The Housekeeper and the Professor

Reviewed by Koji Fujiwara

The Housekeeper and the Professor
Yoko Ogawa
Picador, 2009
US$14.00, Paperback, 192 pages
ISBN-13: 978-0312427808

This book is a best-selling Japanese novel that has now been translated into English. It is about a sixty-four-year-old mathematician. He had been a professor seventeen years earlier, but then he had a car accident and his brain was damaged, in particular the part associated with memory. Now his memory lasts only eighty minutes, although he remembers things from before the accident. His field of research is number theory, but he is no longer active in research because of his brain damage.

Because of his memory problem, it is almost impossible for him to have an ordinary life. Because he does not remember anything, everything seems to him to happen suddenly. It was natural for him to withdraw from society and from relationships with other people. He became very lonely.

The professor lives with his sister-in-law, who has been a widow for many years. She lives in the main house and he in a tiny separate house. They are from a rich family and live on the income from the real estate they own. They don't have much interaction, at least after the accident. The sister-in-law hires a housekeeper to take care of the professor. The housekeeper comes every day in the morning and makes breakfast, does laundry, cleans the house, and makes dinner. She is twenty-nine years old, has never married, and has a boy of age ten.

In Japan, it's unusual to hire a housekeeper. It's done only in very rich families. It's also pretty unusual for a woman to have a child without being married.

The housekeeper comes to the professor's house for the first time in March 1992. The book is about the relationship shared by the professor, the housekeeper, and her son.


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The professor loves mathematics, especially numbers. That's nearly the only thing he cares about, but he also likes baseball, even though he does not follow the results. His favorite team is the Tigers, and his favorite player is Enatsu, a pitcher. Both the Tigers and Enatsu exist in real Japanese professional baseball leagues. Enatsu is a legendary pitcher who retired in 1984—which means that the professor does not know that Enatsu has retired, so he keeps asking how Enatsu is doing. Perhaps one of the typical images of Enatsu is that he was really an excellent pitcher, at least when he was young, and he would remember all the details of his games and talk passionately about baseball for hours. On the other hand, he is a bit extreme and does not see anything much other than baseball. When he retired from the Japanese baseball league in 1984 at age thirty-six, although he was in bad shape, he went to the United States to have a tryout in the U.S. major leagues, and he failed. He was similar to Don Quixote. Later, in 1993, he got arrested for stimulant drug use and spent two years in a jail. Please don't misunderstand; I like Enatsu. I'm only saying this because I think what baseball is to Enatsu is a bit like what mathematics is to the professor. Quite a few real stories about Japanese baseball are quoted in the book. Because of that, I felt as if the professor really existed when I was reading the book. However, enjoying the book does not require knowing about Japanese baseball.

When the housekeeper comes to the professor's house each morning, he does not remember her. But he has many small pieces of paper clipped to his jacket to remind him of essential information. One of them is about her. Every morning when she comes, he identifies her with the face on one of the pieces of paper, and then he asks one of his routine questions: how old are you?, what is your shoe size?, etc. The question is always about numbers. If she says her shoe size is 24 (about 6 in U.S. sizes), then he says that's 4 factorial. Then she asks what factorial is, and
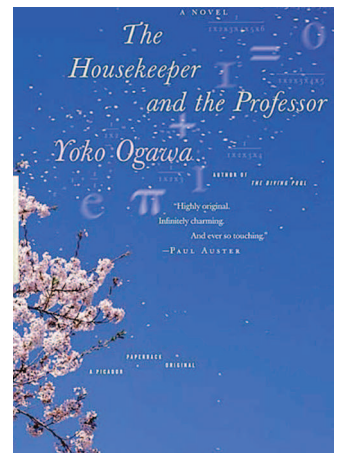
he answers. That's a typical conversation between them.

The professor soon learns that the housekeeper has a ten-year-old son, and he thinks it is outrageous (his reactions are often out of balance) that the son has to be at home for dinner without his mother. The professor tells the housekeeper to bring her son to the house. This is how the relationship among the three people starts.

The book does not contain any big drama. But every little thing in the professor's life is unusual and difficult for the people around him because of his memory problem. In one of the biggest events in the book, they go out to watch a Tigers game. The mother and the son try hard to prevent the professor from noticing that Enatsu retired long ago, so that the professor will not be disappointed. In addition to his memory problem, his inclination for numbers, especially prime numbers, is so strong that his life also tends to be slightly comical or awkward. For example, if the housekeeper comes back from a shopping trip that takes longer than eighty minutes, he will ask her shoe size again.

I don't know what typical images people have of mathematicians, but, being a mathematician and knowing many of them, I can say that the professor is not typical. On the other hand, I can certainly think of a few mathematicians who are like him and who are unusually into numbers. For example, I remember one professor from the time I was visiting the United States as a postdoc. Although I do geometry, I was taking a course on automorphic forms for fun. I could tell that the professor teaching the course had an unusual interest in and talent for numbers. He remembered amazingly well certain very big and important numbers. He was a nice person and a good teacher, and I admired his passion, too. At the same time, I was discouraged that I don't have such a special feeling for numbers. I thought I had better stay away from them: Leave them to number theorists. (Eventually he received a Fields Medal. So I did not have to be discouraged.)

Some people have said that the character of the professor in this novel is based on Erdős. It is true that a book on Erdős is mentioned as a reference at the end of the book. However, the professor reminds me of Ramanujan. I remember the famous story about Hardy telling Ramanujan that the number of the taxi he had just taken was 1729. Ramanujan immediately said, "It is a very interesting number. It is the smallest number expressible as the sum of two cubes in two different ways":

$$1729 = 1^3 + 12^3 = 9^3 + 10^3.$$

The professor tells many stories about math and numbers to the housekeeper and her son. One of their favorite things is the famous formula of Euler,

$$e^{\pi i} = -1.$$

They knew π but did not know i and e, so I don't think they really got the meaning of the formula. Recently, a student in my freshman calculus course came and asked me if/how this formula is true/proved. I told him "You have just learned Taylor series, so just plug πi into the Taylor series of e^x, then use the Taylor series for sine and cosine. That's all." He looked disappointed. I'm not sure that's the kind of answer he expected. I wanted to show him a geometric explanation using the complex number plane, but he has not learned that yet. But maybe that's not the answer he wanted to hear either. It seems this formula has a strong charm to attract people from various backgrounds. Maybe this is one example of the fact that the beauty and mystery of math can reach many people in different ways. In a sense, I envy them, because, probably like many other mathematicians, I do and try to enjoy math mainly in the style of definition-theorem-proof. By the way, a direct English translation of the title of the book is *Math Formulas the Professor Loved*.

It's an intriguing question how someone like the professor, with such a short memory, could build relationships with other people. When you see someone you know, like family members, friends, colleagues, or neighbors, you already have some feelings about them. Those feelings are mostly based on the experiences you have had with them, but you don't have to remember all of those experiences each time. It seems that feelings, thoughts, and ideas from past events are filed in your brain and produce something abstract, and this abstraction is more important for you than the individual feelings, thoughts, and ideas. But you need to file them in the correct folder for the abstraction process to occur, and there is a folder associated to each person you know. I don't know much about current brain studies concerning memory, so I will stop here. Anyway, when I was reading the book, I felt the relationships and the feelings shared by the three characters were real and convincing. The author is very successful on this point.

The author of the book, Yoko Ogawa, is popular in Japan. She received the Akutagawa Prize in 1990, the most prestigious prize for young authors of Japanese literature. She wrote this book in 2004, and it was one of the best-selling books of the year. Since then, it has appeared as a film, a TV show, a radio show, and a comic book. I saw the film first and liked it. Then I read the original Japanese book and now the English version for the review. The translation into English is good.

I'm sure many people will enjoy reading this book. It's easy to read, and it does not matter how much the reader knows about math. When I reread the book for review, I wondered if the way the characters build their relationship is typically Japanese—that is, indirect and slow. But I think their way is maybe universal. They are vulnerable and therefore cautious and thoughtful. What is nice and encouraging is that, although none of them has a strong position in society, they support each other and manage to have a good time. Math helps them do it.