Sequential Movement Puzzles

Sequential movement puzzles include a broad range of puzzle types—from river crossing puzzles that were described in the eighth century by the English scholar Alcuin (Figure 46—The Farmer river crossing puzzle) to Rubik’s Cube and its descendants. Sequential movement puzzles involve moving parts of the puzzle to a goal following the rules.

Peg Solitaire, the first sequential movement puzzle to obtain widespread popularity, was shown in two French engravings late in the seventeenth century. (Figure 47—Solitaire with thirty-three marbles) Counter moving puzzles, sliding block puzzles, the Tower of Hanoi disk moving puzzle (Figure 48—The Tower of Hanoi Puzzle), and handheld maze puzzles all became popular between 1870 and 1890.

The earliest sliding block puzzle known is the Puzzle of Fifteen (Figure 49—The Fifteen Puzzle), which consisted of fifteen square blocks in a 4 by 4 square box. Early in 1880, the Fifteen Sliding Block Puzzle achieved "phenomenal popularity" in America and in Europe. By 6 March 1880, The Daily Inter Ocean stated, "it is well known to nearly everyone by this time."

A diabolical version, called the “14-15” or Boss Puzzle (Figure 50 - The Boss Puzzle), had all the pieces in numerical order except the 14 and 15 pieces which were in the reverse order. The puzzle, to put all the pieces in their correct order, was impossible to solve!

The Fifteen and Boss puzzles became a craze in the United States and Europe. Although Sam Loyd, America’s Greatest puzzle inventor, claimed that he invented the Boss puzzle and offered a prize of $1000 dollars for the solution, no evidence to support his claim has been found.

It was almost one hundred years later that Rubik’s Cube became a similar rage worldwide. (Figure 51—Original Hungarian Rubik’s Cube) The two puzzles are closely related. The Fifteen Puzzle is a two-dimensional puzzle with one empty space. Rubik’s cube is more elegant and very difficult, but a three-dimensional puzzle with no empty spaces. These two puzzles have been among the best-selling mechanical puzzles of all time. Over 100 million copies of the Rubik’s Cube puzzle were sold to make it the biggest puzzle craze, so far! And both puzzles were quickly followed by spin-offs that were stimulated by the success of the originals. New puzzles of both types still appear on the market.

Dexterity Puzzles

Dexterity puzzles include throw and catch puzzles, mazes using balls and rolling ball puzzles. Often logic, however, is the key to the solution. The solver may need to figure out a technique or logical method to solve the puzzle. For example there are ingenious puzzles that appear to require dexterity, but actually you must give them a spin—centrifugal force solves the puzzle.

Early throw and catch dexterity puzzles have been found in Alaska, pre-Colombian South America, ancient Greece, Italy, China, and the Middle East. These types of dexterity puzzles often required skill related to survival and may have been used to teach eye-hand coordination and other hunting skills to children. In the pre-Columbian Americas, one of the most popular dexterity puzzles was Pommawonga (Spear the Fish). (Figure 52—Pommawonga pin and washer puzzle) Its variations were endless. Its name changed as the toy was altered and its construction was modified depending on the natural materials on hand. American Indians had many versions of the toss-and-catch dexterity puzzle and Eskimos in Alaska made a skill puzzle called Gazinta, which consisted of a spike and washers.

A related toss and catch puzzle, Cup and Ball, became a rage in sixteenth-century France, even obsessing King Henry III. (Figure 53—IVory Cup and Ball) The Flip-Ball played in ancient China is believed to be the forerunner of the Cup-and Ball. However, other reports trace the puzzle back to ancient Greece and Italy.

Handmade wooden rolling ball dexterity puzzles were made in England by 1840, according to Edward Pinto’s book, _Teens and other Wooden Bygones_. However, it wasn’t until February 1889, when Pigs in Clover was first produced by Charles Crandall, that the public went wild over a rolling ball puzzle. (Figure 54—Pigs in Clover) The craze rivaled that of Rubik’s Cube. On 14 March 1889, the New York Tribune reported that when New York Senator Everts brought the puzz...
However, it was quickly and blatantly copied with names such as: "The New York Craze Pigs in Clover" and "The Wonderful Pig Puzzle." Shortly later, variations such as Horses in Oats, Chickens in the Door Yard, and Puss in the Corner were being sold. Although the fad didn't last long, it stimulated many new dexterity puzzles. They included graphics depicting all sorts of people—from kings to American Indians—animals, and events and they were being made in large numbers in England, France, and Germany. (Figure 55 — Teddy Roosevelt dexterity Puzzle) In the next few years patents were granted for fluid filled and magnetic dexterity puzzles.

The first chapter of Professor Hoffmann's 1893 book, Puzzles Old and New, included twenty-five dexterity puzzles, almost all are the rolling ball type. An exception was the French "The Hang Him Puzzle" that uses blown air to hang a cork ball on a hook. (Figure 56 — Le Pendu Puzzle)

The firm of R. Journet and Company of London designed and produced well over one hundred different glass-top dexterity puzzles beginning in 1891 and continuing until the 1970s. During WW1 a dexterity puzzle made by Journet was sent to British prisoners of war in German POW camps. (Figure 57 — The Niagara Puzzle) What the German's didn't know was that Journet had hidden inside the puzzle, a hacksaw blade, a compass and a map to help the British prisoners escape and return to Allied controlled territory.

Jerry Slocum
Figure 52 – Pomma-wonga pin and washer puzzle, ca. 1990

Figure 53 – Ivory Cup and Ball, ca. 1850.

Figure 54 – Pigs in Clover, 1889.

Figure 55 – Teddy Roosevelt dexterity Puzzle, ca. 1900

Figure 56 – Le Penda Puzzle, 1891-1903

Figure 57 – The Niagara Puzzle, ca. 1914