

# The New Era in American Mathematics, 1920-1950: A Transformative Episode in the History of Science

The period from 1920 to 1950 witnessed a profound transformation in American mathematics. This era saw the emergence of new mathematical fields and subfields, the development of groundbreaking theories, and the rise of a new generation of brilliant mathematicians. These developments had a lasting impact on the field of mathematics and continue to shape its trajectory today.

## The Rise of New Fields

One of the most significant developments of this period was the emergence of new mathematical fields. These included:



## The New Era in American Mathematics, 1920–1950

by Karen Hunger Parshall

★★★★★ 5 out of 5

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Enhanced typesetting : Enabled  
Word Wise : Enabled  
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- **Topology:** The study of geometric properties that remain unchanged under continuous deformations.

- **Algebra:** The study of algebraic structures, such as groups, rings, and fields.

li>**Analysis:** The study of functions, limits, and continuity.

- **Number theory:** The study of the properties of integers and their relationships.

These new fields provided a fertile ground for innovation and discovery, and they continue to be major areas of research today.

## **Groundbreaking Theories**

In addition to the emergence of new fields, this period also saw the development of groundbreaking theories in existing fields. These included:

- **The Banach-Tarski paradox:** A theorem that states that a solid ball can be cut into a finite number of disjoint sets that can be reassembled into two balls of the same size as the original.
- **The Gödel incompleteness theorems:** Theorems that state that any axiomatic system capable of expressing basic arithmetic is either incomplete or inconsistent.
- **The Turing machine:** A theoretical model of computation that can be used to represent any computable function.

These theories challenged fundamental assumptions about mathematics and had far-reaching implications for the field.

## **A New Generation of Mathematicians**

The rise of new fields and groundbreaking theories was accompanied by the emergence of a new generation of brilliant mathematicians. These included:

- **Norbert Wiener:** Developed the theory of Brownian motion and founded the field of cybernetics.
- **John von Neumann:** Made fundamental contributions to quantum mechanics, game theory, and computer science.
- **Alan Turing:** Developed the Turing machine and made significant contributions to computer science and artificial intelligence.
- **Claude Shannon:** Developed the theory of information and founded the field of information theory.

These mathematicians helped to shape the course of mathematics in the 20th century and beyond.

### **Impact on the Field of Mathematics**

The developments of the period from 1920 to 1950 had a profound impact on the field of mathematics. These developments:

- Expanded the scope of mathematics and led to the creation of new fields and subfields.
- Challenged fundamental assumptions about mathematics and led to the development of new theories.
- Produced a new generation of brilliant mathematicians who made significant contributions to the field.

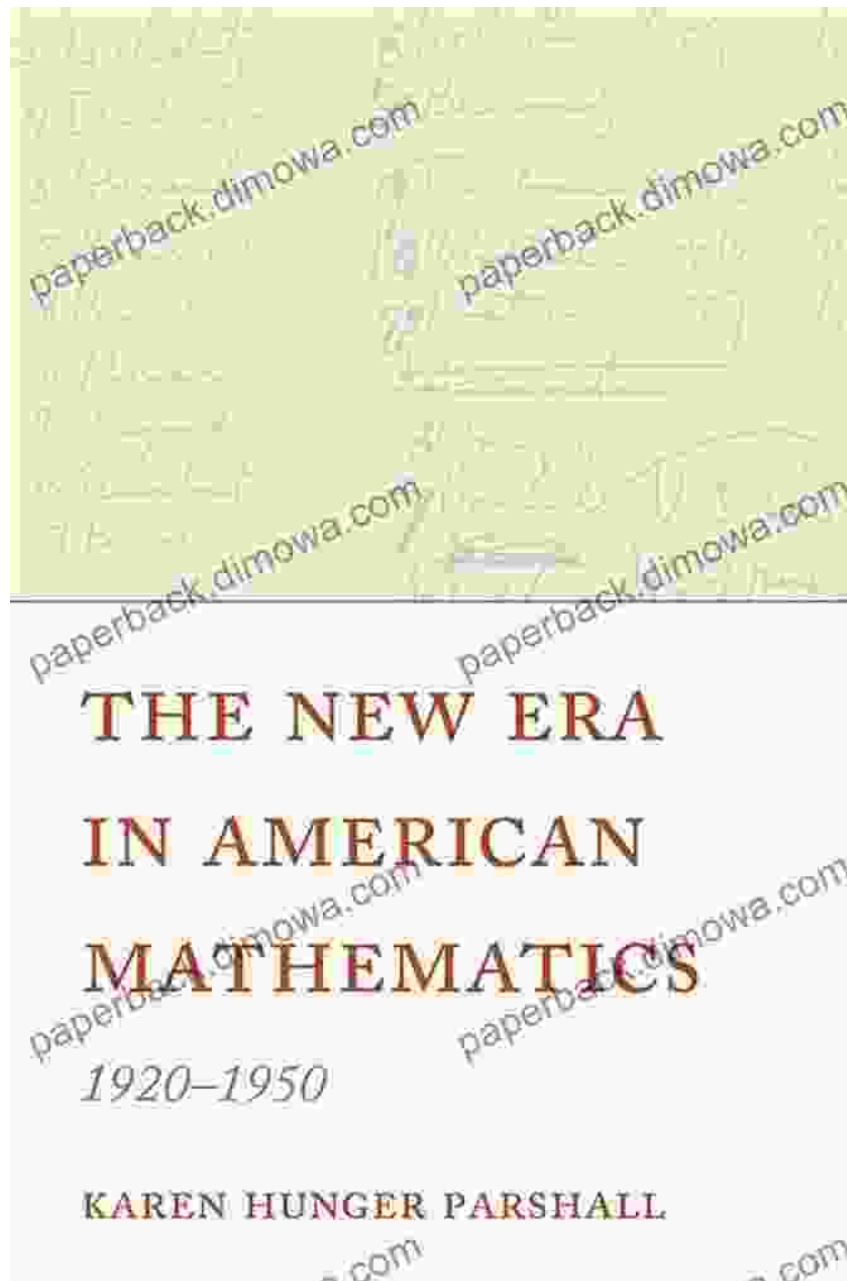
- Had a lasting impact on the trajectory of mathematics and continue to shape its development today.

The period from 1920 to 1950 was a transformative episode in the history of American mathematics. This era saw the emergence of new fields, the development of groundbreaking theories, and the rise of a new generation of brilliant mathematicians. These developments had a lasting impact on the field of mathematics and continue to shape its trajectory today.

### **Call to Action**

If you are interested in learning more about this fascinating period in the history of mathematics, I encourage you to read the book "The New Era in American Mathematics, 1920-1950" by David E. Rowe. This book provides a comprehensive overview of the developments of this period and offers insights into the lives and work of the mathematicians who shaped it.

Click here to Free Download your copy of the book today!



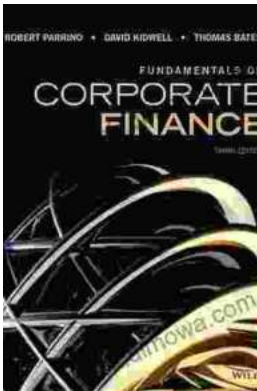
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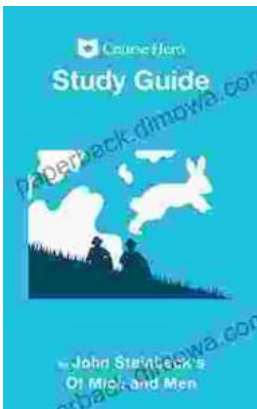
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