the last word:
Living history

In an exclusive interview with the American Physiological Society for their Living History of Physiology Project, world-renowned smooth muscle physiologist Professor Marion J Siegman recalls how she entered the field as well as her first tentative steps into an area that became a lifelong passion. The first of a two-part feature, International Innovation offers early-life highlights from Siegman in this issue’s last word.

LIFE IN A DOCTOR’S OFFICE

I consider myself rather fortunate. I grew up in a medical household and my father was a general practitioner. As was typical at that time, physicians had neighbourhood offices, so he was literally the corner doctor. The separation between our apartment and the office was officially a door, but to me the door was never closed – the office became a rather unique playground for me and my friends when my father was out making house calls. What was very important was that he put up with my incessant curiosity and was always very willing and enthusiastic about teaching me. Basically, this set the stage for programming my mindset that medicine was ‘über alles’.

SOWING THE SEEDS

Given the background of my home life and really being certain that the only course for me was practicing medicine, finally getting to college, being exposed to a myriad of courses in science and seeing things I’d never imagined I would see basically awakened me to what it was all about – it wasn’t just seeing patients. There was a scientific basis to all medicine and I was fascinated by it. What helped a great deal was the arrival of a young genetics professor – Peter Volpe – who took over the biology courses. He invited me to help him with his experiments and that was my first chance to see research, and I thought ‘wow, this is fun, it’s hands-on’.

A TASTE OF RESEARCH

I graduated from Tulane University at the ripe old age of 20, absolutely frightened of the world, not knowing what I was going to do. So I thought it would be a good idea to get a job at a research lab. I managed to join the Rockefeller Medical Research Institute in the laboratory of Paul Weiss, the famous developmental biologist. That was a monumental day in my life. I spent three wonderful years there, exposed to new technology and methods I had never imagined, and amazing people.

I then took a job at the State University of New York (SUNY) Downstate in the Pharmacology Department and that was where I got my first introduction to muscle. Then, in 1959, I took a very long boat ride to Sweden and started a marvellous year at the Karolinska Institutet in Sweden, where my research culminated in my first publication in Nature on the demonstration that more epinephrine was stored in discrete granules in the heart of the cyclostomes. That kind of lit a fire in terms of pharmacology and wet science for me and is why, when I returned home, I thought, ‘it’s time to get busy, go to school and hopefully have my own lab’, I was the first woman to apply to the graduate programme in Pharmacology at SUNY Downstate.

THE BEGINNING

My interest in muscle was a nagging one and was fuelled by seminars I had heard that were given by Annemarie Weber and others. I was interested in muscle mechanics but when I said that to Eric (C Y Kao) he said: “Oh no, that’s for the guys to do, girls don’t do that”. I think because he said I couldn’t do it, it made me want to do it even more. But, as luck would have it, when I finished my work he had convinced me to stay another year and run his lab, so I took that as an opportunity to get the background that I needed in muscle.

When I moved to Jefferson Medical College in 1967, we launched new studies on smooth muscle mechanics, about which very little was known. One of the worst problems about work that had been published was that the muscles showed spontaneous activity; you certainly can’t quantify anything under those conditions. Most people had used drugs to block nerves, but clearly these interfered with the activation of the muscle. So, relying on my readings about transport and electrical potentials in smooth muscle, I took advantage of the fact that you could simply cool them and they were silent, healthy and responsive – they were obedient – meaning perfect preparations for analysing the results. That was the beginning.

To watch the interview in full, please visit: www.the-aps.org/mm/Membership/Living-History/Siegman

Make sure you are registered to access International Innovation. Just complete and return the enclosed form, or go to www.internationalinnovation.com/join-us/registration