Sudoku's French ancestors

Paris and Enghien-les-Bains, France, May 24, 2006 – Up until now the sudoku was considered a recent game. Here is a forgotten fact, revealed by Christian Boyer in the June 2006 issue of *Pour La Science*: in the 1890's, one century before the sudoku, the French used to complete sudoku-like grids which were published in major daily newspapers.

► History as we've known it until now

Since 2005, sudoku grids have enjoyed worldwide success. They are a fascinating game, and once one gets started on a grid, it is very difficult to put it down before solving it…

The story of the sudoku has often been told. The first sudokus were published in 1979 by the American Howard Garns. They then appeared in Japanese magazines in the 80's and 90's, where they took their current name. Their international success really started thanks to New-Zealander Wayne Gould, who published them in *The Times* of London starting in November 2004. The *Daily Mail*, the *Daily Telegraph*, and many other dailies and magazines all around the world followed suite. An incredible success!

Long before this, Swiss mathematician Leonhard Euler had invented Latin squares in his study published in 1782 and written in French : « Recherche sur une nouvelle espèce de quarrés magiques » (Research on a new species of magic squares). Even though sudokus are based on Latin squares, Euler hadn't thought of the sudoku 3x3 sub-squares, and also hadn't emphasized the playful aspect of his invention of not letting readers guess missing numbers.

Figure 1. *This very simple 9x9 Latin square published by Euler in 1782 is not made up of sudokus 3x3 sub-squares. An nxn Latin square is a square that features all the whole numbers found between 1 and n in each line and each column.*

► History revealed in *Pour La Science*

Did nothing happen between 1782 and 1979? The *Pour La Science* article reveals that at the end of the 19th century, French dailies and magazines published a variety of games that featured all the ingredients of a sudoku:

- 9x9 grids with 3x3 sub-squares
- blanks to fill in with numbers
- and even for some, the single use of numbers from 1 to 9 in each line, column, or even sub-square

Figure 2. *One of the numerous 9x9 with 3x3 sub-squares problem published in the late 1800s.
This one was published in Le Siècle in 1892.*

These characteristics appeared gradually, in problems published in dailies like *Le Siècle*, *La France*, *Gil Blas*, *l'Echo de Paris*, or in magazines like *Les Tablettes du Chercheur*, *La Revue des Jeux*.

The most sudoku-like grid that Christian Boyer found is one by B. Meyniel, published in the daily *La France*, dated July 6, 1895. It is shown here in figure 3, with the sub-squares borders added. At the time, this 3x3 sub-squares structure was directly highlighted in numerous other problems, like the one in figure 2, published in 1892.

Figure 3. Grid published by B. Meyniel in 1895. Can you solve it?
Both diagonals must also include all the numbers between 1 and 9.
If you solve it like a sudoku, this problem has 2 solutions.
But there is only one way to solve it if you follow with the author's rules:
all the broken diagonals (like the one on a blue background) must total 45.

In the June issue of *Pour La Science*, you will find other French problems from the past, forgotten for over a century - ancestors of the sudoku. And their solutions!

Pour La Science is the French edition of *Scientific American*.

In 2003, Christian Boyer and Walter Trump, were the first to solve the old problem of the smallest perfect magic cube. This problem, popularized by Martin Gardner in *Scientific American* in 1976, had initially been studied by Pierre de Fermat as early as 1640.