

**BOOK**

*The Tetris Effect: The Game That Hypnotized the World*

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**SYNOPSIS [From the publisher]**

In this fast-paced business story, reporter Dan Ackerman reveals how Tetris became one of the world's first viral hits, passed from player to player, eventually breaking through the Iron Curtain into the West. British, American, and Japanese moguls waged a bitter fight over the rights, sending their fixers racing around the globe to secure backroom deals, while a secretive Soviet organization named ELORG chased down the game's growing global profits.

*The Tetris Effect* is an homage to both creator and creation, and a must-read for anyone who's ever played the game-which is to say everyone.

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“Henk Rogers flew on February 21, 1989. He was one of three competing Westerners descending on Moscow nearly simultaneously. Each was chasing the same prize, an important government-controlled technology that was having a profound impact on people around the world . . . That technology was perhaps the greatest cultural export in the history of the USSR, and it was called Tetris . . . Tetris was the most important technology to come out of that country since Sputnik.”

“Tetris was different. It didn’t rely on low-fi imitations of cartoon characters. In fact, its curious animations didn’t imitate anything at all. The game was purely abstract, geometry in real time. It wasn’t just a game, it was an uncrackable code puzzle that appealed equally to moms and mathematicians.”

“Tetris was the first video game played in space, by cosmonaut Aleksandr A. Serebrov in 1993.”

“Anyone familiar with Tetris can see an instantly familiar design in pentominoes. Whereas Tetris shapes, properly referred to as tetrominoes, are composed of four square cells arranged in different formations, pentominoes are made of five squares (the more familiar dominoes, of course, have two). That extra segment allows for much more complex shapes, and pentomino designs were used both academically in math classes to explain polyominoes and geometry and as deceptively simple-looking puzzles.”

“Early versions of Tetris included a ‘boss button’ to hide the game at work in case the boss walked by while you were playing.”

“A company called US Foods sells Tetris-shaped tater tots, named ‘Puzzle Potatoes.’”

“The original black-and-white version of Tetris is part of the permanent collection at the Museum of Modern Art.”

“What if you didn’t need the entire computer screen? Just because the monitor was square didn’t mean everything displayed on it needed to be. This small innovation changed the feel of the game. Just as he originally trimmed the shapes from five segments to four, Alexey shrunk the playing area from nearly the entire screen to a narrow channel that started at the top and ran to the bottom in order to focus on making fast, accurate choices . . . His brilliant solution would become the one single element of Tetris that has remained constant throughout hundreds of sequels, variations, and knockoffs in the more than thirty years since. When a horizontal row is filled with tetromino segments, leaving no gaps from left to right, that row simply vanishes in a puff of virtual smoke, opening the downward path for the next set of pieces to fill.”

“This new invention called the tetromino was at the game’s heart, and the constant back-and-forth battle between the falling blocks and the player reminded Alexey of tennis, so he called the game Tetris. In Russian, Tetris is Тетрис, and tennis is теннис, making this a conjunction that works across multiple languages (it helps that the name lacks a true Russian origin – the prefix tetra is Greek in origin, and tennis arguably comes from thirteenth-century Old French).”

“At first there was no score, although the idea that clearing a row of segments by forming a complete horizontal line stood out as an obvious way to count points. There were no separate levels, much less a way to graduate from one level to another. In later years, the “level ninety-nine” problem, where the popular NES version game could go no further, would be one Tetris experts would struggle with, giving rise to a small but dedicated community of professional Tetris players trading new records for highest score and highest level reached.”

“Tetris could have succeeded missing one or two or more of these features. But lacking graphics, scoring, sound, a storyline, and characters, it was simply too abstract to appeal beyond the very narrow audience of fellow computer programmers to be found in the halls of the computing center.”

“Besides Gerasimov’s colorful blocks, Pavlovsky made a prime contribution by adding a behind-the-screens data table that recorded and presented high scores. This was an important competitive element that lured players into playing over and over again in hopes of beating a high score and recording their own for posterity.”

“Guinness World Records recognizes Tetris as being the “most-ported” game in history. It appears on more than sixty-five different platforms.”

“This is the mind’s re-creation of light and movement, fired off from synapses fueled by the two most important codebases of human consciousness, repetition and time. This is the Tetris Effect, a term used in both medical and popular literature to describe the result of repetitive, pattern-based activity that eventually begins to shape the thoughts and imagination of an individual. Before the Tetris era, we may have called it a kind of hypnagogic imagery, literally a waking dream.”

“It’s precisely because Tetris imprints itself as both procedural memory, which guides frequent repetition of action, and as spatial memory, which deals with our understanding of 2D and 3D shapes and how they interact, that the game is a singular trigger for the effect now named after it.”

“Despite its scientific bona fides, the name Tetris Effect has its origins not in an academic journal but instead in the pages of a publication that’s done more for the popular acceptance of science and technology in the past twenty years than any other: Wired magazine.”

“Many people have experienced a lost weekend, sometimes lost to drugs and alcohol, sometimes to simple meditative contemplation. In 1990, writer Jeffrey Goldsmith lost six weeks to Tetris, and in doing

so, he came to understand the powerful pharmatronic effect certain kinds of technology could have on people. It was a feeling so pronounced, he called it the Tetris Effect, a simple name that stuck and now has expanded to cover a wide variety of psychological phenomena.”

“I wondered if Tetris wasn’t really some sort of electronic drug, a pharmatronic,” he would later write, coining another term still used today, if not as widely as Tetris Effect.

“There’s a reason why many compelling online experiences, be they games or social media mentions, are often compared to drugs. That’s because, far from being a harmless diversion, there’s an identifiable addictive quality to some aspects of technology, which include gaming experiences. Perhaps that’s why we all know people who claim to be “addicted” to Facebook, or their phones, or other technology hardware and services.”

“Humans are always looking to rewire their thinking, whether by drugs, therapy, or meditation. Some are looking for a competitive edge, a sharper connection to consciousness, some for creative inspiration, and others for relief from the physical or mental aftereffects of trauma.”

“If the brain of a beginning Tetris player is a gas-guzzling SUV, with the Tetris learning effect, after a certain number of game hours (typically long, uninterrupted spells) the brain turns into an eco-friendly compact car, using its engine and form more efficiently to travel longer distances on a single tank of fuel. For those exposed to the game in extreme doses, the effect becomes more pronounced. The brain of a true Tetris master, when engaged in the game, is an electric car: driving the same roads at the same speed, but using even less energy to do so.”

“That’s the idea of brain plasticity at its most basic. As the brain engages in certain actions – simple, repeated, spatial tasks are the most obvious – the behavior moves from being conspicuously powered by conscious thought to largely automatic.”

“Tetris was a game that embraced the limitations of computer graphics hardware. If curves and rounded shapes were hard for computers to draw, this was a game that was built around straight lines and rectangles. If game characters looked like simplistic, jagged cartoons, Tetris skipped them, making the puzzle pieces the star. Unlike nearly every other computer game at the time, Tetris didn’t look like a rough draft of what a really cool future game could look like.”

“The familiar Tetris theme music in the most popular versions of the game is based on a nineteenth-century Russian folk tune called “Korobeiniki.”

“The one-hundredth issue of Electronic Gaming Monthly magazine ranked Tetris as the greatest game of all time.”

“Anyone who came of age in the early 1980s will remember magazine articles and paperback books promising to teach the secrets of almost any arcade game. The most popular being Pac-Man, perhaps Tetris’s only true rival as the most important video game of all time . . . Pac-Man is decisively a finite game, and there is a definitive end state beyond which a player cannot proceed. For anyone planning on giving this a shot, that highest possible score is 3,333,360 points, a number first discovered by Billy Mitchell, one of the more colorful members of a loose-knit community of professional and semiprofessional gamers who specialize in pushing vintage arcade machines to their mechanical limits.”

“Tetris, which never really existed in one single official form, is somewhat harder to evaluate. Pac-Man, Donkey Kong, Defender, and other vintage games have dozens of official and unofficial versions, but each also exists in a single primary fixed form, typically the original coin-operated arcade game that purists

consider the alpha version. But none of these have the same complicated history as Tetris, where each new version is essentially programmed from scratch.”

“Research papers touching on Tetris are refreshingly direct in their approach. With no alien cultures to analyze and no overt symbolism hiding inside an army of ravenous zombies, questions are focused on the basic interaction between the gameplay grid and tetrominoes.”

“Burgiel says, ‘Although mathematicians have spent many hours studying Tetris, surprisingly little is known about the mathematical properties of the game.’ And, in truth, that study is difficult, because the possible variations in game and player behavior are nearly infinite.”

“In this scenario, some tetrominoes are more friendly to you than others. Long, straight pieces can swap between horizontal and vertical orientations easily, but the troublesome Z piece, known by its zig-zag shape and for the fact that it’s rarely helpful to the player, exists in two distinct flavors, the right-hand Z and the left-hand Z. No matter how often you flip the piece around, a right-hand Z will never become a left-hand one.”

“The problem comes from those pesky Z-shaped tetrominoes, which wage their own kind of World War Z against the player. In fact, if the game decides to really play hardball and only send Z-shaped pieces down the line, you’ll lose after 120 pieces, no matter how perfectly you play. If you consider that, statistically, two out of every seven pieces are the dreaded right- and left-hand Z shapes, enough will eventually appear to end the game, no matter how many lines you clear in the meantime. Burgiel calculates that by the time you reach 69,600 tetrominoes, enough Z shapes will have appeared to reach the top of the game grid.”

“We humans have weapons in our arsenal. One advantage that most academic analyses of Tetris ignore is the “lookahead” piece. Not a part of the original Tetris spec but a staple of nearly every classic version of the game, the lookahead appears in a small window to the right of the 10 by 20 game grid. Like a window into the future, riding on a tachyon beam five seconds hence, the lookahead tells us what the next piece to be dropped on the board will be.”

“One issue that has bedeviled Tetris scholars for years is the last-minute rotation to cleanly slide a tetromino, usually an L, Z, or long bar, into a slot where it could not have naturally fallen, assuming the world of the game follows the same general rules of physics and gravity as the real world.”

“Some of these last-minute rotations around overhangs should be impossible to pull off without the falling tetromino bumping into the existing rows of pieces. But some versions of the game allow these moves. Tetris scholars are divided on the legitimacy of these moves, but generally speaking, if the version of the game you’re playing allows it, it’s all good.”

“A trio of MIT students in 2003 summed up the whole discipline in an academic paper titled “Tetris Is Hard, Even to Approximate.” In it, they consider the computational complexity of Tetris—even if the order of the shapes to be played is set in stone before the game starts—to be “NP-complete,” to use a scary math term. If you’re feeling brave, that means nondeterministic polynomial time and that even the most super of supercomputers would not be able to check every single possibility in a reasonable time.”

“This led to a secondary problem: many nongamers who became addicted to Tetris on the Game Boy never bothered to buy another game, throwing a wrench in the razor-and-blade model, where game hardware is sold at a slim profit, if any, and the real money comes from ongoing game sales. But, with 120 million Game Boy units eventually sold, no one at Nintendo could say they were unsatisfied with how the new platform was received.”

“A 2014 study showed that playing Tetris reduces cravings in smokers and drinkers by about 24 percent.”

“Today, Tetris is everything from a cultural shorthand for crowded elevators, closets, and parking lots to the first game many people download on their new tablets and smartphones. Maya Rogers is even working on a full-scale narrative science-fiction movie based on the game, hoping to strike the same pop-culture nerve as the Transformers and Lego films. It’s hard to overstate the impact Tetris has had on the world over the past thirty years. Sales of authorized copies have brought in nearly \$1 billion to date, with countless millions more pocketed over the years from unofficial versions.”

“In the end, we come back again and again to the core of the game in its original, unadulterated form. There may be new colors, new multiplayer modes, or new theme music, but the basic idea of fitting tetromino shapes together with the speed and accuracy of a master builder remains unchanged. Tetris is bringing order to disorder. It’s the eternal struggle against the nonstop onslaught of daily life, in all its colorful randomness, seeming to fall on you from the sky.”