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PHARMACY *a long and proud history*

THE FOXGLOVE STORY

One of those really good pharmaceutical stories that many pharmacists will be familiar with is the foxglove story.

It all started way back in Birmingham England in 1775. Dr William Withering had a patient with badly swollen legs – a condition then called **dropsy**. Although it was not known at the time, dropsy is often a sign of a weak heart.

Withering had no treatment to offer and he expected the patient – a woman in her 40s – to die, but a few weeks later he heard she was recovering. On visiting her, he discovered she was taking a **herb tea** supplied by an old woman who helped people that doctors could not cure. Withering asked the old woman for the recipe and she gave it to him. It was just one of thousands of such family recipes, many of which may still be in use today. Withering wrote that the recipe, which contained 20 or more herbs, caused *violent vomiting and diarrhoea*. Based on his knowledge of botany and medicine he decided the active herbal ingredient was **foxglove**.

Herbal books of the time say foxglove is effective against many diseases from epilepsy to skin ulcers.

Withering saw poor patients at no charge for one hour every day and, deciding to experiment on them, he discovered foxglove to be a very powerful diuretic. He tried several varieties and strengths of foxglove-roots, leaves, flowers and so on. Eventually he concluded (incorrectly) that foxglove decreased the volume of blood in the body.

One of James Sowerby's illustrations for William Withering's *Account of the Foxglove and Some of its Medical Uses etc.*

In Withering's words:

"The plant has a power over the motion of the heart to a degree yet unobserved in any other medicine and this power may be converted to salutary ends."

Ten years later in 1785, Withering published a book titled *An Account of the Foxglove*.

Foxglove is recorded in the US Pharmacopoeia of 1820 as a diuretic, not a heart stimulant. We now know its main impact is on the heart. When the heart pumps blood more efficiently, the kidneys are more able to remove wastes and toxins.

Foxglove is among a group of plants that contain chemicals called **glycosides** that stimulate the heart. Now, 220 years later, an extract of the **herbal medicine** foxglove is still a core medicine in the treatment of heart disease.

There is a great mystery that modern science has no answer for. Why do living organisms produce in such quantity so many complex chemicals that so far do not seem necessary for the life of the organism?

Why does foxglove go to the trouble of making digoxin and what use is it to the plant?

To be continued with diuretics.