

Almost Memories related to Jacob

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When I started writing what should be a lean document reporting some fact related to Jacob, I realized that my memory immediately threw me on my arrival at IMPA in the 70s, willing to do a master's degree and maybe later a doctorate in geometry, an area that fascinated me. As there was, already at that time, a Graduate Program at USP São Carlos, a city next to my hometown, where all my closest relatives lived, I had a certain difficulty in convincing my mother that it would be a good choice to go to Rio, an unknown city at that time. Even though later my mother agreed I made the right choice. All this preamble is just to prevent that this document with memories of facts that happened in the past will not be so short as I had plan at the beginning.

I arrived at IMPA in 1974, when IMPA was at street Luiz de Camões, in a very old fashion and beautiful building (nowadays this building is a Cultural Center). The place was nearby Praça Tiradentes, one of the main spots for night activities downtown. IMPA was really small, and had fewer than 28 teachers and far fewer students than it currently does. Most students did geometry. But I, at a certain point in the master's degree, attended a course on Ordinary Differential Equations and was completely in love with the area. So I switched to dynamical systems.

The Dynamical Systems area in Brasil, at the time, was just beginning its long and successful journey, driven mainly by Jacob's new ideas and enthusiasm, after the first important impulse of Mauricio Peixoto. In 1971, Jacob together with Mauricio Peixoto, organized the first international meeting on dynamics held in Brazil, which brought together great names in mathematics such as René Thom, Steve Smale, among others. This meeting was a watershed in the area. In a nutshell, it provided contact between Brazilian researchers with consolidated international researchers and generated a lot of extremely productive collaboration and exchange. Jacob himself told us many times (and he loves to tell this story) that a few months before, Ricardo Mañé, still a student in Uruguay, wrote a letter to him proposing a solution to the conjecture of stability (that it was wrong!). Based on this letter, Jacob immediately had the feeling that Ricardo should be a promising mathematician and invited him to the meeting in Salvador. This was the trigger for Ricardo to do a doctorate supervised by Jacob, be hired by IMPA later and develop his entire scientific career there.

In the early 70's, back to Impa after the meeting in Salvador, Jacob started promoting weekly seminars on the subject. In the audience were his first formal students Welington de Melo, Pedro Mendes, Genésio Lima dos Reis. The seed of his book, co-authored with Welington de Melo, was planted at these seminars.

The group of dynamics students begins to grow significantly when Jacob returned from a second period in the United States around 1977. I was a formal student of Welington de Melo and usually talked math with everyone there, especially with Ricardo Mañé, whom was already a dear friend of mine, and when Jacob arrived, fascinated with his enthusiasm and new ideas, I started talking also to him. But Jacob was really busy and getting a time to speak to him was extremely difficult. The way I found was to ask Mr. Paulo, doorman of the building, to notify me of Jacob's arrival at the institute. And in that first hour of Jacob's at IMPA, at one time or another I was able to talk about my thesis with him. Later, in 1980, Jacob was in the committee of my thesis defense.

I attended IMPA's summer school in 1981, one of the most interesting I've ever attended, not only because of the large number of visitors at the time, but because it was the first time I was there as a visitor and not as a student. More than that, Jacob was always there and we started to meet each other and date. After 3 years dating we got married in 1984. At that point, IMPA had moved to Horto, and there was an effervescence of activities on dynamical systems there, many of them promoted by Jacob. As Jacob's wife, in a way I was in the eye of the hurricane. I participated in many of these activities and had the opportunity to meet great mathematicians who were attending a congress or visiting IMPA during that period. At that time there were many events going on, and we usually offered dinners at our home to some of the participants. On these occasions, Jacob loved to serve as a starter a caipirinha drink, and for dessert a huge variety of tropical fruits. Jacob was proud of the variety of fruits we have all year round, such as mango, pineapple, guava, passion fruit, among others. Levi-Strauss, when once in Rio, was delighted too with all the variety of fruits that we served at a brunch. Many of those mathematicians used to visit us, such as Smale, Yoccoz, Takens, among others and some of them enjoyed staying for some time. Many of them became later my friends, and so, in a way, I inherited Jacob's friends!

We often had lunch with J-C Yoccoz at steakhouses, which was the type of restaurant preferred by many foreigners. In these occasions, Yoccoz always choose a huge T-bone steak to eat. Michel Herman earned the nickname Mr. Moyenne, coined by Laura, our daughter, after classifying a meal in a very good restaurant as "average". Floris Takens, once, after dinner at our house, stayed chatting with us through the night, until we finished the whole bottle of brandy he had brought to Jacob. I have to say that Floris drank more than Jacob and me together. We once hosted Floris during one of his short visits to IMPA, and every morning we liked to hear him playing the flute.

We used to spend Christmas holidays with my family in my hometown, Guariba. On one of these trips, Jacob bought from my brother-in-law 200 liters of cachaça and left it there to age into an oak barrel.

There are still some left of it that really turned into a very good brandy.

As much as Jacob was focused on work matters, he was distracted by other matters. Once, arriving in London, instead of taking a bus to Oxford Street, he took the bus to Oxford City, and only realized the mistake when he started seeing lambs and goats out the window along the road. Another time, we were in Cambridge, waiting for the train to Oxford. Jacob was reading a newspaper with his briefcase on the floor beside him. Despite my warning to Jacob keep an eye on his stuff, his briefcase ended up being stolen. We went to report the theft and, while we was in the police room, I saw a man passing by with his briefcase through the window. We ran and managed to get it back. A miracle. In the briefcase there were traveller checks and a certain amount of cash. They stole the traveller checks and left the cash that was hidden in the middle of papers. The traveller checks were from the Thomas Cook company and right next to the station was a Thomas Cook office! I always thought that, on that occasion, he hadn't been punished enough for his distraction.

We traveled a lot together and at that time it was not easy to communicate with Brazil. We often had to use a payphone, usually located in fixed booths (red telephone boxes in London) on the streets with a prepaid card or with coins, and to make a call to Brazil was a hard task at that time. Thus, most of the times we were obliged to do a collect call, where the expenses were supposed to be paid by the called party. So, to complete the call, the operator in Brazil had to agree with the endorsement. But, the operator at IMPA did not always speak English and once, Jacob was not able to make a call to discuss an urgent matter. The operator in London was asking the operator in Rio if they would defray the costs while Jacob was listening. And even though Jacob yelled at the operator in Rio just to say the magic word "yes", the operator did not understand and the call failed. After that, Jacob suggested to make English knowledge mandatory for new employees, especially for operators. Clearly, once Jacob was back in Rio, this was completely forgotten.

In the 1980s, Maria Isabel Camacho and I were the only researchers in dynamics at the Institute of Mathematics at UFRJ. To give life to the area in our institute, we proposed to IMPA to share with us a Rational Mechanics course, taught by Raphael Douady, alternating one day at UFRJ and another at IMPA. This was the beginning of a series of "IMPA Satellite Meetings" held at UFRJ, which Isabel and I organized, with full support of IMPA. Although only the two of us, Isabel and I, were the "local participants", Jacob gave full support to these activities, and IMPA has always collaborated strongly with us. If it weren't for IMPA's collaboration, holding these meetings at UFRJ would have been much more difficult, if not impossible. The first meeting in this series yielded a Proceedings, edited by Isabel, Floris and me, published by Pitman Research Notes in Mathematics Series at 1987. This volume contains two quite important articles, "On a theorem of Klingenberg", by Ricardo Mañé, and "Persistently transitive vector fields on three-dimensional manifolds", by Claus Doering. Curiously, Claus Doering was Ricardo's first formal student and this article was the version of his thesis.

In the early 1980s, Jacob and Christopher Zeeman organized the first of a long and successful

series of activities at ICTP, the Dynamical Systems Schools. After the second edition of these schools, this type of activity became a school followed by a workshop. I attended every one and, at the school held in 1988, we took our daughter Laura, who was 3 months old, with us. On that occasion, Ricardo Mañé, Laura's godfather, used to share Laura's nanny role with my sister.

In the early 1990s, Jacob spent a month in Japan, on a visit promoted by the Japanese Academy of Sciences. When he returned home, he was telling my mom and me about his adventures in Japan, and that this visit had been very tiring because he had traveled around the country giving lectures, attending some meetings where he was the only foreign speaker and finished his narrative listing all the cities he had visited. To provoke my mother, he told her that the next morning he would check to see if she remembered all those names. My mom did not understand it was a joke and was barely able to sleep that night, afraid of failing with this puzzle. The next morning, Jacob reassured her, saying that the puzzle was not to be taken seriously and we ended up laughing together at my mother's concern. After that visit, IMPA started an exchange program with Japanese mathematicians and I remember that, at some point, there were about eight Japanese mathematicians visiting IMPA in the same year. Later, in 1994, we went to a meeting in Tokyo and, in his welcoming speech, Kenichi Shiraiwa classified the dynamical systems in Japan as BJ and AJ, meaning "Before Jacob" and "After Jacob", respectively. We all laughed at this exaggerated and picturesque analogy with the Christian calendar, but we clearly understood that Shiraiwa was only pointing out that Jacob's enthusiasm and ideas had crossed borders, arriving even in Japan.

I am a witness of all Jacob's efforts to transform IMPA into an institute of excellence, of his "fights" with government funding agencies to convince them of the importance of supporting basic sciences. When facing difficult situations, he always said: make sure the devil is not as ugly as he may seem, indicating that there would always be a way to deal with problems. Nothing made him give up on any goal. In Brazilian jargon, Jacob has always been a tractor, leading the entire mathematical community to do its best for knowledge and dissemination of science.

Although memory is fragile and writing facts drawn from reality that took place a long time ago are often only subtle glimpses of what we have seen and heard, I still have many memories to report, and all of them indicate how successful Jacob's goal was in bringing science to the best development and recognition, young talents realizing their potential, creating a pleasant environment to discuss mathematics, not only at IMPA, but also at the Academy of Sciences when he was president. Jacob was and is a tireless promoter of science and was able to literally bring the Dynamical Systems area to today's stage. Thank you Jacob for the good memories I have of the old days and congratulations on your 80 years of life, lived so fully.