

the probabilistic method) will in future be regarded as among the greatest achievements of 20th-century mathematics.

*Outside Mathematics what are your interests? I know you are a keen jogger. Did you not take part in the London Marathon several times?*

Outside Mathematics, my main interests are now my family (my son Peter is studying History at Oxford, my daughter Elizabeth hopes to study Electronic Engineering, and Mary is still active in Mathematics), and also

running. I try to run about 10km each day, preferably at lunch-time, as a break from the morning's work. I compete regularly, in road and track races, from 800m upwards, and I've represented Wales several times. I've run seven marathons, my best time being 2:26 in London, 1990, but now lack of time for training forces me to concentrate on shorter distances. I used to play a lot of chess, and as a student I came 2nd in the British Junior and Welsh Senior Championships; however, taking chess seriously is too much like doing research in mathematics, and far too time-consuming, so I only play casually now.

(Questions and picture by F. J. Craveiro de Carvalho)

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Gareth A. Jones was born in Cardiff, Wales, where he lived until the age of 19 when he won a scholarship to study Mathematics at Jesus College in Oxford. After six years in Oxford he obtained a DPhil for work on finite permutation groups. He was supervised by Peter M. Neumann and also benefited from Graham Higman's strong research leadership in Group Theory.

After Oxford he moved to Southampton where he has been ever since and where he is currently Professor of Pure Mathematics.

Professor Jones has written three textbooks, one in collaboration with David Singerman and two with his wife, the group-theorist Mary Jones. He also contributed a long article on *Symmetry* to Walter Ledermann's *Handbook of Applicable Mathematics*.

## GALLERY

## João Farinha

Prof. João Pereira Dias, summarizing the beginning of João Farinha's academic life, wrote: "...in 1934 he graduated in Mathematics in Coimbra with distinction". After mentioning his "ceaseless teaching work", he added: "Recruited as an Assistant in 1950, the School of Sciences showed its trust the very same year by giving him full charge of several courses; and four years later his position at the School was definitively established with the *Very Good* mention given to his brilliant doctoral examination".

Of those 16 years of "ceaseless work", I followed closely the last six, probably the most important: I met João Farinha in August 1944.

Having finished high school, I was going to stand for the university admission examination. Aware of my mathematical deficiencies, I went to look for the most reputed teacher of mathematics in Coimbra, who then lived in a strange *República*: its name was "Lactarium Paradoxorum", possibly because most of its members had already graduated, or were old enough for it.

A 12-year friendship began that day. I recall the warning he gave me and a cousin of mine: "I can teach you, but I can't promise to be very assiduous because I'm about to be married". The frequency of classes indeed suffered from this. My cousin, who was better prepared, passed the examination; I failed.

In October I began my mathematics studies with João Farinha, with three 2-hour classes every week. These tutorials quickly transcended mathematics, entering into history, philosophy, sports, literature, music and politics. My mother once asked him how he managed to keep me focused, to which he answered: “It’s simple: I noticed that Luís has a 45-minute attention span. So, after that, we stop the mathematics, we talk about something else for a while, and then we resume”.

It was during those breaks that he taught me to see the beauty of mathematics, it was during those breaks that I learned who Aniceto Monteiro was, that Pierre Curie was a man with a capital M, that friendship goes beyond age and opinion. I learned to know, or know better, people like the painter Mário de Oliveira or the sculptor Aureliano Lima. I learned from him the need for rigour even in apparently minor details (my students know this!).

Once, before my Algebra examination, he gave me a test. He began by asking me to define a function of bounded variation, a concept he made me study in Vicente Gonçalves’ book. I started: “Take a function  $\psi(x)$  continuous and differentiable in the interval  $[a, b]$ ”. “Wrong”, he said coldly. “How can that be? I haven’t said anything”. “Yes, but the little you said was wrong: you said  $\psi(x)$  and you wrote  $\varphi(x)$ ”. It was a detail – but he knew that in the Algebra examinations of the time you could fail because of such a “detail”.

My sympathy for António Sérgio made him smile, and he tried to correct my sometimes vaguely romantic opinions: it was from him that I learned the deep truth of the Shakespearean aphorism, “There are more things and heaven in earth, Horatio, than are dreamt of in your philosophy”, and I came to find much of what he taught me when I read Isaiah Berlin a few years ago, for instance “total liberty for wolves is death to the lambs...”

In 1947 I went to live in Switzerland but we kept in touch. In one of my holidays I brought him a book that had made an impression on my naive marxism. I don’t recall the author’s name, but the subject was marxism and mathematics. He read a few pages and said: “It’s all very well, but this doesn’t explain Évariste Galois”, and he proceeded to tell me about Galois.

In 1949 or 1950, during the summer holidays, I went with him and his parents-in-law to Lisbon to attend the first public musical performance by his wife, in the National Conservatory. The train had a long stop at Entroncamento and the two of us went for a walk on the platform. He told me then, and I was among the first to know (the very first was surely Luís de Albuquerque), that his situation *vis-à-vis* the University was to be profoundly changed.

His trust in me shows the dimension of the man: I was a naive 23-year old, inexperienced and therefore intransigent and dogmatic. But João knew that he could and should tell me, because he knew me, because I was his disciple more than his student, and unreservedly his friend.

A few years passed, and I, already an engineer, needed to improve my knowledge of statistics. I asked for his help and for several weeks I did some serious study of statistics. One day he told me: “I was asked to give a course on statistics to engineering students: you should follow this course”. I did, and I still remember the *Sala dos Gerais* overflowing with students, and João with his way of talking, head tilted, voice low, eyes half-closed, the exposition crystal clear, all present following, as under a spell, the words that shed light on the apparent confusion of curves and formulae.

At the end of term, João asked me if I could make available the notes he had written during his private tutorials to me, since no one had taken any notes and the exams were approaching. One of the students, a long-time friend, explained to me later: “Everything was so clear that no one thought of taking notes...”

He was an exceptional teacher. Apart from the love of mathematics, I owe to him the rejection of myths and received ideas, even the most respectable, the cult of friendship, and the courage to have different ideas even if politically or culturally incorrect. At a time in which the need for individual self-assertion has become almost mandatory, it feels good to remember the extreme modesty of João Farinha, on display even in his doctoral examination.

He seldom talked about himself. He never mentioned the full marks obtained in his mathematics degree, preferring his athletical “exploits” and his adventures as a radio sports announcer in the first broadcast of a football match in the old Santa Cruz field.

Once, under direct questioning by me, he said: “I was arrested the day after my graduation. Still recovering from the late-night dinner, I was taken to the Caxias prison, where I stayed for six months without ever being interrogated. I walked in the prison yard with the others and I played a lot of football. One day I was called from the cell and told to pack my things and leave. When I asked why I had been arrested they answered: “Don’t ask questions, just leave.” When I got out I could not find a place in any public school. I was left with private tutorials”.

I can’t talk about the mathematician, and even about the professor I didn’t say much. But I can’t help re-

membering the days when all of João's activity were the rational mechanics examinations, and a queue formed at his door: the first time I saw this I was worried, thinking that something had happened to him, but an older student sent me on my way with the words: "*Caloiro*, go away, this is a mechanics examination".

I don't know if he might have been a great mathematician, as Vicente Gonçalves thought, but I do know he was a great professor of mathematics and a Master in the old sense of the word. And for that maybe, but above all for his human quality and his friendship for me, I miss him very much, even today when I am older than João was when we first met.

We said goodbye in front of the house of Luís de Albuquerque: João was leaving for Paris and I was going to Lisbon to restart my professional life. We never met again.

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### The academic career of João Farinha

After finishing high school in Castelo Branco, he enrolled in the School of Sciences of the University of Coimbra in 1927/28. He graduated in Mathematics in 1934 with distinction.

Prevented from teaching in public schools until 1949 for political reasons, he became a teacher at private schools in Coimbra, among them the S. Pedro *Colégio*, with students of all ages.

At the same time he became the most reputed of private tutors for university mathematics courses, and his rational mechanics classes were legendary. As a result of that activity, he published in 1946 a book of problems on Algebra and Analytic Geometry.

In 1949 he became 2nd Assistant at the School of Sciences of the University of Coimbra. He got his doctoral degree in 1954 with a mark of 18 out of 20 and was made 1st Assistant on May 28 of the same year.

In 1956 he became a member of the Center for Applications of Mathematics to Nuclear Energy, established and led by Prof. Manuel dos Reis. In February 1957 he received a grant from the Gulbenkian Foundation to do research at the Institut Henri Poincaré and the Collège de France. He was in Paris when he died shortly afterwards.

The variety of subjects he taught as a Professor, from Infinitesimal Calculus to Higher Analysis, Celestial Mechanics, Probability Theory and even Machine Design, is perhaps due to the first 15 years of his activity, in which, because of his communication abilities and his extended mathematical culture, he had been requested to help students and entire classes in all kinds of subjects.



João Farinha

He died in the city where one of the mathematicians he most admired, Évariste Galois, had lived. Galois' fate echoes in the words of Vicente Gonçalves, João Farinha's professor and friend, who, after mentioning the limitations of time that his teaching activities imposed on his research, wrote: "...it was difficult for him to advance. In spite of everything, he advanced. When his position was already honourable, death came and felled him."

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### Publications by João Farinha

*O teorema dos resíduos e o cálculo da soma de uma série*, *Gazeta de Matemática*, nos. 44-45, 1950.

*Sobre um caso de convergência de frações contínuas de elementos complexos*, *Gazeta de Matemática*, no. 50, 1951.

*Sobre dois teoremas de Pincherle*, *Revista da Faculdade de Ciências de Coimbra*, vol. 21, 1952.

*Sur les limites des zéros d'un polynôme*, *Revista da Faculdade de Ciências de Lisboa*, 2a. série, A, vol. 3, 1953.

*Fracções contínuas ascendentes periódicas*, Revista da Faculdade de Ciências de Coimbra, vol. 22, 1953.

*Sobre a convergência nas fracções contínuas de elementos complexos*, Doctoral thesis, Coimbra, 1953.

*Sur la convergence de  $\Phi_{a_i}/1$* , Portugaliae Mathematica, vol. 13, 1954.

*Quelques propositions concernant les zéros d'un polynôme*, Revista da Faculdade de Ciências de Lisboa, 2a. série, A, vol. 4, 1954-55.

*Sur la moyenne arithmétique*, Revista da Faculdade de Ciências de Coimbra, vol. 23, 1954.

*Une condition de convergence uniforme*, Revista da Faculdade de Ciências de Coimbra, vol. 23, 1954.

*Sur la probabilité maximum d'accord de deux états*, Revista da Faculdade de Ciências de Coimbra, vol. 23, 1954.

*Sobre o valor preferível de uma série de observações*, Associação Portuguesa para o Progresso das Ciências, XIII Congresso Luso-Espanhol. Tomo III, Coimbra 1956.

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