▲ Oskar van Deventer has designed more than 350 mechanical puzzles, many of which can be seen in his display case.

The Puzzling World of Oskar van Deventer

Photos by John Rausch, Tom Cutrofello, Oskar van Deventer, George Miller, and Kadon Enterprises

By Tom Cutrofello

Dr. Oskar van Deventer has been described as the most creative man in the world. He holds a Ph.D. in electrical engineering with a specialty in fiber-optical communication and works for a national research institute in the Netherlands. But that's only his day job. In the last 20 years, Oskar van Deventer has become one of the world's most prolific inventors of mechanical puzzles. A Dutch native, Oskar has somehow found the time to design more than 350 puzzles. Oskar's inventions have been produced in wood, metal, plastic, and even Velcro. Many of his puzzles could be classified as works of art. Most importantly, Oskar's puzzles are fun and challenging.

It all started in 1978, when, at age 12, Oskar bought the book *Creative*

▼ Seeing the Cooksey Cylinder Maze inspired van Deventer to shift his focus from interlocking puzzles to mechanical mazes.

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Here is a small sampling of Oskar's work:

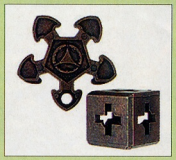
THE MAZES

Oskar's Cube The open cube has three intersecting rods inside. Navigate your way through three different mazes simultaneously. Be prepared to go backward on one maze in order to go forward on an adjacent maze.

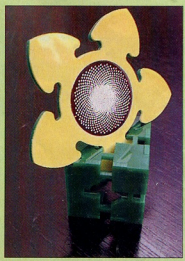
Pathfinder Named after the Mars mission of 1996-97. Roll the silver-balled rover around the field and back onto its landing site (lower right corner). The rover cannot roll on the orange craters. Comes with a set of challenging configurations.

Velcro Cubes Two cubes with Velcro all around. Each cube has two protruding triangles and two triangular indentations. One cube has red and green protruding triangles and blue and yellow indentations. The other cube has the opposite configuration. Roll the cubes around each other to interlock first the red triangle, then the blue, etc. More difficult than it sounds.

Bronco Free the bucking bronco at the gate. Raise the forelegs, pivot on the back, and swing the front into another hole. Then raise the back legs while pivoting on the front. Each hole has two triangular points that restrict the pivoting action.



Sunflower (also called O'Gear) This sunflower has five petals with one petal stuck inside. Roll the sunflower around the cube—as one petal exits the cube, another petal enters the cube on a different face. Find the correct match of petal/face to remove the sunflower.



Oskar's Key Simply remove the ring, then put it back on. Very tricky. So popular, the Key was licensed by four companies. The four identical versions are made in cast metal, laser-cut acrylic, laser-cut wood, and injection-molded plastic.

Puzzles of the World by Jack Botermans and Pieter van Delft. "The reason I bought the book was my interest in mazes. I used to create my own mazes. Then I started to make the mechanical puzzles from the book. I was hooked and started designing my own puzzles."

For the next five years, Oskar directed his energy toward creating interlocking puzzles. In 1983, Oskar visited James Dalgety, founder of The Puzzle Museum in Honiton, England, where he saw the rare Cooksey Cylinder Maze. From then on, Oskar shifted his focus to designing mechanical maze puzzles.

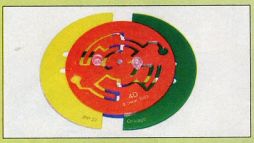
To understand the foundation of Oskar's genius, it's essential to know some important aspects of mazes that are typically displayed on paper:
1. Getting from start to finish requires a zigzag path. 2. Some mazes have backward steps. 3. Most mazes have dead ends. 4. Some mazes have loops—which means it's possible to get stuck somewhere in the

Metro Get the blue and red rocketships back to their launch pads. The intersecting paths have switches to change direction. It doesn't count if your rocket gets back to the launch pad upside down! Comes with 40 challenging positions.

Oskar's Disks Two circular mazes that fit together. Possibly Oskar's easiest puzzle.

Disks Completely different from Oskar's Disks, but equally interesting. Seeing the solution in advance is absolutely impossible.

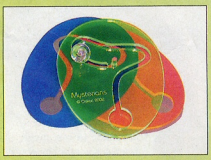
Light the Stove An electronic maze puzzle. Light the stove in the middle by pushing the three buttons in the correct eight-move sequence. Also known as The Puzzle That Hurts because if you push the wrong button, the button will spark!



4-D Two rods intersect a red maze on the front and a blue maze on the back. The rods are attached to the green and yellow semicircles. Sixty moves will get you from start to finish. Here are the first three steps:

1. Separate the green and yellow parts half an inch. Rotate the blue disk counterclockwise.
2. Pull the green disk out and rotate the blue disk clockwise.
3. Push the yellow disk in and rotate the red disk counterclockwise. You get the idea. Simply a masterpiece.

L'œuf (The Egg) A silver maze and a gold maze are connected to each other via two metal rods. Get the silver rod off the gold maze while getting the gold rod off the silver maze. Extremely difficult.



Mysterians Very similar to The Egg, but even harder, since now you have three mazes to solve simultaneously.

Oskar's Key Ring Separate the identical silver and gold pieces by sliding the grooves through the grooves. At the halfway mark, you'll swear it's impossible. Keep trying.

Big Wheel The object is to roll the wheel off the track. The wheel has 11 differently shaped cogs that may or may not pass through the holes of the track. In some cases, the wheel can swivel on its axis—the result being a new alignment of cogs to holes.

middle of a continuous path and not find the exit or entrance. 5. It's generally easier to solve a maze by starting at the end. 6. Most people view mazes as speed challenges.

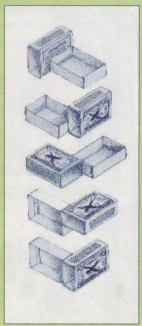
Oskar's mechanical mazes fall into another category. Consider Oskar's Key (pictured on page 5). The object is to get the ring off the bolt-key. You may see the general direction of the path, but it's almost impossible to see the dead ends and the backward steps. Looking at the end of the maze is of no help. The only real way to solve it is by going very slowly and using trial and error. James Dalgety observes, "Oskar has produced mazes in so many novel disguises that it is hard to understand how he conceives of them, let alone actually designs them to be workable. Oskar is very much a puzzlers' puzzle designer."

Where does all the inspiration come from? "A variety of sources," says Oskar. "Looking at office supplies led to my puzzle Paperclips. I once had a colleague whose hobby was electronics, so I created some electronic puzzles." Other puzzlers have also played a role. Oskar is a member of the Dutch Cube Club and also attends the annual International Puzzle Party (IPP). The IPP meetings have led to collaborations with other puzzle designers from around the world. Tom Lensch, a woodworker from Ohio, met Oskar at one of the IPPs and now produces many of Oskar's puzzles. Because of their

INTERLOCKING PUZZLES

The Wanderer Very sophisticated wooden invention. Remove the wedge from the cube. Made by Tom Lensch.

Matchboxes Oskar invented this puzzle at age 17. Each box is glued to a lid in a different way. Close all five boxes/lids with careful alignment. Two possible solutions. Get five matchboxes in the ratio 1:2:3, and you can make it yourself. See diagram at right. Made by Tom Lensch.



Paperclips Separate into three parts very carefully. You may never interlock them again. Made by Tom Lensch.

Little Paperclips Similar to Paperclips, but much easier. Made by Tom Lensch.

Buffalo Nickel Co-designed with George Miller. The giant metal nickel comes apart and out comes a small wooden nickel!

exquisite craftsmanship, these puzzles are highly coveted by serious puzzle collectors.

THE SANTA CLAUS MACHINE

In 2003 Oskar and Californian George Miller, an old friend and fellow puzzle designer, visited the Chicago Museum of Science. There they saw a 3D printer creating a physical object using plastic. George decided to buy one on the spot. The printer acts like a high-powered glue gun. First, a design is made using a CAD (computer-assisted design) program. The 3D printer then does its magic. Instead of using ink, it uses a liquid mixture of plastic and glue that hardens quickly. In a very gradual process, the liquid is emitted layer by layer to build the structure. George named his printer "The Santa Claus Machine" because "you start the job at night, and the next morning, your puzzle is finished." George is a huge fan of Oskar's and describes using his printer for one of Oskar's brand-new puzzles: "The result is a masterpiece of intellectual creativity. I hold in my hands a still-warm puzzle that no one in the world has ever seen or solved. I am in a state of divine rapture."

Oskar typically e-mails puzzle designs to George that could not easily be made in any other way. The Waves Puzzle is a perfect example. It's a cube that has been trisected into three identical pieces. The pieces are flat at each end and completely wavy in the middle (see photos below). The pieces were recently used to cast molds and the Waves is now being mass-produced.

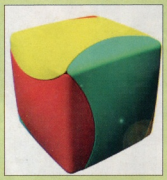
Oskar has flooded George with designs, some of which have resulted in a series of puzzles called Oskar's Exotics. The Exotics puzzles are made in very limited quantities (exactly 100 copies of each). Many of the Exotics puzzles are shaped in odd ways that make them non-castable, meaning that mass production is impossible. These puzzles are expensive and time-consuming to make, and typically sell for between $175 and $800 apiece.

FUTURE PUZZLES

What will Oskar do for an encore? "The newest material technologies are almost limitless in possibilities. There are 3D printer technologies for metal, nylon, gypsum, and many more. Each of these technologies offers new possibilities. Colleagues of mine are working on a hybrid metal/plastic technology, which I must explore. I am also having a lot of fun designing puzzles with gears." We can't wait.

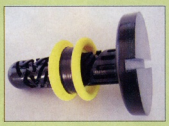
OSKAR'S EXOTICS

Waves Imagine a cube that's been trisected into three identical wavy pieces. Take it apart, then restore. Not particularly difficult, but so interesting you'll do it over and over and then try it out on your friends.



French Fries Burr puzzles typically comprise six interlocking wooden rods. The French Fries puzzle adds a tasty twist to the genre. Hold the ketchup.

Moby Maze It's a maze on a Möbius strip. Push the ring around to get to the "other side" and out the exit. So cool you might even ignore the $250 price. Made from the 3D printer, it is non-castable.



8 Inch Bolt The inside of the ring has a bolt that winds its way through the grooves of the bolt. The object is to navigate the ring through the maze of grooves and remove it.

OSKAR ONLINE

Oskar has created numerous online puzzles. Visit these sites to play:

http://www.puzzlebeast.com/
http://www.puzzles.com/PuzzleClub/WindmillPuzzle/WindmillPuzzle.htm
http://www.clickmazes.com/index.htm
http://www.logicmazes.com/rb/column.html

You can buy some of Oskar's puzzles at these sites:
http://www.castpuzzle.net/
http://www.gemanigames.co.uk/
www.puzzlepalace.com
www.kadon.com
www.bitsandpieces.com
www.thinkfun.com
www.griffioen.nl
www.recenttoys.com
http://www.hanayamatoys.co.jp/castpuzzle/index.html
http://web.tiscali.it/repuzzle/

For more information about the Dutch Cube Club:
www.cff.hpage.net
For more information about the International Puzzle Party:
www.johnrausch.com/puzzleworld
For more information about the Puzzle Museum:
www.puzzlemuseum.com

"Planets" contains four identical balls inside a frame. When a planet is nestled against craters on at least two other planets, it can rotate. The object is to make each face of the puzzle a solid color.