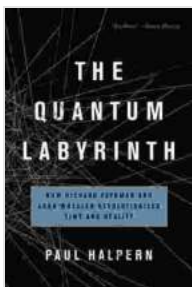


# How Richard Feynman and John Wheeler Revolutionized Time and Reality

Richard Feynman and John Wheeler were two of the most brilliant physicists of the 20th century. Their work together on the problem of quantum gravity led to some of the most profound insights into the nature of time and reality that have ever been made.

## Feynman and Wheeler's Early Years

Feynman was born in New York City in 1918. He showed an early aptitude for physics and mathematics, and he entered the Massachusetts Institute of Technology (MIT) at the age of 17. Wheeler was born in Jacksonville, Florida, in 1911. He also showed an early aptitude for physics and mathematics, and he entered Johns Hopkins University at the age of 16.



## The Quantum Labyrinth: How Richard Feynman and John Wheeler Revolutionized Time and Reality

by Paul Halpern

★★★★☆ 4.6 out of 5

Language : English  
File size : 16285 KB  
Text-to-Speech : Enabled  
Screen Reader : Supported  
Enhanced typesetting : Enabled  
Word Wise : Enabled  
Print length : 313 pages



Feynman and Wheeler first met in 1939 at a conference on theoretical physics. They quickly became friends and began collaborating on research. Their early work focused on the problem of quantum gravity, which is the problem of reconciling the laws of quantum mechanics with the laws of gravity.

### **The Wheeler-Feynman Absorber Theory**

In 1945, Feynman and Wheeler published their first major paper on quantum gravity. The paper introduced the "Wheeler-Feynman absorber theory," which is a theory that explains how gravity can be quantized. The absorber theory is based on the idea that gravity is not a force, but rather a curvature of spacetime. When an object falls, it is not actually being pulled by gravity. Instead, it is simply following the curvature of spacetime.

The absorber theory was a major breakthrough in the field of quantum gravity. It provided a way to reconcile the laws of quantum mechanics with the laws of gravity. The theory also led to a new understanding of the nature of time and reality.

### **The Feynman-Wheeler Spacetime Foam**

In 1955, Feynman and Wheeler published their second major paper on quantum gravity. The paper introduced the "Feynman-Wheeler spacetime foam," which is a theory that explains the structure of spacetime at the smallest scales. The spacetime foam is a sea of tiny bubbles of spacetime that are constantly appearing and disappearing.

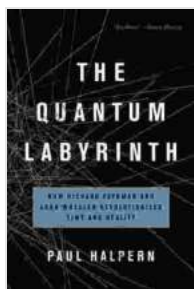
The spacetime foam is a consequence of the uncertainty principle. The uncertainty principle states that it is impossible to know the exact position and momentum of a particle at the same time. This means that there is

always a small amount of uncertainty in the location of a particle. The spacetime foam is a way of accounting for this uncertainty.

The Feynman-Wheeler spacetime foam has had a profound impact on our understanding of the nature of time and reality. It suggests that spacetime is not a smooth, continuous surface. Instead, it is a bubbling, frothy sea of tiny bubbles. This has led to a new understanding of the nature of reality. It suggests that reality is not something that is fixed and unchanging. Instead, it is something that is constantly changing and evolving.

## The Legacy of Feynman and Wheeler

Feynman and Wheeler were two of the most important physicists of the 20th century. Their work on quantum gravity led to some of the most profound insights into the nature of time and reality that have ever been made. Their legacy will continue to inspire physicists for generations to come.



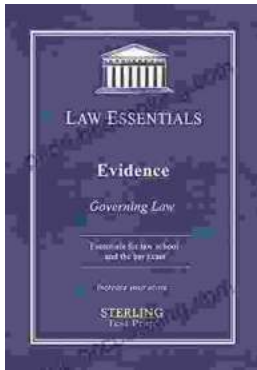
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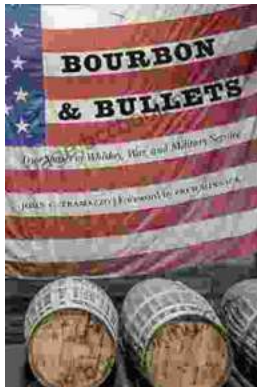
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