‘Van Helmont’s experiments on plant growth’ transcript

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NARRATOR: In March 1634, agents of the Spanish Inquisition call at a house in Brussels. They take 55-year-old Jan Baptist van Helmont away for questioning.

[SUSPENSEFUL MUSIC PLAYING]

They interrogate and put him under house arrest. They accuse him of violating God's law-- his crime, the scientific study of plants and other phenomena. Van Helmont is lucky to escape with his life. While under house arrest, he starts thinking about a question that's always intrigued him-- how do plants grow?

[MUSIC PLAYING]

For over 2,000 years, people believed plants grew by eating soil. van Helmont wants to know if this is true. So he devises an experiment, one that hopefully won't attract the attention of the Spanish Inquisition. Van Helmont used a willow tree and a waggon full of soil. I'm using a bay tree and less soil, but the principle is the same.

The first thing van Helmont did was to weigh his tree and note its weight. Next, he weighed the soil, dry soil, because he didn't want water to affect its weight. Van Helmont then planted his tree, watered it. And his experiment was ready to go.

[MUSIC PLAYING]

Each of my bay trees represents a year in the growth of the willow tree that van Helmont planted. He watched it grow for not one year or two years, but he tended the tree for five years. And then he re-weighed it. After five years, the tree has gained a hefty 12 stone.

Then van Helmont drys and weighs the soil. The soil weighs almost exactly the same as it did five years ago. He concludes the tree has grown not by eating soil but by drinking water.

[MUSIC PLAYING]

After all this effort, van Helmont decides not to publish his results. He is scared and with good reason. His experiment relies on evidence, not faith. He doesn't want to risk getting on the wrong side of the authorities again. So his results are only published after his death.

For all his personal sacrifice, van Helmont was wrong. Water is important for the growth of plants. But it is far from the whole story.

[MUSIC PLAYING]