On the last Sunday in October, last year, four members of the Harvard Chess Club were huddled at the stone chess tables outside Au Bon Pain in Harvard Square. It was an unseasonably cold morning, and the Square was not yet bustling. The four woodpushers were playing a series of blitz games, in which each side had only five minutes per game, against chess master Murray Turnbull ’71, a 52-year-old Harvard dropout who for the past two decades has spent every day from May through October at the table nearest the sidewalk, eking out a living by taking on passersby willing to wager two dollars a game. Turnbull had insisted that the Harvard match take place early in the morning so that it would not cut into his afternoon “business hours,” when the Square was teeming with patzers eager to test their chess mettle. “One famous professor, who shall remain nameless, was a glutton for punishment,” said Turnbull. “He could barely set up the pieces, yet he wanted to play again and again. Afterward I was able to treat myself to a fancy dinner.”

Professor of mathematics Noam Elkies, Ph.D. ’87, the chess club’s faculty adviser, was the first to confront Turnbull. Elkies is no intellectual slouch, off the chessboard or on it. In 1993, at the age of 26, he became the youngest person ever to receive tenure at Harvard. He has also distinguished himself in the chess world by earning the title of master, which puts him within the top one percent of the 90,000 people who play in tournaments sanctioned by the United States Chess Federation. (There are two higher titles, international master and grandmaster, respectively, based on performance in international competitions.) But Elkies can be flippantly modest about his command of the royal game. “Being a chess master is nothing,” he once told the Crimson. “It means that your ability is halfway between the average player and Kasparov”—as in Gary Kasparov, the number-one rated player in the world. However, when it comes to solving chess puzzles—composed positions in which you are asked to find a unique chain of moves to achieve a stated goal, such as “White to checkmate in five moves,” or a contrived goal, such as “Black to self-mate” (to force an assisted suicide) in three moves—Elkies has few peers; in 1996 he won the world championship of chess problem solving.

Two dozen kibitzers gathered around Elkies and Turnbull, waiting for the hostilities to begin. To commence the match, Turnbull, a soft-spoken man with a red beard, pulled out a pink squirt gun and fired it into the air. Elkies reached out and made his first move, developing his king’s knight outside his wall of pawns. Turnbull had insisted that the Harvard match take place early in the morning so that it would not cut into his afternoon “business hours,” when the Square was teeming with patzers eager to test their chess mettle. “One famous professor, who shall remain nameless, was a glutton for punishment,” said Turnbull. “He could barely set up the pieces, yet he wanted to play again and again. Afterward I was able to treat myself to a fancy dinner.”

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Next up for Harvard was Daniel Thomas ’05, then one of two chess masters in the freshman class. While Elkies was dressed in a hooded parka pulled tight around his face, Thomas, thin and lanky, wore only a light sweater and no socks. He was shivering as he responded to Turnbull’s queen pawn opening with the classic Slav Defense. First Turnbull won Thomas’s king pawn, then a bishop, and finally his queen. With Thomas’s forces depleted, the end was inevitable. He shook his head and got up from the table. “I have an excuse,” he said. “My feet are cold. I should have worn socks but I haven’t done laundry in weeks.” Losses are hard on the ego, and chess masters often try to explain away their defeats. Illness is the most common excuse, prompting more than one player to quip that he has never beaten a healthy opponent.

With half the match over, the best Harvard could hope for was a tie—if it won the last two games. The burden fell on Marc Esserman ’05, the other freshman master, a short kid from Florida, who was coiled over the chessboard like a cobra. His jaw was clenched, and the veins in his throat were pulsing. His head was bobbing. Esserman played the exchange variation of the Caro-Kann, a favorite of legendary world champion Bobby Fischer. He soon won a pawn and swapped off pieces to enter an advanta-
geous double rook ending, but he made a few inaccurate moves under time pressure and the game petered out into a draw.

Esserman punched the air and berated himself for throwing away the win. His mother, who was in town for parents’ weekend, patted him on the shoulder. “I’m always mad at myself if I feel I played stupidly,” he said. (The history of chess is full of people who could not put losing behind them. William the Conqueror once smashed a chessboard over the crown prince of France. World champion Alexander Alekhine destroyed the furniture in his hotel room after a devastating loss. The great Aron Nimzovich climbed up on the chess table, dropped to his knees, and shouted to the heavens, “Oh Lord, why did I have to lose to this idiot?”)

Now that Turnbull had clinched the match, the last game, against Christopher Chablis ’88, a former president of the Harvard Chess Club, was anticlimactic. When Turnbull won Chablis’s queen and then the game, he jumped up, fired his squirt gun, and raised his arms in a V. “Am I good or what?” he shouted. “That should be $100. I’ve had a long hard season, and it will be too cold after today to play until spring.” The Harvard team handed him $10, and he retreated into Au Bon Pain.

“I’ve only been in Cambridge a few weeks,” said Esserman, “and Turnbull has already won $24 from me. You can’t compete with a professional blitz player. But I’ll get him. I have all winter to practice.”

Esserman’s mother raised her eyebrows in mock horror. “For this,” she said, “I’ve sent my son to Harvard?”

In the 1775 Dictionary of the English Language, Samuel Johnson defined chess as a “nice and abstruse game, in which two sets of puppets are moved in opposition to each other.” But anyone who has observed the Harvard Chess Club in action will know that Johnson was wrong. Chess is not the innocent recreation his definition depicts, but rather a passionate activity that brings out both the beast and the artist in those who play it at the highest level. “The only goal in chess is to prove your superiority over the other guy,” said Gary Kasparov, who once proved his superiority in Sanders Theatre by playing eight games at the same time against strong opposition and winning all of them. “And the most important superiority,” added Kasparov, “is the superiority of the mind. I mean, your opponent must be destroyed. Fully destroyed.”

The Harvard Chess Club, founded in 1874, is one of the oldest chess clubs in the country. It was started by the generation of undergraduates inspired by the New Orleans prodigy Paul Morphy, the nation’s first great player. Like Bobby Fischer, Morphy was a household name. His fragile countenance graced the box of a popular brand of cigar, his games were reported move for move on the front page of the New York Times, and his victories were praised in poems and orations by Henry Wadsworth Longfellow, James Russell Lowell, Oliver Wendell Holmes, and Louis Agassiz.

Before 1880 there were no chess clocks. The first players at Harvard had to have Sitzfleisch as well as brains. Many games lasted 12 hours, and it was not unheard-of for someone to spend a couple of hours on a single move. Once Morphy and Louis Paulsen, another strong American player, reportedly sat huddled over a chessboard for 11 hours without saying a word or making a move. Finally, Morphy lost patience, looked up from the board, and stared at Paulsen. “Oh,” said Paulsen, “is it my move?”

The invention of the dual chess timer meant that official tournament games were speeded up to five or six hours, and that casual games could be played at the daunting time limit of five minutes per side. In the nineteenth century, the Harvard Chess Club apparently did not play face-to-face matches with other universities. Instead it engaged in correspondence matches: the entire club would collaborate on a single game played by mail at the rate of perhaps one move a week.

Harvard played its first correspondence game in February 1879, against the Boston Chess Club. The surviving score sheet is incomplete, so that it is not clear who won. Nine months later,
Chess Championship to select the best college team in the country. Harvard tied for first in the 1975 and 1986 Pan Ams, won outright for the first time in 1988, and held on to the title in 1989.

The late 1980s and early 1990s were the club’s golden years. Not only did Harvard players win tournaments around the country, the club itself became a Mecca for chess enthusiasts. In 1987, Boris Gulko, once the chess champion of the Soviet Union, became a fellow at the University’s Russian Research Center. He also became Harvard’s first Grandmaster-in-Residence. He and his wife, Anna Akhsharumova, the U.S. Women’s Champion, gave chess lessons and lectures to the Harvard community.

It was in 1989 that Gary Kasparov visited the campus and demolished his eight opponents. World chess champions are known for their arrogance—Bobby Fischer famously dismissed people who couldn’t play chess as “weakies”—and Kasparov was no exception. He canceled a meeting with President Derek Bok at the last minute and skipped a private tour of Harvard’s art collection that had been arranged for him. At a press conference, he sneered at the idea that any computer would beat him before the end of the century. (He was wrong, of course; in 1997, IBM’s Deep Blue defeated him three and a half games to two and a half.)

In 1990, a jet-lagged Anatoly Karpov, whom Kasparov had de-throned as world champion, played 43 people simultaneously on tables arranged in a large rectangle in Memorial Hall. After six hours and a mile and a half of walking from board to board, Karpov had lost only one game. In a separate contest, he took on Deep Thought, a predecessor of Deep Blue, in a 60-minute game. Although Karpov won in the end, the machine botched a drawn endgame. The game, which was reported move for move in the pages of Scientific American, was a seminal event in the history of artificial intelligence. The closeness of the contest persuaded AI researchers that they could actually develop a silicon world champion. Harvard promoted this research effort by holding two high-profile man-versus-machine tournaments that drew strong players and programs from across the country.

Chess-playing computers derive their strength from their calculating ability. Deep Fritz, perhaps the strongest program today, typically examines two million to four million chess moves per second, but even at that speed it cannot look far ahead in the game. That’s because the number of possible chess positions is staggering. For example, the first four moves can be played in 85 billion different ways. There are on the order of $10^{40}$ (that’s the number 1 followed by 40 zeroes) possible chess positions. And there are more possible chess games than there are atoms in the universe.

Chess players themselves also make intriguing research subjects. Because masters are relatively sedentary when they play (except for their knees, which are often shaking under the table), it is easy to wire them to instruments that measure brain and bodily activity. A recent study in the Journal of Personality and Individual Differences, which prompted much snickering attention in the popular press, found that the testosterone levels of male masters (and
99 percent of all U.S. masters are male) rose in anticipation of playing a game and shot up again as they mated their opponent. Those who were on the receiving end of a mating attack had depressed testosterone levels. (Before the mothers of chess prodigies start calling psychiatrists, it should be noted that researchers have also measured testosterone spikes in male medical students waiting at a graduation ceremony to receive their M.D. degrees.)

It is the minds of chess players, more than their bodies, that have received the most scrutiny. In the 1890s, Harry Nelson Pillsbury, Morphy's successor as the country's strongest player, was given a list of words whose pronunciation and meaning might elude even Harvard students: antiphlogistine, peristomeum, takadakatase, plasmon, threfeld, streptococcus, staphylococcus, micrococcus, plasmodium, Mississippi, Freiet, Philadelphia, Cincinnati, athletics, no war, Etchenerg, American, Russian, philosophy, Piet Potgletter's Rost, Salmagundi, Oomisickesece, Bangamamvate, Schlechter's Neck, Manzinyama, theosophy, cactism, Madjesoomalops. Pillsbury glanced at the list, handed it back, and then recalled the words perfectly, in order. As an added flourish, without being asked, he repeated the list in reverse. Subsequent investigation, however, revealed that Pillsbury's talent was unique. Skilled pawn pushers, it turned out, could easily recall chess positions from actual games, but didn't otherwise have exceptional memories.

At Harvard, Christopher Chablis, a postdoc in psychology and a master himself, studies the minds of chess players. “There are two common views about what makes people really good at chess,” Chablis said. “The first is that masters are smarter and have better memories, and the second is that they are calculating machines—that they think way ahead, exploring hundreds or thousands of possible continuations, while mere mortal players look at only a few. Neither view is right.” What matters most is chess knowledge, or pattern recognition. Even though a chess master may spend a lot of time thinking, in some 19 out of 20 positions on the board, he ends up making the first move that pops into his head. That explains why a master, when he is playing many games simultaneously and has no choice but to move quickly, can still reel off strong moves. Some thinking time, of course, is important. In Chablis’s own research, he found that in classical chess (where each side has two hours for the first 40 moves) strong masters make roughly 10 blunders per 1,000 positions, whereas in rapid chess (25 minutes apiece for the entire game) the rate of errors is 14 per 1,000.

Marc esserman knows firsthand what it is like to be short of time. “My aim in chess,” he once explained, “is to understand every nuance of a chess position. So I spend too long thinking early in the game. I get caught up in the beauty of the positions. But that may leave only a minute for the last 20 moves. It’s an adrenaline rush. You either soar through that minute to victory or crash and burn.”

Last November, Harvard played its yearly chess match against Yale, traditionally held on the morning of The Game. The prize was the Wolff Cup, named for Patrick Wolff ’96, a U.S. champion who was an undergraduate at both Yale and Harvard (1994-96). Marc had psyched himself up for the match, and in the best tradition of chess masters tried to angle for an advantage even before the opening move was made. The strategy of pregame maneuvering goes back at least to the 1400s, when the Spanish chess theoretician Lucena recommended positioning the board so that the sun shines in one’s opponent’s eyes. “Also,” Lucena advised, “try to play your adversary when he has just eaten and drunk freely.” Marc’s technique for rattling his opponent was to wear a “Yuck Fale” T-shirt, but the Yale was unflappable. They split two 30-minute games. True to form, Marc got into severe time trouble in both games, winning the black side of a Giuoco Piano with only six seconds left on his clock. Daniel Thomas went down to defeat in both of his games, and the Harvard team lost the match seven and a half to four and one half, one of only two wins for Yale in the past nine years.

At the end of January, Marc and Dan had a chance to redeem themselves in the annual Harvard Open, which drew 73 players from across New England. They spent the weekend in the basement of Lowell Hall, huddled over chessboards for 12 hours a day. Dan, dressed warmly this time, won the tournament, with three wins and a draw, while Marc had a disappointing result. He lost a key game, after blundering with seconds left on the clock, to Tamer Karatekin, MIT’s number-one player. Marc cursed himself and hurled his jacket across the room. “Even before the time-pressure mistakes,” said Karatekin, “I think your position was worse.”

“No,” Marc insisted, “I clearly had the initiative.” For the next half an hour the two replayed the game and argued about lines of play that could have occurred. Marc sacrificed pawns and pieces to maintain the attack. Karatekin scoffed, grabbed the offered material, and hunkered down for a tough defense.

“You should play solidly,” Karatekin said.

“No, I want to play romantically,” said Marc, whose playing style reflects the Great Soviet Encyclopedia’s definition of chess: “an art appearing in the form of a game.”

“You can have your romance,” said Karatekin. “And I’ll take my wins.”

Two hours after the game, Marc and Dan retired to a pizza parlor in the Square. They set up a chessboard on the table and replayed the game with Karatekin. “I have to know the truth about this position,” Marc said. “Do I stand better?”

“I’m not sure,” said Dan.

“I won’t be able to sleep if I don’t know,” said Marc. It was after 1:00 a.m., and he took out his cell phone and called his chess instructor in Ohio. The two of them went over the game at rapid speed in their heads but got no closer to the ultimate truth. The restaurant was closing, and the waitress showed Marc and Dan to the door.

The Square was largely deserted, except for two Cambridge policemen who were playing chess outside Au Bon Pain. “Maybe I can win back the money I lost to Turnbull,” Marc told Dan. “I’ll give them odds—they get five minutes and I get 30 seconds.”

“I don’t know,” said Dan, “they might arrest you for gambling.”