

## Professor Mira Fernandes

Mira Fernandes was born on the 10th June 1884.

He came to be known as a man of exceptional qualities, whose success was due not only to his remarkable gifts, but also to a rigorous self-awareness and unremitting hard work.

He gained his doctorate degree in March 1911 from the now defunct Faculty of Mathematics, of the University of Coimbra, and in November of the same year was invited by Alfredo Bensaúde to take up a lectureship in the Technical College (*Instituto Superior Técnico*), which had been founded that same year. He began by lecturing in General Mathematics, but the subjects in which he excelled and which he taught until his retirement were Integral, Differential and Variational Calculus (2nd year) and Analytical Mechanics, in the 3rd year. From 1918 he became head of Mathematical Analysis at the former Business School (*Escola Superior de Comércio*).

rigour. His lessons and dealings with his students revealed the calm of a contented man. However, he was not ambitious, despite being of meagre means, and did not pursue a structured career or concern himself with posterity.

He died on the 19th April 1958. It was justly decided that his body should lie in state at the Technical College, of the Technical University of Lisbon, and the vigil and funeral procession was attended by many people. Most of these were former students come from all over the country to pay their last respects to their former teacher. It was a grand and moving spectacle, befitting such a great man.

The following extract is taken from his speech '25 years' which he made at the already-existing College of Economics and Finance (*Instituto Superior de Ciências Económicas e Financeiras*):



Aureliano de Mira Fernandes aged 70, in 1954

Professor Mira Fernandes was an unassuming personality. Although sensitive, he tended to be very direct and spoke his mind. However, he was of sound character, clearly defining the rules of any game, and, almost ingenuously, expecting the same treatment from others.

As far as his professional life was concerned, he was a wise and thorough teacher, always presenting original work, and simplifying without sacrificing academic

'I do not wish to tire you by referring to every one of the amazing achievements of theoretical research, which has moved at a rapid pace during these twenty five years. However, I do wish to remember and honour the great efforts and unending struggle for knowledge of all those involved in the teaching profession, men who finished their own studies at the beginning of the century

but who had a great passion for learning... All this so that teaching would not be a treacherous mission.'

He would go on to define the greatest precept of ethical responsibility of the university lecturer.

During the first seventeen years of his career as a lecturer, Mira Fernandes went beyond the requirements of the syllabus and prepared excellent courses that he would perfect and update each day. He continued in this way throughout his career. By his own definition, his first work was the paper 'Sur l'écart géodésique, la courbure riemannienne et la associée de Bianchi', published in *Rendiconti della Reale Accademia Nazionale dei Lincei*, March 1928. This work was actually the outcome of another, presented in Coimbra in 1925 at the conference of the combined Portuguese and Spanish Associations for Scientific Progress, in which he presented a fundamental formula generalizing another developed by Levi-Civita.

This was the start of a long and fruitful correspondence between the two men. Between 1928 and 1938, the results of his most important research into Analysis, Differential Geometry, Mechanics and Mathematical Physics were handed over to the Lince Academy, and almost all works were presented by Levi-Civita. The most notable from this period were three notes upon the unitary theory of physical space (1932-34), before the exchange was rudely interrupted by the Second World War.

A brief reference to a publication 'Conessioni finiti' (Port. Math. 1945) is also in order. In this work, he very courteously proved that Einstein's article 'Bivector Fields II' contained a mistake in a certain formal inference.

His last piece of scientific research was in 1957, one year before his death. This was published in the Journal of Lisbon Science Faculty, and was entitled 'Estensori jacobiani parziali e derivati'. Nowadays, when it seems

that more attention is given to the publishing of scientific research than to the quality of the work itself, these efforts of Mira Fernandes are notable as works of true research, dedicated to extending the boundaries of knowledge.

Besides his extensive courses, which he taught but never wrote down, Mira Fernandes left approximately a hundred pieces of written work, including essays, historical pieces about great scientists, and courses for the Institute for Advanced Studies at the Academy of Science on Modern Conceptions of Mechanics, in which he analysed the Theory of Relativity and Quantum Mechanics, among others. Everything to which he turned his attention was given a new perspective by him, as all who knew him will vouch.

We might apply to Mira Fernandes words which he himself used about Lagrange, the father of Analytical Mechanics, on the bi-centenary of that scientist's birth:

'To define, clarify and generalize were the main objectives of his scientific work.'

Mira Fernandes was always at the vanguard of scientific knowledge, and was at ease in the company of the great personages who have constructed World Science and, ultimately, World History.

We will conclude with a snatch of conversation brought to our attention indirectly by his elder daughter, with the characteristic sincerity that she has inherited from her father. It concerns a certain letter:

'...a letter, yes, there was a letter, but at this distance it is difficult to be precise... There was an invitation to Princeton, that is certain... for him, the family, all of us, and it was certainly not just for one day or one week... He did not accept.'

Princeton! It is well-known that Einstein left Europe in 1933 and made his base there. That must have been around the same time...'

Manuel José de Abreu Faro  
(Universidade Técnica de Lisboa)

(Adapted translation)

Editors: F.J. Craveiro de Carvalho (fjcc@mat.uc.pt), Maria Manuel Clementino (mmc@mat.uc.pt), Sofia Jourdan (isj@doc.ic.ac.uk), Carlos Leal (carlosl@mat.uc.pt).

Departamento de Matemática, Universidade de Coimbra, 3000 Coimbra, Portugal.

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