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Does it really matter that one is a woman scientist?

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My images of a scientist came from the wonderful books of Jules Verne that my uncle got me to read when I was a schoolgirl of eight or nine. I read each of them at least two to three times and dreamt that I would also one day journey to the centre of the earth or save mankind from an invading microbial colony from outer space!

I think I was lucky to be born in a family which had grandfathers who were teachers, a mother who wanted more than anything else to educate her girls, and a father who did not interfere with his wife's ambitions. My early years in school were mostly marked by some very good science teachers who encouraged me to ask questions. I initially wanted to study science only because I had romantic ideas about helping the poor people in my country by being a good teacher!

Girls of my generation usually did not think of a lifelong career and took up a job in a bank or became a teacher because this career path was considered to be 'trouble-free'. My parents supported my decision to take up a career in science. However, they also worried often about their decision of letting me be a

researcher, especially when a neighbour's daughter got a job in a bank or when someone's niece got engaged to be married. They were often criticized by relatives and friends, and I was told by these people that whatever a woman did, ultimately her role was that of a good wife and a mother!

Out of a class of fourteen students who did their undergraduate programme in physics, only four of us went on to a post-graduate degree and I think I was the only one who went on to complete her Ph.D. I think I chose science, especially physics, because I loved the fact that one could explain so many things in everyday life and if one was only curious, one could go on discovering why and what made the world go round!

At college I found that an overload of abstract ideas was not for me and I loved experimental physics more than anything else. I realized one need not be a genius in theoretical physics, or even be mechanically handy. One only had to wish to find new things and have the strength to work on an experiment where no one had yet found an answer. The greatest joy is when you are the first person to get to the answer. Today, I often tell my Ph.D. students that the nice thing about being a scientist is that you get paid to do something you enjoy. I do not think any other job gives you this luxury.

I completed my master's in Physics with electronics as my special subject, and when I went to register for a Ph.D. programme I decided biophysics would be the area of my research work.

After completing my Ph.D. in biophysics, I went to Max-Planck Institute for Biophysical Chemistry, Göttingen, for post-doctoral work. In the meantime I had married a chemist who supported my passion for research and encouraged me to be scientifically active. He shared the childrearing effort as much as possible. For almost four years after our marriage, I stayed in Germany while he worked in Canada, and we thanked Thomas Graham Bell for inventing the telephone that kept us going all through those years!

My years at the Max-Planck Institute were enriched by excellent teachers and scientists like Hans Kuhn, Manfred Eigen and Erwin Neher, who showed me how interesting science could

be and the wonderful world we could explore through experimental work. My important contributions during this time dealt with development of new experimental tools to study molecular assembly processes at interfaces and in lipid-protein interactions. Switching from physics to biophysics to physical chemistry or even sensory physiology was made easy and interesting due mainly to the great teachers I worked with. My rewards have been my class of enthusiastic graduate students who rushed to attend my course in experimental techniques in biophysics or spectroscopy and voted me an excellent experimental physicist!

I realize the first few years in the career of a scientist are important and women scientists need to avoid falling behind their male colleagues during this crucial period. Due to the traditional role of child-rearing or care-giving expected of women, often women do get left behind. I have been lucky in that my husband and I share an enthusiasm for science and this has helped me tremendously in my career.

I am presently a scientist in a national laboratory, fortunate to have had excellent mentors, who have inspired, encouraged me to do what I wanted. This freedom to explore has helped me to mature as a scientist.

I have benefited greatly from my students. Their questions and curiosity have helped me to explore new areas in science.

Of course, being a woman scientist has not always been easy because one has had to make difficult choices in life. I think some of my fellow women scientists would agree that we go on a constant guilt trip because we think we are not doing justice to our roles as mothers or as scientists. Society still stereotypes women in certain roles and does not expect us to break from them easily.

To be accepted as a scientist who happens to be a woman is still an uphill task in some areas considered a man's world! A woman is expected to be docile and not ask too many questions. Even where women are allowed to study and work, some roles are still assigned to women by men. This often acts as a deterrent for young women who may have wished to take up careers in science.

If we could free ourselves from such prejudices and approach science with an intellectual objectivity, it may be

possible to do outstanding scientific research. To go on working passionately in science requires the support of the family and society, especially for women. For me this has been possible mainly because my son, my husband, my parents and my entire extended family have stood by me and have helped me to go that extra mile. Not all moments have been great. I have had to face setbacks and challenges. However, the freedom to be open, to enquire with the curiosity of a child, and to understand the world through science has been a wonderful privilege! In the world of science any discrimination or prejudice has no role to play and I hope women as well as men will be allowed to live by the same rules.