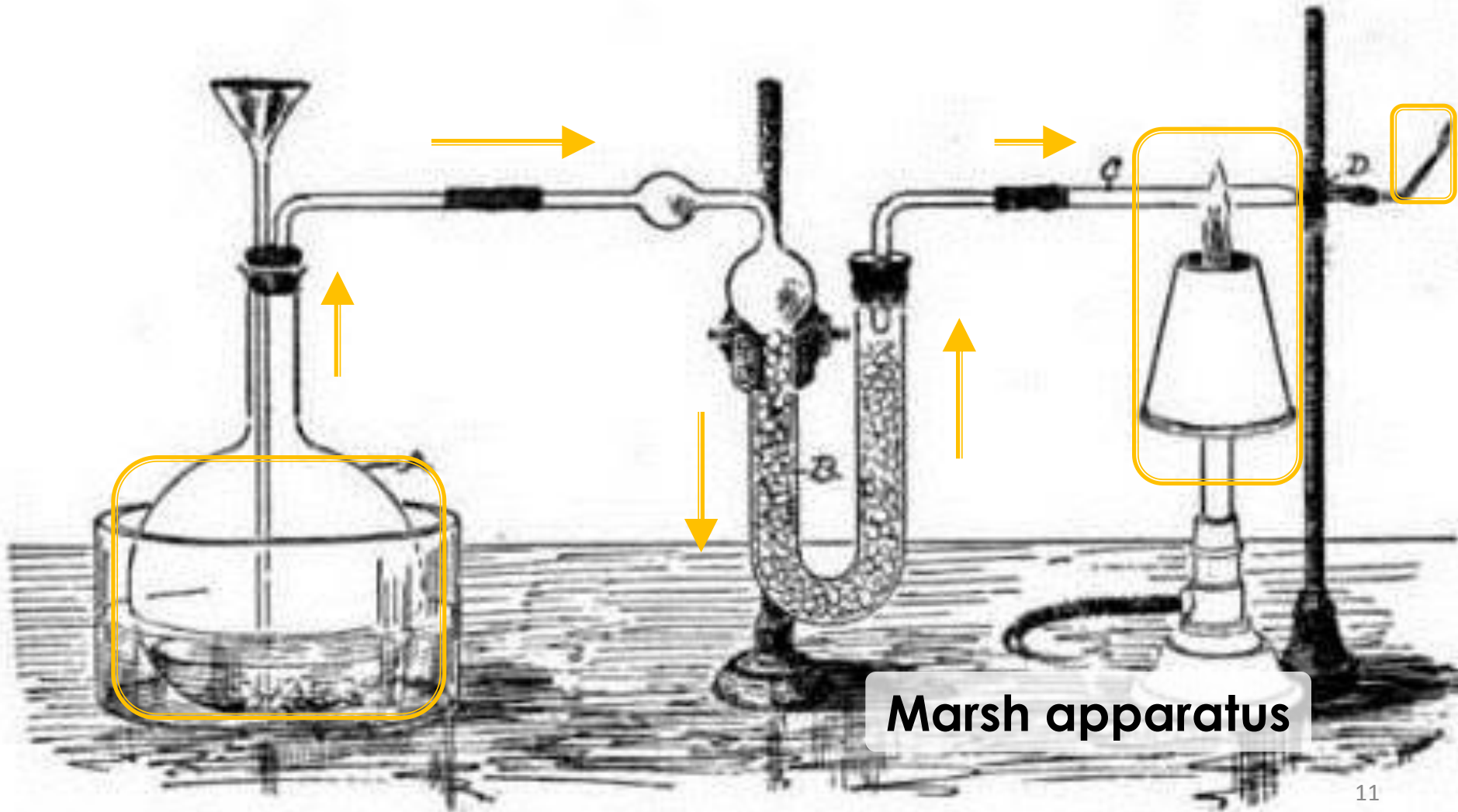
Now superseded by AAS



James Marsh

Marsh Test





Marsh Test

Can confirm presence of arsenic

Can also estimate the amount of arsenic

Only arsenic and antimony behave this way



Chemists are able to tell them apart

Marsh Test

Marsh Test very effective and credible in court



Prosecution got better



Defense



Styrian Defence

The Styrian Defence

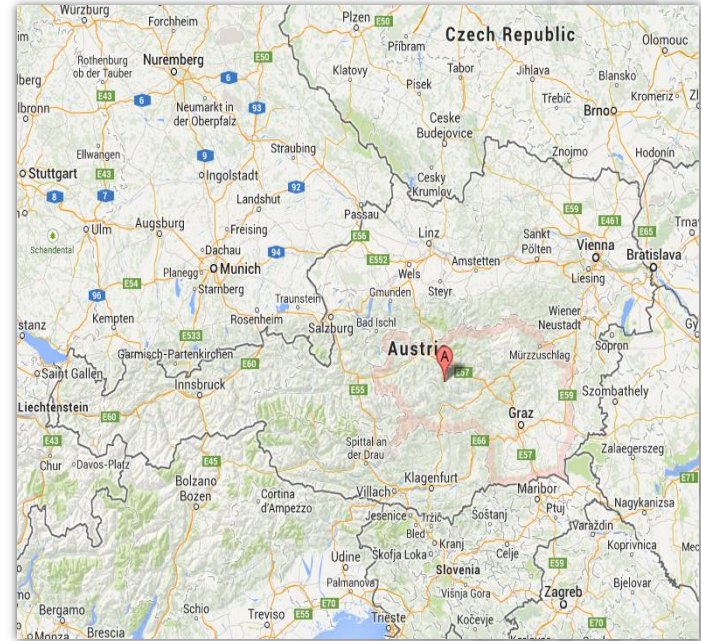
Styrian peasants were eating arsenic trioxide



Ate 300 to 400 mg every 2 to 3 days



Lethal dose <200 mg



The Styrian Defence

1 How did they do it?



Slow release of As_2O_3 ?



Build up of tolerance?

DNA

Fingerprints

Fibre Analysis

Poison

Blood

The Styrian Defence

2 Why did they do it? → Improve health?

Women



Improve complexion?



Blood vessels damaged

Men

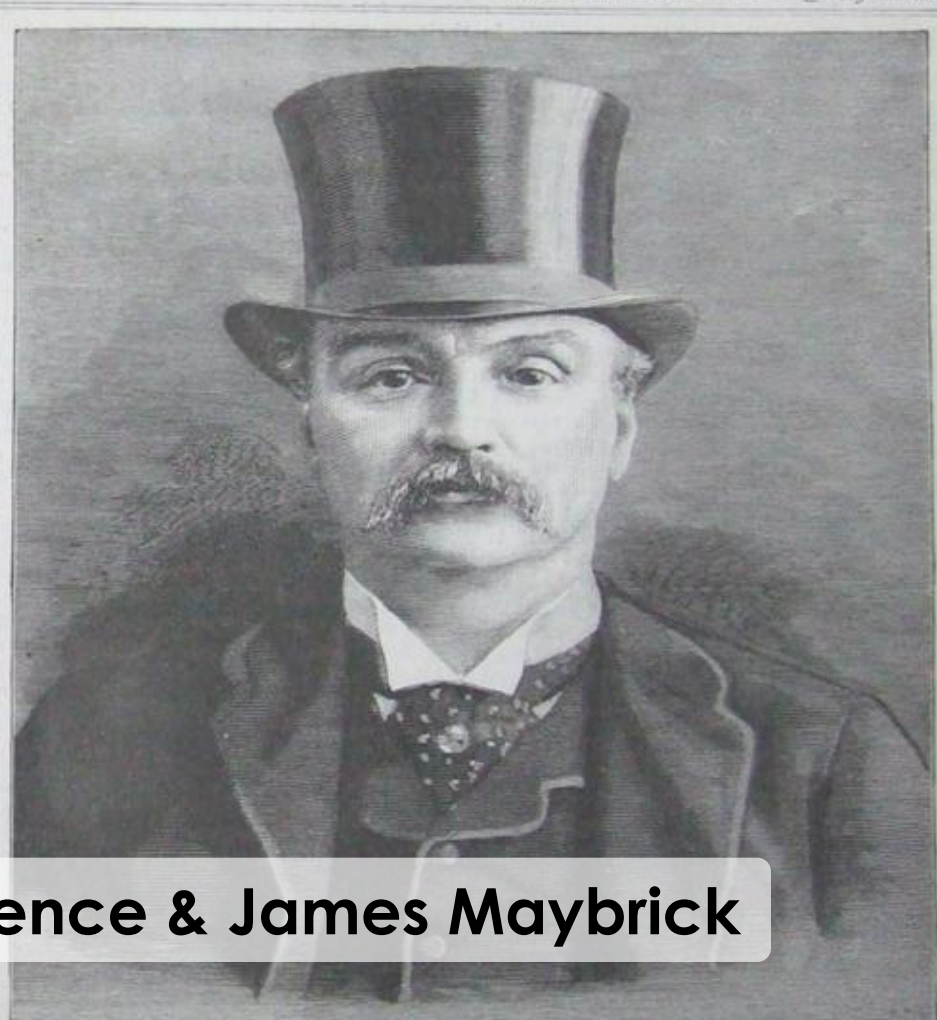


Improve sexual potency?

*Florence
Maybrick*



MRS. JAMES MAYBRICK



MR. JAMES MAYBRICK

Florence & James Maybrick

Liverpool, 1889

Florence Maybrick



Charged with murdering
her husband with arsenic



Tries the Styrian Defence

DNA

Fingerprints

Fibre Analysis

Poison

Blood

Liverpool, 1889

Prosecution



Arsenic purchased and soaked from flypapers

Defense



For use as a cosmetic face wash

Liverpool, 1889

Prosecution

➔ Arsenic detected in James Maybrick's body

Defense

➔ Self-medication

Liverpool, 1889

Verdict: **guilty**



Sentenced to hang



Committed to 15 years in prison

Died in 1941

*Maine,
New England
2003*

Maine, New England, 2003

Arsenic poisoning case concerning a church and the church congregation

Maine, New England, 2003

Walter Morrill
died in hospital

28 April

27 April

Had sandwiches & coffee

2 dozen people fell sick

Daniel Bondeson
committed suicide

2 May

Chemical tests run

Arsenic in brewed coffee

Arsenic in Morrill's body
& in surviving victims

Maine, New England, 2003

Conclusion



Daniel Bondeson added arsenic to the coffee during church service

Maine, New England, 2003

Where was the arsenic from?



From an old agricultural chemical

Motive?



Church dispute?



Overdose?