La Tour d'Hanoï: from 2 to 3 . . .*

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Abstract. It can be said that much of *combinatorics* has its origin in puzzles, often called "recreational". One of the most traditional ones is the *Chinese Rings* puzzle, or *Baguenaudier*, which turns out to be a neat representation of the binary number system. Its solution can be based on a *path graph* and leads to nice examples of *integer sequences* defined by *recurrence* like the Lichtenberg sequence $(\ell_n)_{n\in\mathbb{N}_0}$ and the Gros sequence $(g_n)_{n\in\mathbb{N}}$. C_6 years ago (C_n are the Catalan numbers) and just ℓ_9 metres away form the site of the summer school, number theorist Édouard Lucas transformed the binary theory of Louis Gros into the ternary theory of the puzzle he called *the Tower of Hanoi*. It is a microcosm of mathematics, giving rise to instructive examples of *algorithms*, recursive, iterative or parallel, and *automata* which in turn engender *square-free* and *automatic* sequences.