

# THE PSYCHOLOGY OF CHESS: An Interview with Author Fernand Gobet

A new book examines chess and chess players from a cognitive psychology perspective. *By* DR. ALEXEY ROOT, WIM

Chess imagery has woven its way into the public's imagination: precocious children who achieve world-class greatness, such as Magnus Carlsen and Fabiano Caruana; old men playing chess in parks, such as those portrayed in the Pixar film *Geri's Game*; diverse students defying the odds, such as the championship teams from New York City's Intermediate School 318, featured in the documentary *Brooklyn Castle*; or, simply two people seated across from each other with a chess board between them.

Psychologists and psychiatrists have their tropes as well: the doctor—like a chess player—also sits, but with his or her patient nearby on a couch. The couch is central to psychoanalysis, as in the recumbent position the unconscious reveals itself. Pop culture reinforces this image;

or trauma. "Division 39: Psychoanalysis" has a unique tie to chess: its first president was Dr. Reuben Fine, better known to chess players as Grandmaster Reuben Fine. Fine tied for first with Paul Keres (who took first on tiebreak) in the 1938 AVRO double round-robin tournament, which determined who would challenge Alexander Alekhine for the World Championship. He also won the U.S. Open seven times. In a recent *New In Chess* article, "The Double Genius of Reuben Fine," (2018, #4) author Joseph G. Ponterotto wrote, "Perhaps no world-class chess player has achieved such parallel levels of success and distinction in two careers as Reuben Fine (1914-1993), the American grandmaster who became one of the world's most prolific and renowned psychoanalysts."

Nowadays, however, psychoanalysts are

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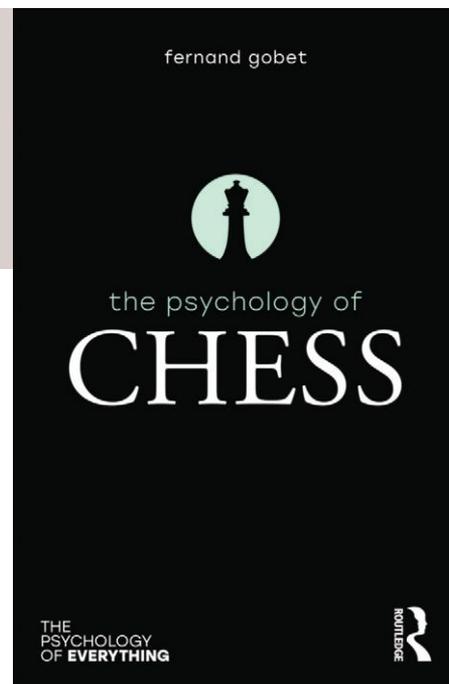
for example, in the long-running TV series, "The Bob Newhart Show," psychologist Bob Hartley (played by Newhart) often sat in an armchair while his patient laid on a couch. (If you visit Chicago's Navy Pier, you can recline on a bronze statue of Bob's couch.)

The American Psychological Association has 54 divisions, organized by its members, that either represent subdisciplines of psychology (e.g., experimental, social or clinical) or focus on topical areas such as aging, ethnic minorities,

dwindling in numbers and in influence. In a 2013 *Psychology Today* issue, under the headline "Is Freud Still Dead?" Jeremy D. Safran wrote about the "current marginalization of psychoanalysis. ... [compared to its] heyday during the 1940's, '50's and early 1960's." *The Spectator* ran an article in 2015 titled, "Why American psychoanalysts are an endangered species."

Not surprisingly, then, Fine's psychoanalytical approach to chess has also fallen out of favor.

Dr. Fernand Gobet, a professor of cognitive



psychology at the University of Liverpool in England, studies chess and chess players from his more modern psychological perspective. Cognitive psychology primarily focuses on how people think, learn, and remember—unlike psychoanalysis, which seeks to integrate conflicts between the conscious and unconscious mind.

In a recent email interview with me, Dr. Gobet compared his forthcoming book, *The Psychology of Chess*, (to be published late November 2018) to the work of Reuben Fine:

"In his books, *The Psychology of the Chess Player* and *Bobby Fischer's Conquest of the World's Chess Championship: The Psychology and Tactics of the Title Match*, Reuben Fine focuses on a psychoanalytical analysis of chess players, looking at things like repressed aggression, the Oedipus complex, sexual symbolism, the link between chess skill and mental illness, and so on. I deal with these topics in my book, but only to show that they are underpinned by very little scientific evidence. So, they definitively go into the category 'myths'! In contrast, my book focuses on cognitive psychology (the study



THE TEAM FROM I.S. 318, FEATURED IN THE DOCUMENTARY *BROOKLYN CASTLE*, IS AN EXAMPLE OF THE POWER OF CHESS IMAGERY.

## BOOK EXCERPT: THE PSYCHOLOGY OF CHESS

Starting with French psychologist Alfred Binet (the creator of the first successful test of intelligence), chess has excited the imagination of psychologists. Binet studied blindfold chess, a variant of chess where players do not see the board. In 1925, a group of Russian psychologists took advantage of the Moscow tournament, which brought together the best players of the time, to administer a battery of psychometric tests, measuring abilities such as memory, intelligence and even motivation with the Rorschach test. They found that there was hardly any difference between chess masters and a control group matched for intelligence, except for tests using chess material and tests measuring the ability to distribute attention and discover logical principles. They also provided a list of the physical and mental qualities required by chess, which were instrumental in convincing the Soviet government that chess should be encouraged as an activity leading to the development of self-discipline and the improvement of intellectual competences.

However, it is to Dutch psychologist and chess master Adriaan de Groot that we owe the first experimental study on chess psychology, which he carried out for his PhD research. In 1938, he was earning money as a journalist by covering the AVRO tournament in Amsterdam, which brought together the world's best eight players. He managed to convince five of the participants to take part in his experiments, including world champions Alexander Alekhine and Max Euwe. Amusingly, some of the data were collected after the tournament on the steamer carrying many European masters to Buenos Aires, where the 1939 Olympiads (world

championship by teams) were held. As the trip was rather long, players were grateful to participate in these experiments and therefore to break the monotony of the voyage.

De Groot studied not only chess players' ability to find good moves, but also their ability to rapidly understand the gist of a position even after seeing it just for a few seconds, as well as their ability to memorise these positions rapidly and accurately. Many of the ideas presented in this book can be traced back to de Groot's PhD thesis.

The second key study in chess psychology, carried out by Herbert Simon and William Chase in 1973 at Carnegie Mellon University in Pittsburgh, developed a powerful theory—called chunking theory—to explain de Groot's data. Combining experimental methods with ideas from artificial intelligence and computational modelling, Simon and Chase performed a series of experiments that inspired much of the research carried out in the following decades.

Nowadays, chess psychology is an active domain of research and is arguably still the main domain in expertise research. Many different aspects of chess are studied, from cognition to personality to intelligence. Several reasons explain this popularity, including: chess has its own rating system, the Elo rating, which offers a precise and up-to-date measure of skill; it has an ideal balance between simplicity and complexity; it allows many experimental manipulations; and it has strong external validity. In fact, the key discoveries made in chess psychology generalise to most domains of expertise, and indeed to psychology in general, as we shall see. Thus, researchers often study chess not for its own sake, but for understanding expertise in general.

AS THIS IS A DIRECT EXCERPT FROM THE BOOK, WE HAVE LEFT THE BRITISH SPELLINGS AND PUNCTUATION INTACT. -ED.

## Gobet on de Groot

Rueben Fine was not the only chess player to work with Adriaan de Groot. Here Gobet talks about his collaboration with this giant in the field of chess and psychology:

“In the early 1990s I was working at Carnegie Mellon University in Pittsburgh on my Ph.D. on chess players’ memory, which included computer simulations. I wanted to carry out simulations not only on chess players’ performance and errors, but also study their eye movements. At the time, there were very few such eye movement recordings. I learned that de Groot had collected such data but had never published them. So I contacted him and he invited me to have a look at the data. He had started writing a book (*Perception and Memory in Chess*) about them around 1970 but had stopped about halfway due to other commitments. He lived on a small island near Groningen [Netherlands] called Schiermonnikoog (Grey Monk Island), so it was quite an adventure just to meet him. There were quite a few scientific disagreements between us, which are discussed in the final chapter, but in 1996 we manage to publish the book—the fact that we were both chess players definitely helped!

The full title of the book is *Perception and Memory in Chess: Studies in the Heuristic of the Professional Eye*, and Rieken W. Jongman is also listed as an author. Jongman had carried out, under de Groot’s guidance, the experiments



AUTHOR FERNAND GOBET

discussed in the book and analyzed a subset of the results in his Ph.D. thesis nicely titled, “The eye of the master.” Also a chess player—albeit weaker than de Groot—Jongman was in a position to analyze the data meaningfully. After his Ph.D., he moved to a totally different field, namely criminology, studying, for example, the link between unemployment and criminality.

“De Groot was a very original thinker and didn’t belong to any standard school of psychology. He had a strong background in mathematics and philosophy. In addition to his seminal work on chess psychology, he also made important contributions to methodology and job selection. In his last years, he was working on the unification of psychology, which unfortunately never happened. He was a complex man, not afraid of (apparent) contradictions. For example, in spite of being highly critical of psychoanalysis, he provided a psychoanalytic interpretation of the myth of Saint Nicholas, a figure that is still widely celebrated in many European countries.

“I really enjoyed our discussions on a number of topics: chess of course (he was a good friend of Max Euwe), but also psychology and philosophy. He never accepted the information processing approach, which I was using, so we did disagree quite a lot. But this was always good-natured and we were very good friends. Unfortunately, I did not visit him that often, and my visits were rather short.”

of things like perception, learning, memory, thinking, and decision making) but also covers a number of other psychological aspects. Thus, the coverage is much broader than in Fine’s books.

“One common point between the authors is that both Fine and I gave up chess for a career in psychology. The big difference, though, was that he was a world-class player while I was only an average international master.

“Although it was a natural choice at the time, in my opinion it’s a pity that Fine went into psychoanalysis. In the U.S., for people who wanted to study psychology, the choice in the 1940s was basically between behaviorism and psychoanalysis. I can see why Fine wasn’t attracted by behaviorism, which negated the presence of mental states. Psychoanalysis was highly fashionable at the time, in particular for people who wanted to become therapists, as Fine did, but nowadays it is seen as a pseudoscience and, except for France and Argentina

where it is still very strong, is hardly practiced.

“Fine was one of the participants in Adriaan de Groot’s famous study on chess players’ thinking, which had a huge impact on cognitive psychology. As Fine spent a couple years in the Netherlands—marrying a Dutch citizen—he was in a position to read de Groot’s Ph.D. thesis. That thesis is only briefly mentioned in Fine’s book about the psychology of the chess player. It would have been fascinating if Fine had gone in this direction, as his understanding of chess was obviously prodigious. As an example of the rapidity of Fine’s chess judgement, de Groot told me that he once was walking in Amsterdam together with Fine. They passed a chess café and Fine just briefly glanced through the window at a game in progress, enough to conclude, “They are good players.” (see above for more on de Groot.)

“The closest thing to cognitive psychology that Fine wrote is a short article in 1965, where he presents an introspective account of the way he played blindfold chess. (Fine used to be a

very strong blindfold chess player, even playing four games simultaneously where he had only 10 seconds to play his move.) While some of Fine’s comments are pretty standard and in line with the reports of other masters and grandmasters—for example, the importance of knowledge of typical positions and the risk of interferences between boards in simultaneous chess—one aspect sets him apart from other players: he seemed to be able to visualize the board clearly and rapidly. This certainly is consistent with the fact that he was a very gifted player: it took him only nine years to reach world class level, at a time when chess was not popular in the U.S. and thus did not offer a particularly conducive environment.”

Gobet also expanded on some of the myths that surround chess and its benefits to different age groups:

“People have many views about chess; some of them are myths, but some others are not far from what we know about chess from scientific

research. One myth is that anybody can be a chess master given the right type and amount of practice. A related myth is that 10 years or 10,000 hours of practice are necessary for being a chess master. That's the 'deliberate practice' view, popularized in many pop-science books such as [Malcolm] Gladwell's *Outliers: The Story of Success*. With my Ph.D. student Guillermo Campitelli, I collected data on this topic. What we found is that there is actually a huge variability: Some people needed only about 3,000 hours of serious practice to become a master, and others failed to reach this level after more than 24,000 hours. So it seems that some talent is needed as well. This is supported by the fact that chess players are, on average, more intelligent (as measured by IQ tests) than non-chess players, and that more intelligent people tend to reach higher levels of chess skill. Also, starting young clearly helps. In our study, individuals who started playing chess at or before the age of 12 years old had one chance out of four of becoming a master, as compared to one chance out of 55 for people who started to play after the age of 12. So, there is truth in the saying that, 'You have to start young at chess to become really great at chess.'

"Another myth is that, 'You have to be smart to play chess.' Anybody without a neurological condition can learn to play chess, and in fact, with some study and practice, play better than most people. However, there will be limits to how competitive those who are less intelligent can be at chess when they play against more intelligent people who also practice chess intensively.

"There is much hype about the benefits of chess such as, 'Chess makes you smart,' or 'Chess helps fight Alzheimer's.' I wouldn't call these statements myths, because we simply don't know. With respect to the effect of chess on intelligence and educational achievement, research has shown that there is a medium effect size. However, very few studies have used an active control group (such as playing checkers or video games), so it is not clear whether the effects are due to factors non-specific to chess, such as motivation to engage in a new activity. With respect to dementia, no proper study has been carried out, so we simply don't know."

Gobet further elaborated by comparing playing chess to elements from his own life—researching, teaching college students, writing books, and running marathons:

"Just like chess, academic life is very intellectual. But there are also important differences, such as more social interactions, more varied activities, and also a more secure life financially. Also, you have to accept a fair number of boring tasks, such as marking hundreds of students' exam essays. A big difference, which computer scientist and former chess correspondence



AT CHICAGO'S NAVY PIER, YOU CAN RECLINE ON A BRONZE REPLICA OF THE FAMOUS COUCH FROM "THE BOB NEHWART SHOW" AND TELL YOUR TROUBLES TO A SYMPATHETIC "BOB HARTLEY."

champion Hans Berliner mentioned once to me, is that there are many subdisciplines and specialties in science, so it's easier to be close to the top, while in chess, obviously, there is only one world champion and few real challengers. Also, aging is kinder in academia than in chess. In chess, the new generations are your competitors and successfully competing with them is very hard, in part because some faculties such as working memory decline with age. In academia, the newcomers are not your competitors, at least not initially, but rather your collaborators. I was lucky to have several very good Ph.D. students—many of them chess players themselves—who contributed in important ways to my research. Clearly, playing chess correlates with a strong work ethic and competitive drive, the ability to focus on questions, and being well organized and efficient—qualities that these Ph.D. students amply displayed.

"Writing books reminds me of what I was doing preparing for a tournament. A lot of background research, to make sure you don't miss something important, and then being to some extent cut off from the world and just playing with your ideas. Also, the writing process requires a fair amount of discipline and is not always pleasant, which is also typical of preparing for and running a marathon.

"[What] preparing for a chess tournament, writing books, and training for a marathon all have in common [is] that there is a fair amount of planning involved and that you need to incorporate all sorts of feedback. In my case, a big difference is that while I could keep my preparation on schedule for chess and now with running, I'm totally hopeless with meeting deadlines with my books. To the great despair of my publishers, I almost always have delivered my final manuscripts with considerable delays, sometimes years."

Describing his current interests, Gobet continued:

"I rarely play over-the-board chess, but I every so often play speed chess, mostly on the internet. I started running about eight years ago, as I was getting overweight. Also, I wanted a hobby that didn't involve sitting in front of a computer! One day, I saw the London marathon on TV, and thought: 'Why not to try?' So I trained for it and then ran in its 2012 edition to celebrate turning 50 years old that year. I'm really only an amateur runner, and at my level the competition is not about other people, but about myself. Running a marathon is physically very hard, and the importance of fitness and diet, the fatigue you accumulate, and the risks of injuries make training for it rather different than training for a chess tournament.

"My competitive drive is really channelled into scientific research. When I left chess for academia, I was actually quite surprised to see that scientific research was so competitive. Also, it's much less fair than in chess, where the playing field is level and in general it's only you against your opponent. In scientific research, other factors enter into the equation, such as the reputation of your university or your connections."

To wrap up the interview, I asked Gobet what readers of *Chess Life* would most enjoy about *The Psychology of Chess*. He replied:

"Readers of *Chess Life* will definitively enjoy the parts on practical aspects of chess, such as training, errors (and how to avoid them), practice, and even cheating. The sections on style and intuition should also be of special interest. The chapter on gender differences will bring some surprises!" ♠

*The Psychology of Chess* is available for pre-order on Amazon.com or at the publisher's site ([www.routledge.com/The-Psychology-of-Chess/Gobet/p/book/9781138216655](http://www.routledge.com/The-Psychology-of-Chess/Gobet/p/book/9781138216655)).