## Slide Rule and Logarithmic Tables

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1 History of Slide Rules and Logarithmic Tables

#### 2 Applications of Slide Rules and Logarithmic Tables



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# Slide Rule and Logarithm Tables History



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#### Scientific Development

The late sixteenth century saw unprecedented development in many scientific fields; astronomy, long-distance navigation, and efforts to measure and represent the earth.

These investigations required much from mathematics.



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#### Computation Demands of the Late Sixteen Century

Reducing the calculation load that resulted from dealing with such large numbers, and with it, the errors that unsurprisingly came into the results, became a prime objective for mathematicians. As a result, much energy and scholarly effort were directed towards the art of computation



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## John Napier

The Scottish mathematician John Napier was famous for his devices to assist with computation. He invented ingenious numbering rods known as Napier's bones, that offered mechanical means for facilitating computation. Napier first published his work on logarithms in 1614 under the title A Description of the Wonderful Table of Logarithms.



Figure: John Napier, 1515-1670 http://www.britannica.com/EBchecked/ Napier

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#### Slide Rule Invention

The invention of the slide rule was made possible by John Napier's invention of logarithms, and Edmund Gunter's invention of logarithmic scales, which slide rules are based upon.



Figure: Gunter's Trigonometry

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## William Oughtred

- William Oughtred is the inventor of the slide rule in 1622 and made the first one by inscribing logarithms on wood or ivory.
- Before the invention of the hand calculator, the slide rule was a popular tool for calculations.



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The use of slide rules continued until about 1974, after which electronic calculators became more popular



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#### First Slide Rules

#### The rectangular (1620)

#### The circular (1632)





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## Later Developments of Slide Rules

Several inventors improved upon William Oughtred slide rule.

- 1677 Henry Coggeshall invented a 2 foot folding slide rule for lumber measure, called the Coggeshall slide rule.
- 1815 Peter Mark Roget invented the log log slide rule, which included a scale displaying the logarithm of the logarithm.
- 1859 French artillery lieutenant Amde Mannheim invented an improved slide rule.
- 1891 Edwin Thacher introduced a cylindrical slide rule in the United States.

• The duplex rule was invented by William Cox in 1891.

- The slide rule works by simplifying multiplications and divisions into logarithmic scale additions or subtractions.
- Slide rules basically print fit scales into a ruler-type setup and by just sliding a cursor against another scale, long operations can be done quickly



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Before the invention of calculators, the only alternative to slide rules was to use tables of logarithms.

These were published to varying degrees of accuracy.

Prior to the advent of computers and calculators, using logarithms meant using such tables, which were mostly created manually.

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## Four figure Logarithmic Tables

The four figure logarithms table was the most common form of logarithms and until the 1970s was familiar to most school children.

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