

# Van Gogh and Digitalis

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It has long been argued that digitalis is responsible for many of the dazzling colors in Van Gogh's painting. Several reports have made a convincing case that digitalis caused the blue-green scotomata that was often seen in Van Gogh's work.<sup>1,2</sup> Van Gogh was a sad fellow, unrecognized in his lifetime as a great painter, unsuccessful in relations with women, having to consistently borrow money from his brother and spurned by his dear (but one side) friend Gauguin. He was a troubled person who was being treated by a Dr. Gachet, seen here holding the sprig of Foxglove (the source of digitalis) in a portrait by Van Gogh (Figure 1). Gachet treated Van Gogh in 1889 at the asylum Saint-Remy and continued to treat him the following year till he committed suicide.

Digitalis can cause direct cardiotoxicity, but the neuro-excitatory effects of digitalis and sympathetic/parasympathetic activity arising from activation of the area postrema of the brainstem can occur at lower doses.<sup>3-5</sup>

Dr. Gachet was known to use the extract of the Foxglove plant (digitalis) to treat psychotic conditions.<sup>6,7</sup> One of the toxicities known to digitalis is blue-green swirling distortions of one's vision. Another toxicity, although rare can be mania. The drug has a very low therapeutic to toxic ratio with small changes in serum concentration leading to toxicity ( $1\mu\text{g/ml}$  upper limit of therapeutic concentration, whereas  $2\mu\text{g/ml}$  is toxic). Although the association of digitalis with Van Gogh's paintings have been conjecture for years, the recent discovery of which of Van Gogh's paintings was his last, sheds further light on his death and possibly the association with digitalis therapy. The Scientific Director of the Van Gogh Institute, an organization that preserves the artist's work at the Auberge Ravoux, the Inn in Auvers-sur-Oise where he stayed when he fatally shot himself and died 2 days later on July 29, 1890 has made a remarkable observation. As Mr. Van der Veen was looking at postcards, he came across a card showing unusual tree roots that was very similar to that seen in a 1905 postcard showing a similar scene (Figure 2). Andries Bongers, the brother-in-law of Theo Van Gogh, Vincent's brother wrote that "the morning before his (Vincent's) death he had painted a forest scene full of sun and life."

The painting, Tree Roots (Figure 3) shows the scene of a large, distorted (almost tormented) tree root so very similar to the tree that stands to this day on the Rue Daubigny in Auvers-sur-Oise. Examination of the painting shows a contorted scene, the forest in turmoil with bright colors, but not the colors of a true forest, but blue trees and yellow earth, highly suggestive of the blue/green visual hallucinations associated with the digitalis toxicity and xanthopsia, yellow predominating vision also associated with digitalis toxicity.

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That the drug that may have precipitated this visually exciting use of color by Van Gogh could have precipitated his mania and suicide is indeed sad. Could the persistent color hallucinations in his vision lead an artist to commit suicide? Could the situation be analogous to that of individuals taking lysergic acid diethylamide, become so distraught by their hallucinations, creating the impetus for suicide? We will never truly know, except for the neural excitatory effects of digitalis and its very low therapeutic to toxic ratio.

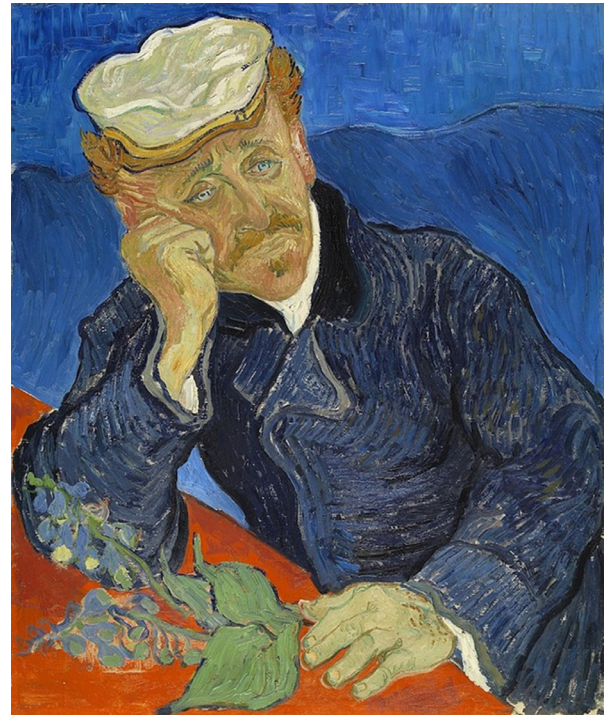


Figure 1. Portrait of Dr. Gachet holding the sprig of Foxglove (the source of digitalis).



Figure 2. A postcard showing unusual tree roots that is very similar to that seen in Figure 3.

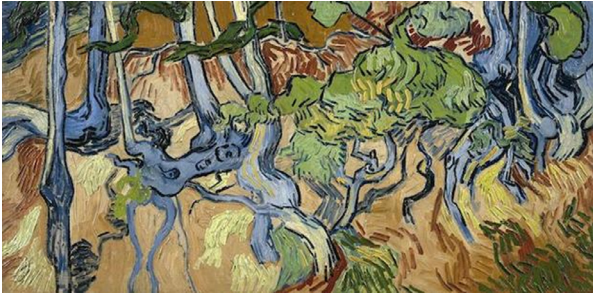


Figure 3. Tree roots (picture).

### Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relations that could have appeared to influence the work reported in this study.

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