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## Woman! Work like an ant, act like a man, but remain a woman!

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**T**o become a scientist for a woman means adopting quite a different but challenging way of life! It requires extreme hard work to be successful on all the fronts-professional, personal, and social. In order to be even an acceptable scientist she has to work much more than her male colleagues. This, however, is not enough in a male dominated society. Actually, she has to work like an ant, act like a man and stay like a woman! A woman has a lot of inner strength but she has to recognize it. Additionally, a woman scientist requires a sustained support and understanding from her husband, children and relatives, as a scientist she has to get truly engrossed in research. It is a twenty-four hours job! I consider myself to be fortunate enough to get all that without any reservations.

Today, while looking back, I can say that I could successfully take on the challenges in my career because of my urge for learning and perseverance, the seeds of which were sown in my childhood. I always liked to tackle the difficult problems and

enjoyed working hard to solve them successfully.

The school I attended in Wai (in Maharashtra,) was good, however, the emphasis was on languages and social sciences. Physical sciences were taught in a dull and uninspiring way, but I had developed a love for mathematics. (Thanks to the teachers like Shri W.L. Bapat and Shri P.K. Gune, who inspired me.) So I entered Fergusson college in Pune with the idea of pursuing mathematics. Later, I chose Physics, as it involves substantial amount of mathematics.

The real motivation to pursue science came from M. R. Bhiday (then head of the Physics Department in Pune University) who encouraged us to 'do science yourself'. The number of girl students taking higher education and particularly Physics was very small at that time. Surprisingly, there was only one lady faculty member, who used to discourage us from doing research!

As a part of my Ph. D. work I designed and fabricated an automatic scanning X-ray spectrometer. In 1972 it was not easy to do this at our place! I began setting up a demountable X-ray tube, a high voltage power supply for it and electronics for scanning spectrometer, right from painting a circuit board, etching and assembling various components! In the current context it might not be a great thing. But to see the X-ray generator working and the spectrometer actually recording X-ray fine structure like that in the literature was a wonderful experience for me. It indeed gave me the confidence, which helped me in future to work on some extremely sophisticated and state-of-the-art instruments.

Prof. Bhiday and my research supervisor Prof. A. S. Nigavekar encouraged me to do postdoctoral work in Germany. This was an opportunity I had not imagined. My husband did not want me to go away for a long time but I somehow could convince him, emphasizing my desire to enter a new, emerging area of surface science. I told him how the postdoc experience would help me in setting up a new laboratory in our department.

In Prof. Menzel's laboratory at the Technical University of Munich, in 1977, in a big group of about 25 students and postdocs there was not a single woman student, faculty or post doc. Even today, there are very few women working in the field of science

and even fewer make it to the top.

I returned to Pune University in 1978 as a faculty member. I spent a lot of time setting up the surface science laboratory. It was not easy. In the absence of e-mails and even fax, it was difficult to communicate. This was the most crucial period of my career and it took unexpectedly long to get the laboratory started. We eventually started publishing in international journals of high reputation. There are ups and downs, sometimes things work well, sometimes nothing works in spite of your efforts, but one should never give up.

The atmosphere in my department has been good. Like everywhere there are elements of jealousy and rivalry but they have not hampered my progress enormously! The progressive atmosphere set up by Prof. Bhiday is still maintained. And this ambience has attracted many girl students to join the department and also my group for research. I have also encouraged them to make a career in science.

Creativity and challenge in science have always enthralled me. To my satisfaction, I could build a reasonably well equipped laboratory in Surface and Materials Science. People who do not know me well, might wonder how I could do it! Do not I have a family? Indeed a woman has to spend enough time with her family, especially when her children are young. But if she plans the work properly, I think, there is enough time for everything.

Not all has been rosy in my research career. There were many occasions when I was given challenging responsibilities and I completed them successfully. But at the time of rewards male colleagues were preferred! I wonder if this was the price of being a woman scientist. The saying goes, 'that's how the cookie crumbles'. Ideally, there should be no such thing as gender in science and I have tried my best to work in that spirit. From my experience, I can say that women can work efficiently and creatively. They can do equally well, even better than men. If women are given fewer opportunities, they should not feel discouraged. If one door closes, another opens. They should continue to work, because only continuous hard work in the proper direction brings rewards and satisfaction.