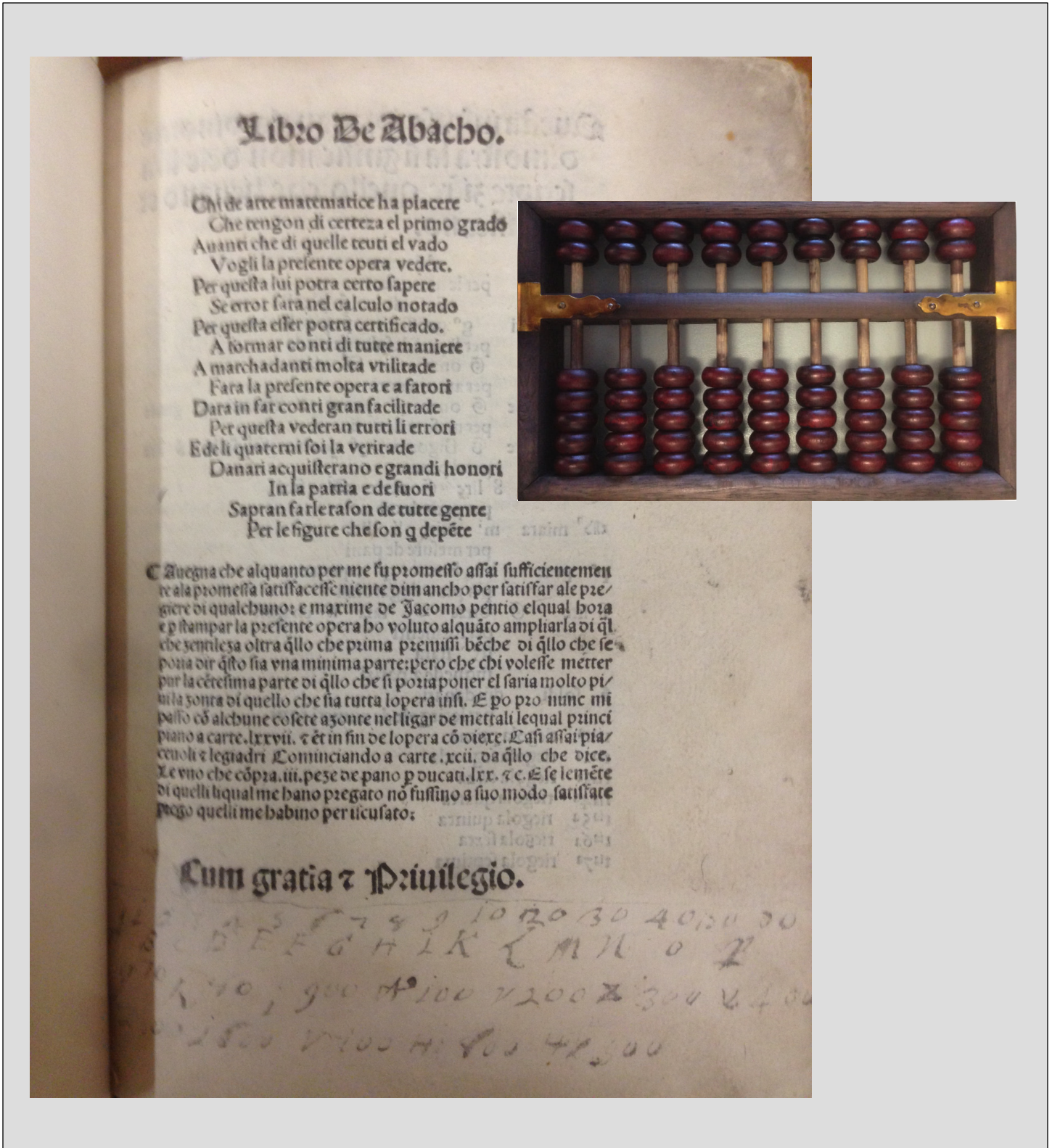


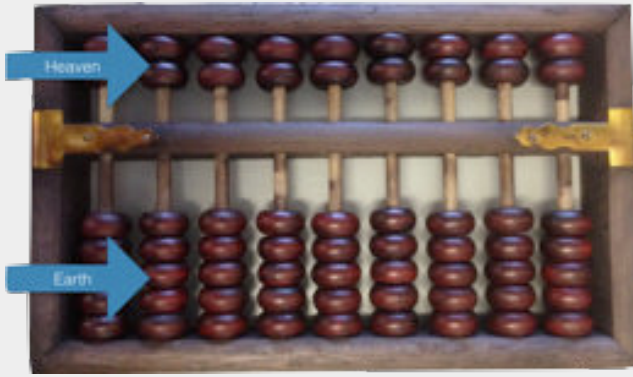
The Abacus

Introduction



Pietro Borgi, *Libro de Abacho* (Venice, 1517)

Add 628 + 271

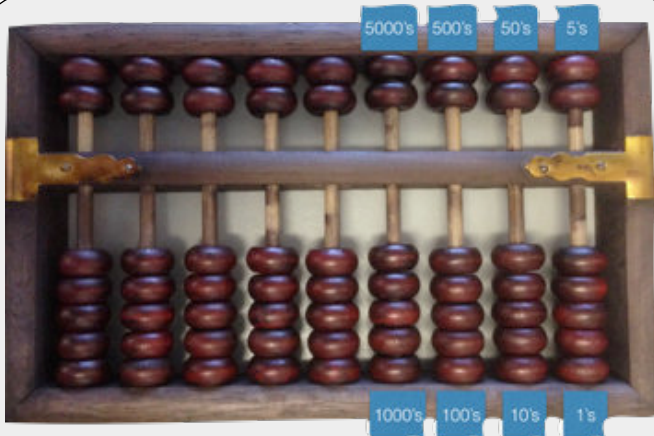


1. Orient the abacus horizontally.

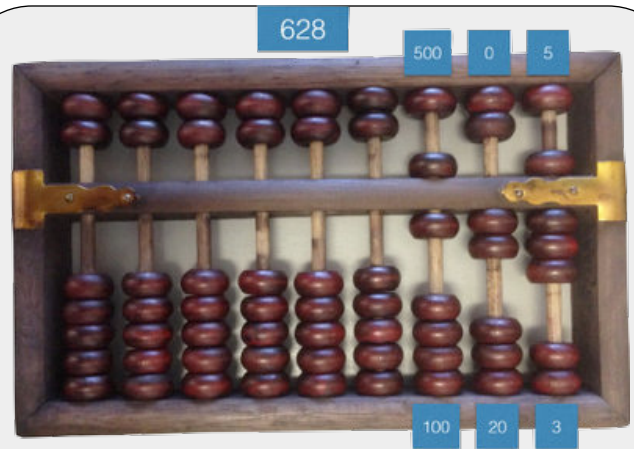
Place the area with 2 rows of “heaven” beads at the top. 5 rows of “earth” beads lie below.

2. Hold the abacus level so that the beads do not slide unless you move them. Move heavenly beads with your index finger and earthly beads with your thumb.

3. “Clear” the abacus by moving beads away from the center: slide heavenly beads to the top, earthly beads to the bottom.



4. Columns indicate place value from right to left: The right-most column of earthly beads represents **1's**; the next column to the left represents **10's**; the next **100's**, and so on. Heavenly beads count as the sum total of all **5** beads in the corresponding earthly column: 1 heavenly bead in the right-most column equals **5** beads in the earthly area; 1 heavenly bead in the next column to the left equals **50**, or 5 earthly beads in the same column, and so on.



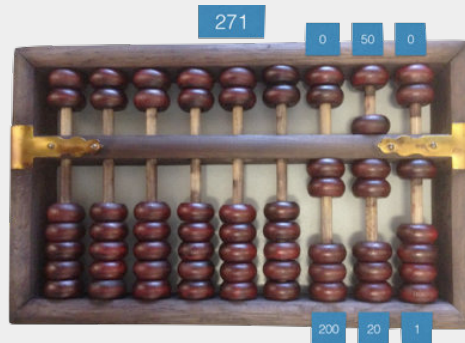
5. Slide beads into position to enter the number 628:

$(1 \times 5) + (3 \times 1) = 8$, right-most column

$(0 \times 50) + (2 \times 10) = 20$, second column

$(1 \times 500) + (1 \times 100) = 600$, third column

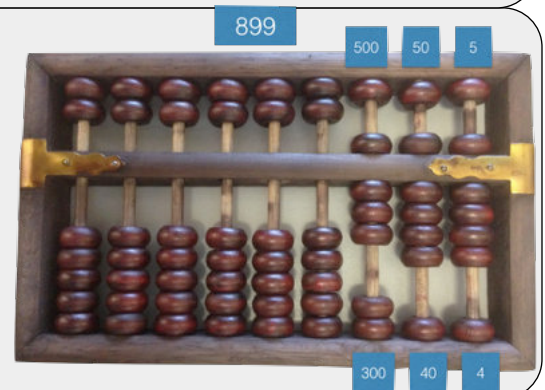
Therefore: **(8) + (20) + (600) = 628**



6. Slide beads into position to add 271

$(1) + (70) + (200) = 271$

7. To add, repeat steps 5-6 without clearing step 5:
 $628 + 271 = 899$

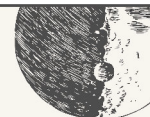


Kerry Magruder and Brent Purkapple



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