



LUDYSSEA



MATHEMATICAL JOURNEY THROUGH ANCIENT GAMES

"Consider the seed of your generation:
you were not made to live like brutes,
but to play games and make them science! "

Isn't that what Dante's Ulysses used to say in order to spur his fellow travelers (and players)? In his wandering back and forth the Mediterranean horizons, Ludysseus was trying to trace the deep roots of the peoples through their games and the mathematics hidden therein. He analysed the game strategies, seeking and studying mathematically the game errors.

Ludyssey is a journey that takes you from the geometry of the Archimedean Ostomachion (square split into 14 different shapes) to the probability hidden in the variants of Backgammon (Ludus Duodecim Scriptorum for the Romans, Tavli for Greeks and Turks). From the periodic configurations of Mancaley (Syrian game of sowing) to the binomial law of Moroccan Sig, and finally to the arithmetic taught in medieval Italy and France through Rithmomachia, the "Battle of Numbers" (a kind of chess with sums and products).

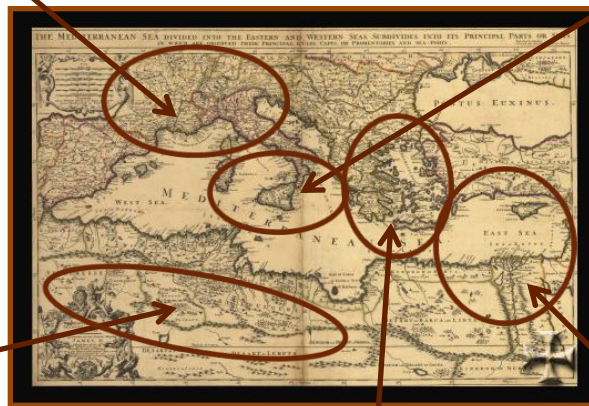
"And turning our stern toward morning,
we made wings of oars for our mad flight,
still playing chess and hide-and-seek"



Rithmomachia



Ostomachion



Sig



Mancala



Backgammon

By Cesco Reale (Festival of Mathematical Games). In collaboration with MateFitness (CNR-PSC) and with CEMEA Veneto. Under the patronage of the Swiss Museum of Games and with the financial support of Festival della Scienza.



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WORKSHOP AND EXHIBITION

The animators illustrate the different games of Ludyssey and let people play, explaining the historical-cultural context where they are (or were) played and the general rules. Afterwards the public is invited to analyse some game situations that have links to mathematics: they will be asked to find the error in some movements or game configurations, and then to study the mathematical part that allows to correct the error. The activity is thought for schools and festivals, but also for a more demanding public, as it can be adapted to different levels. Moreover Ludyssey is also an exhibition, with panels to read and games to admire.

Past events:

- [Festival della Scienza 2010, Genova](#)
- [InfinitaMente 2011, Verona](#)



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GAMES

- **Ostomachion.** Pick's theorem, which is the area of the following figures? Try to reproduce them with the game pieces. In how many ways can you rebuild the square? Computer animations of the possible square reconstructions and their graph.
- **Mancala.** The remainder of the division. Which moves allow me to threaten a capture? Walking groups and periodic configurations. Ethno-mathematics: comparison between the analyses of mathematicians and local experts.
- **Sig:** binary dice and binomial law. Video of Saharawi women playing in the desert.
- **Rithmomachia:** presentation of Boethius' Arithmetica. Arithmetics, geometry and music in Pythagorean philosophy. Arithmetic, geometric and harmonic sequences.
- **Backgammon:** comparison with the Ludus Duodecim scriptorum (ancient Roman game) and the modern versions in Greece; in this situation what is the best move to minimize the probability that the piece will be captured?

MATERIALS. The exhibition consists of 10 panels (A1-size 84 x 60) and 20 wooden games used by the public during the workshops. Necessary space: 50-100 m².



Rithmomachia



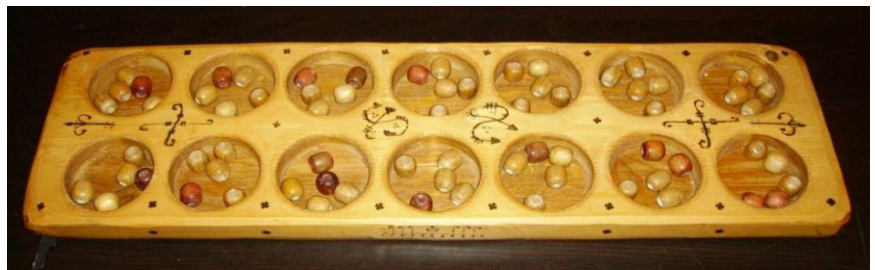
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