

## Guest Editorial

# Harley Bicas: The strabismus specialist passionate about ocular optics but, above all, the professor

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James Webb, the telescope, is far away. With its incredible ability to absorb universal light, converge it precisely to its cameras and generate accessible and fundamental information for the human being. Harley Bicas, the teacher, is at our side. With his passion for rationality and the incredible understanding of humanity necessary for scientific understanding, he converges the myriad of information the universe presents to bring us fundamental information.

As stated in his own words, the young man who was born an engineer embraced the medicine, that fell into his lap, as the passion of his life. Longer than his life as a doctor, which began in 1962, is his life as a teacher, since, even as a medical student, in 1960, he was already a teacher, teaching chemistry and physical chemistry to high school students. His greatest legacy is his students and his greatest joy is accompanying his students and teaching new students.

He became a university professor in 1964, and his doctoral thesis entitled 'On a New Principle of Keratometry' already demonstrated, in 1967, his passion for ocular optics; however, life took him to strabismus. A man of unshakable moral values and spirituality, he married Strabismus. He flirts, from the beginning, with ocular optics.

Today, analysing historically, I understand what made him a strabismus specialist. In the 1960s, while most subspecialties of ophthalmology still outlined their interest groups, the study of strabismus was already consolidated, with the existence of the 'Squint Club' in the United States (with meetings since 1955); the 'Consilium Europaeum Strabismi Studio Deditum,' since 1961; the 'Japanese Association of Strabismus and Amblyopia' (1964) and the 'International Strabismological Association' (1966). In Latin America, the 'Consejo Latinoamericano de Strabismo' was founded in 1966. The creation of the first subspecialty society in Brazilian ophthalmology, the 'Centro Brasileiro de Estrabismo,' took place in 1967. In other words, the possibility of sharing

information and discoveries with his peers, in a constant and organised way, irreversibly seduced him.

Confirming the duality of his passion, his first works, in 1968, were about accommodation.<sup>[1]</sup> In the following 2 years, numerous publications and presentations at conferences addressing sensory aspects of strabismus consolidated his *status quo*-questioning personality. This restlessness culminated in the proposal of a new clinical test,<sup>[2]</sup> used worldwide until today: The Bicas Manoeuvre.

He moved to London for his Postdoctoral work at the Institute of Ophthalmology of the University of London from 1969 to 1971. In 1972, he was invited to be a professor at the Wilmer Institute, Johns Hopkins University by Prof. Edward Maumenee, an invitation he resentfully declined for fear his family would not adapt. In 1974, he was invited by Prof. Arthur Jampolsky to join the Smith-Kettlewell Institute of Visual Sciences in San Francisco, where he stayed until 1975 and cultivated a long-lasting friendship and mutual admiration.<sup>[3]</sup> Following the evolution of the history of strabismus and the teachings of his mentor, São Francisco changed the direction of Professor Bicas' academic life towards Ocular Mechanics. At this time, studies on 'forces,' 'elasticity,' 'tension,' 'velocity,' 'accelerations,' 'energy,' 'vectors' and 'matrices,' were mainly related to dynamics and physics than to psychobiology. For which a mathematical language, with which he was extremely comfortable, suited him better.<sup>[4]</sup> Numerous works and innovative proposals were suggested by him in the following years on active forces, passive forces, dissipative forces and other considerations of ocular mechanics, such as those presented at the Wenner-Gren International Symposium (Stockholm, 1987) and the Magistral Conference of the XXV Anniversary Congress of the Spanish Society of Strabology (Madrid, 1996). In 1985, when I was in the 5<sup>th</sup> year of medical school, Prof. Harley, once again, showed his inventive mind, proposing the use of

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electromagnetic forces in the treatment of strabismus.<sup>[5]</sup> This line of research was reproduced and generates several studies until the present day, with promising results.<sup>[6]</sup>

As a further consequence of his interests, based on his knowledge of electromagnetic forces and fields, in 1972, he proposed the use of electrooculography to measure ocular rotations.<sup>[7]</sup>

My pleasant personal contact with the most admired Professor began in 1986, during the past year of my medical training. At that time, a 'new' surgery was being performed to correct myopia: Radial keratotomy. With its beginnings being distant from academic institutions around the world, it was up to my professor to explain what the theoretical (and mathematical) bases for the functioning of the surgery would be. I was mesmerised by his ability to understand phenomena. A true physicist, with mathematical knowledge and a medical soul. At this time, he suggested that similar surgery should work to correct hyperopia. Using all his knowledge of elastic forces, he suggested that I implant circumferential elastic bands in rabbit corneas to prove his theory. Sceptically, a colleague and I unsuccessfully attempted the surgical procedure. 20 years after this failed attempt, at a meeting to develop a new keratorefractive surgery, with researchers focused on intracorneal rings, I heard that the proposal would be to manufacture intracorneal rings that could be sutured to reduce their diameter and consequently correct hyperopia. Once again, Dr. Harley was years ahead of his time 20 years.

As the good son returns, between 1993 and 1994, Harley returned to The Smith-Kettlewell Eye Research Institute as a guest researcher.

In 1999, becoming Editor-in-Chief of *Arquivos Brasileiros de Oftalmologia* (1999–2009), he assumed a new position based on an old passion: Writing. Anyone who knows him knows how seriously he takes the Portuguese language. He professionalised the Brazilian scientific journal that had existed since 1938, adapting all its indexes, standardising its publications and making it available on PubMed. I was honoured to have been invited to succeed him in this position in 2010. He was president of the Brazilian Council of Ophthalmology between 2005 and 2007, where he excelled in encouraging the teaching of ophthalmology. His greatest pride came a few weeks ago when he learned that the 'Consejo Latinoamericano de Strabismo' created an Iberoamerican campaign on amblyopia called 'Harley Bicas.'

Married for over 50 years to Ib Maria Lemos Bicas, they have five children and nine grandchildren. Professor Harley has about 300 papers in scientific journals and conference proceedings, as well as over 10 books and 100 book chapters published. He actively participates in several committees at the Brazilian Council of Ophthalmology, preparing and evaluating the council's tests, gives lectures at several congresses and is admired by his students and patients. He is an example of moral correctness, ethics, generosity and good conduct. He is an inexhaustible source of stimulation and one of the most pleasant people to be around.

Thank you, Professor, for sharing your mind and soul with your students!

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