Developing Treatments

Poisons as Treatments

"The Dose Makes the Poison"
Paracelsus (16th century)

Poisons definitely have an effect on the body. They can kill if taken accidentally, and have frequently hit the headlines as instruments of murder. However, in small quantities they can actually have a medicinal effect.

A medicine was classified as a 'poison' if it is was harmful if taken in more than the smallest dose. The Pharmaceutical Society was given the power to decide which substances were poisons by the 1868 Pharmacy and Poisons Act.

The very professions of Chemist & Druggist and Pharmaceutical Chemist have been defined by reference to poisons. From 1868 any chemist who dispensed poisons had to register with the Pharmaceutical Society in order to practice lawfully. A pharmacist who didn't trade in poisons didn't even need to pass professional examinations.

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Belladonna

Source: Leaves and roots of the plant *Atropa belladonna*, commonly known as deadly nightshade.

How Does It Harm?
The poisoned person vomits and has convulsions before their heart and lungs are paralysed. One berry is enough to kill a child.

How Does It Heal?
In medieval England deadly nightshade was grown in monastery gardens to treat inflammations and boils.

Today belladonna is used as a muscle relaxant. For example, in surgery it is given before the anaesthetic is administered.

Belladonna means 'beautiful lady'. It was given this name because women, from the Roman period until the Renaissance, would drop its extract into their eyes. This enlarged their pupils, making the ladies more attractive to the opposite sex.

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1) Belladonna liniment, 1900-1930

An ointment for pain relief, commonly used in cases of rheumatism.

Case of belladonna liniment poisoning, reported in *The Lancet*, 1881:

"On September 1st, 1881, Mrs K__ , a highly nervous patient, suffering from chronic metritis, inadvertently swallowed from half an ounce to an ounce of belladonna liniment…I visited her at 2pm, when she was insensible, with wild, scared, and pinched features, anaemic, with lips blue and pale, the pupils being fully dilated..pain in the pit of the stomach…frequent retching. September 2nd still incoherent, imagining she had committed murder."

2) Belladonna plaster, 1900-1930

This would have been softened through heating and spread onto a strip of fabric or similar backing and applied where needed. People used it to relieve the pain of conditions such as lumbago, rheumatism and sciatica.

There are directions for making this plaster (*Emplastrum Belladonnae*) in *The Extra Pharmacopoeia* of 1890:

"Emplastrum Belladonnae'

Alcoholic Extract of Belladonna, 1; Resin plaster, 2; Soap plaster, 3; Melt the plasters in a water-bath, add the extract, and mix well."

3) Atropine and cocaine opthalmic drops, 1940-1969

Atropine, derived from the belladonna plant, is a key ingredient of these eyes drops.

Atropine is often used in eye treatments because it dilates the pupil. It is sometimes dropped into the eye prior to eye surgery, or used to treat an inflamed iris. In the past women enlarged their pupils with extract of belladonna in order to increase their attractiveness.

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Hemlock

Source: The plant *Conium maculatum*, common name hemlock or 'poison hemlock'.

How Does It Harm?
Contains the substance coniine. This affects parts of the nervous system, causing muscle paralysis. The person dies when paralysis reaches the heart and lungs.

How Does It Heal?
For centuries, people used hemlock to relieve muscle spasms, or as a sedative. Today it is not used because the difference between a therapeutic dose and a toxic amount is so small.

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4) Bottle for hemlock Juice
(Latin: *Succus conii*), around 1900

In large doses doctors used this to treat acute mania and chorea (a disorder characterised by involuntary jerky movements). Patients took it in smaller doses as a tonic.

This bottle is one of a large set of poison bottles once used at Allen & Hanbury's, a well-known pharmacy at Vere Street, London.

5) Seeds of hemlock (Latin: *Conium maculatum*), 18th century specimen in later jar

These are more fatal than hemlock leaves. For medicinal purposes people also used dried unripe fruit, fresh leaves and the young branches of the herb.

6) 'The Death of Socrates' as painted by Jacques Louis David in 1787, shows

The Ancient Greek philosopher Socrates, was sentenced to death by drinking a draught of hemlock. Death by hemlock was a common form of capital punishment in 5th century Athens.

The painting hangs in The Metropolitan Museum, New York.

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Arsenic

Source: A metallic ore found in minerals such as Arsenopyrite.

How Does It Harm?
Death results from multiple organ failure. Symptoms include violent stomach pains, vomit which can be green/yellow and blood-streaked, diarrhoea, convulsions and delirium.

Impressionist painters in the late 1800s used an arsenic-based pigment, Emerald Green. It didn't kill, but it could have contributed to Monet's blindness, Cezanne's diabetes, and Van Gogh's mental health problems.

How Does It Heal?
Doctor's used arsenic to treat syphilis before the introduction of Penicillin. It was also an ingredient of many tonics. Arsenic trioxide has been used in the past to treat cancer, and is a treatment for leukaemia today.

7) White arsenic, (Latin: *Acidum arseniosum*), 1875-1930

The Extra Pharmacopoeia of 1920 stated of white arsenic: "It is given internally immediately after meals as a general tonic, as for chorea, in diabetes and anaemia, as anti-periodic for malaria, [and] for chronic skin diseases." It was also put into the cavities of decayed teeth to kill the nerves.

8) Ferric arsenate (Latin: *Ferri arsenas*), 1924

Patients took this to treat chronic skin conditions and night sweats.

9) Arsenical cigarettes, 1904-1930

These were made of paper impregnated with sodium arsenate. The patient was instructed to inhale deeply three or four times, to get the substance right into their lungs. People smoked them to relieve conditions such as chronic catarrhs, asthma and hay fever.

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10) Dr Mackenzies Improved Harmless Arsenic Complexion Wafers and Arsenical Soap.

In the Victorian period some women used arsenic in forms like this, in an attempt to lighten their complexions. One reason was that a ruddy complexion was associated with lower classes of women, particularly those who laboured out-of-doors. Whether arsenic actually produced this affect is debatable, regardless of glowing testimonials.

One of the many testimonials inside the leaflet reads:

"Please send another box of Wafers. My complexion was a very dirty red, and is very greatly improved since taking your Wafers. Miss S.___"

These wafers were sold as late as 1940.

Strychnine

Source: Most commonly the seed of the *Strychnos nux vomica* tree, that grows in India.

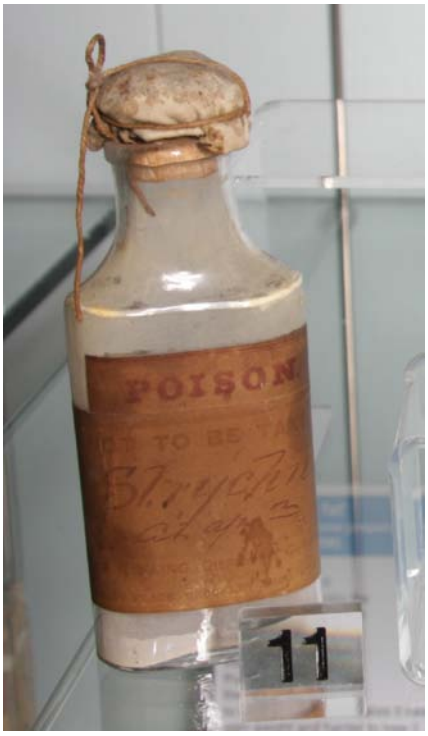
How Does It Harm?

Through agonizing convulsions caused by stimulation of the central nervous system. The sufferer's back arches, often until only the heels and head are on the floor, and their face is fixed in a grin. Breathing can cease until the muscles relax again. The person might have 10 such attacks before they recover, or die from suffocation if the respiratory muscles fail to relax.

How Does It Heal?

In the past doctors often prescribed it for indigestion. It was also commonly given in cases of heart failure, and in small doses as a stimulant or tonic, because it strengthens the pulse. It was also used as an antidote to chloral or chloroform poisoning.

"*One of the most valuable and widely prescribed drugs*"
(nursing guide of 1934).



11) **Strychnine, 1879-1920**

The chemist that sold this strychnine dispensed it (potentially dangerously) in a re-used bottle – the back is embossed 'Cooper's Effervescing Lozenges'.

12) **Strychnine sulphate (Latin: *Strychnine sulphas*), 1909-1921**

An aqueous solution of strychnine sulphas could be given by hypodermic injection.

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13) **Battle's Vermin Killer, 1920-1956**

Strychnine comprised more than 10% of this vermin poison.

On the other side of the packet is a testimonial from the manager of a corn exchange: "I used a 1/3 packet of Battle's Vermin Killer, mixed with a little baked flour, and next morning picked up 60 mice, all found near where the poison was laid."

Case of strychnine poisoning, reported in *The Lancet*, 1881:

> "A doctor spotted a calculation for making a mixture to treat indigestion on a piece of blotting paper in his hospital dispensary. To his alarm he noticed that a mistake had been made and there was too much strychnine (ounces had been written rather than drachms). He quickly prepared an antidote and waited for the first report of a poisoned patient. "On arriving at the house I found the patient, a woman of about 50 years of age, lying on a mattress on the floor, unable to speak and perfectly rigid, and in a condition of constantly recurring opisthotones (convulsions)… [these] succeeding one another with great rapidity…"
>
> At the point he saved her with the antidote she was close to death.

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Can Even Cyanide Be A Medicine?

Yes and no. Pharmacists did stock it, often in the form of hydrocyanic acid. Patients took this to prevent vomiting – or (without the pharmacist's knowledge) to commit suicide. Otherwise cyanide was not generally a medicine that was taken internally.

However, it has been used for other medicinal purposes, such as cyanide wound dressings. Today its derivative, potassium ferricyanide, is used in products to test blood sugar levels.

14) Esprit Glucometer blood glucose test sensors, 2001 & Potassium Ferricyanide, around 1935

The Esprit Glucometer enables diabetics to test their blood sugar levels themselves. The main ingredient is potassium ferricyanide.

15) Double cyanide wool, 1901-1939

This was a dressing for wounds. The words 'Double Cyanide' refer to the fact it is impregnated with two compounds - mercury and zinc cyanide.

We have not been able to discover the benefit of the compounds in this dressing. (If *you* know, please leave a message for a member of the Museum team.)

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Weren't All Poison Bottles Green or Blue?

No, as you can see from the images! However, it is true that green was the most usual colour for a poison bottle in the 1800s.

Pharmacists wanted to be sure that people at home knew when they had picked up a 'poison'. They therefore sold poisons in bottles that had ribs, ridges or knobbles. That way even those who couldn't read the poison label could be warned. Another warning device was the poison bottle alarm bell that jingled when the bottle was picked up.

16) Drop dispenser bottle, late 1900s/early 20th century

This was an ideal bottle for dispensing a poisonous liquid such as tincture of belladonna, as its design made it easy to administer a drop at a time.

17) Poison bottle, 1936-1941

This design combined coloured glass, 3-sided shape, round knobbles and ridges.

On of the labels on this bottle gives directions 'in case of poisoning':

"Send for a medical man. Meanwhile give large quantities of (1) White of Raw Egg in Milk or Water (2) Milk (3) Gruel, Barley Water, Arrowroot and Water, or Flour and Water, (4) Strong Tea. Apply hot water bottles or hot blankets to legs and feet."

18) Poison bottle, 1895-1936

This bottle with its green glass and ridges was the most usual type of poison bottle in the 1800s and early 20th century. It is also has the words 'NOT TO BE TAKEN', for good measure.

Around its neck in an alarm bell that would jingle when the bottle was moved.

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19) Stone jar containing mercury (Latin: *Hydrargyrum*), 1944

Mercury was typically dispensed in this type of container.

20) 'Savory's' poison bottle, second half 19th century

This patent design with a wooden cap and a cork bung in the base, was adopted by Savory & Moore in the 1860s.

21) **'Orchard Poison Alarm Signal' bells, 1870-1900**

These bells were combined with a cork bottle stopper, rather than fitting around the neck of the bottle.

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