

More than 50 years in protection.

the guru



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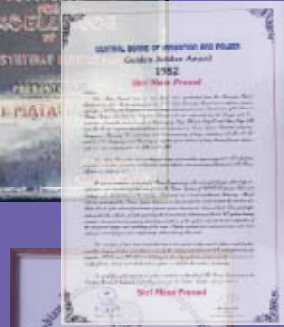
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All awards have been very enjoyable, intoxicating and encouraging.

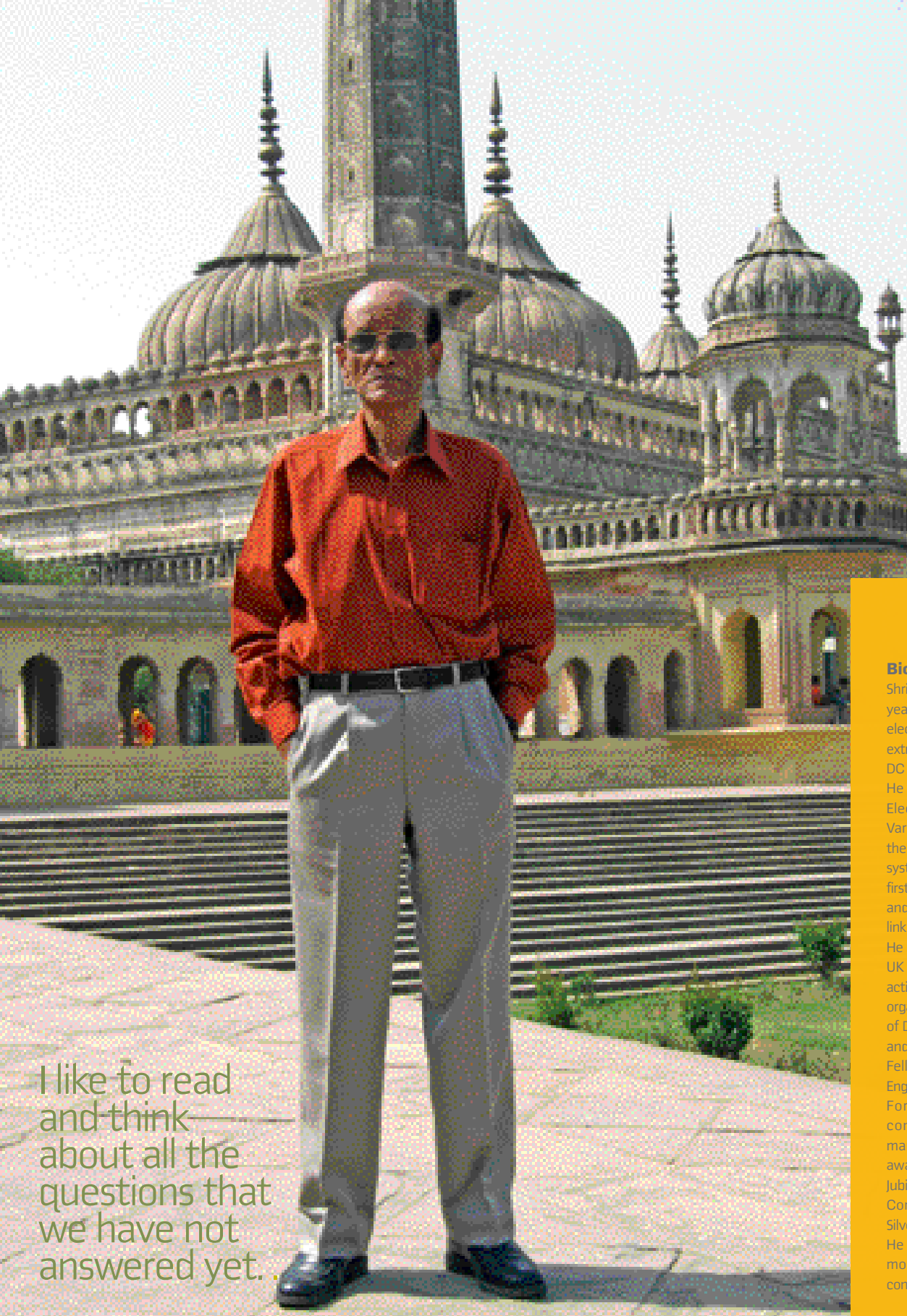


2008

Technical innovation and developments are taking place in a very high pace.



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I like to read and think about all the questions that we have not answered yet.

#### Biography

Shri Mata Prasad has more than 50 years of experience in the fields of electric power systems protection, extra high voltage and high voltage DC systems, power plants and SVC. He received his B. Sc. degree in Electrical Engineering from BHU Varanasi. He was responsible for the development of the first 400 kV system, as well as the first SVC, the first HVDC bulk power transmission and the first HVDC asynchronous link in India.

He has also worked in Sweden, the UK and France and has been an active member of many professional organizations, achieving the status of Distinguished Member of CIGRE and Senior Member of IEEE, and a Fellow of the Indian Academy of Engineering.

For his accomplishments and contributions he has received many national and international awards, such as the CBIP Golden Jubilee Award, the CIGRE Technical Committee Award and the OEA Silver Jubilee Celebrations Award.

He has authored and presented more than 115 papers at many conferences around the world.



My family

plays a very

important

role in

my life.

four years of my engineering education. I believe, it was God's wish that none of my close relatives came forward to guide or support me in my efforts and I surrendered to Almighty God to guide me all the way. This proved to be a blessing as I received all the help from HIM and I never felt alone. The strength

of my mother and guidance from Above kept me fully energized to realize my objectives.

**PAC World:** Did you have any special interests while in school?

**MP:** I did have interest in pencil sketching, instrumental music, drama and some games like volleyball, but my special inclination was towards reading everything I could lay my hands on, including novels, stories and mythological/religious masterpieces like Ramayana, Mahabharata and Bhagavad-Gita. The contribution and direct influence from Shri Jaishankar Prasad, a great name in Hindi literature who was a close friend of my father and quite influential. I had time allotted to study my normal course and general literature studies that did not leave me

**PAC World:** Would you tell us something about the places where you were born and where you grew-up?

**MP:** I was born at Varanasi, UP on 3rd April 1932 and completed High School (Commerce) from Sanatan Dharam High School in 1948, Intermediate (Science) from Banaras Hindu University 1950 and B.Sc., Electrical Engineering from Banaras Hindu University in 1954, in Varanasi.

**PAC World:** Do you think there was something special during your school years that affected your future?

**MP:** I was quite keen to study engineering, especially mechanical engineering, since the day I started school due to my special fascination for machines and mechanical gadgets. Unfortunately, I had to continue my academic education until high school with non-science subjects like commerce, bookkeeping and accounting. However this did not discourage me from pursuing an engineering education.

**PAC World:** Did your family influence your career?

**MP:** I lost my father in 1948 just before my high school examination. The inspirational support I received from my creative mother gave me all the strength to complete my engineering courses - securing first division in all the

time for indoor or outdoor games. I always felt a shortage of available time during my youth and even today I feel that there isn't enough time and so many things to do.

**PAC World: How and when did you decide to study electrical engineering?**

**MP:** The four year engineering course at BHU consisted of two years for combined study in civil, mechanical and electrical engineering. In the third year, one has to select whether to pursue a mechanical or electrical discipline. As I said earlier, I had a blind infatuation for mechanical engineering however a group of my Electrical Engineering professors, especially Prof PC Dutt, Prof MC Pandey and Principal M Sengupta advised me to choose electrical engineering as they felt that I was more suited for it. Today I must admit that my professors correctly judged my aptitude and I owe everything to them.

**PAC World: Did you study protection while in university?**

**MP:** Yes, I did study basics of Protection relaying covering Generator, Transformer and Transmission Lines and this particular topic fascinated me especially when I had gone through some of the classic relaying schemes described by Lewis and Tippet, Montieth and others published in AIEEE Transactions. I was later exposed to protection philosophy when I joined active service in UP Electricity Department in 1957.

**PAC World: Did you have any other interests while studying? Sports? Music? Arts?**

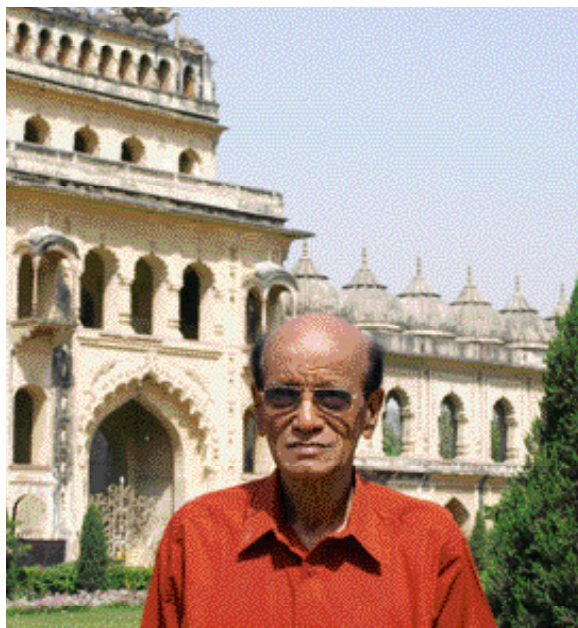
**MP:** As I said earlier, I did have great interest in music and arts but I could never fulfill my desire to accomplish anything further in this regard. I was very good in pencil sketching of portraits and landscapes. I should have continued in these fields at least after retirement!

**PAC World: Where did you start your career? Did you work on power system protection from the beginning?**

**MP:** From October 1954 to January 1955 I was under training in Rihand Hydro project department and then shifted to field duties - responsible for surveying and construction of 33 kV double circuit lines. After joining the Electricity Department as Assistant Project Engineer in 1957, the first technical job allotted to me was to study the Protection System for Rihand Power Plant and draw specifications for protection of 132 kV lines and substations. Thus, I started my career with Protection and that became my first love.

**PAC World: Would you describe the most challenging project that you have been involved in?**

**MP:** There were scores of challenging jobs entrusted to me and successfully delivered. For example, the interconnection system of the Obra 1000 MW power plant with nine 400 kV lines of length varying from 140 to 400 km. In 1984, I joined NTPC on deputation for the HVDC Projects and also for handling the associated 400 kV lines from power plants and interconnected network. I had the privilege to be actively associated with the first 400 kV Static Var Compensators at Kanpur, the first 2\*250 MW



Asynchronous Back-to-Back HVDC Link between Northern and Western Regions, the first 810 KM Long +/- 500 kV Bulk Power HVDC Transmission from the Rihand Power plant to the Dadri HVDC Receiving Station.

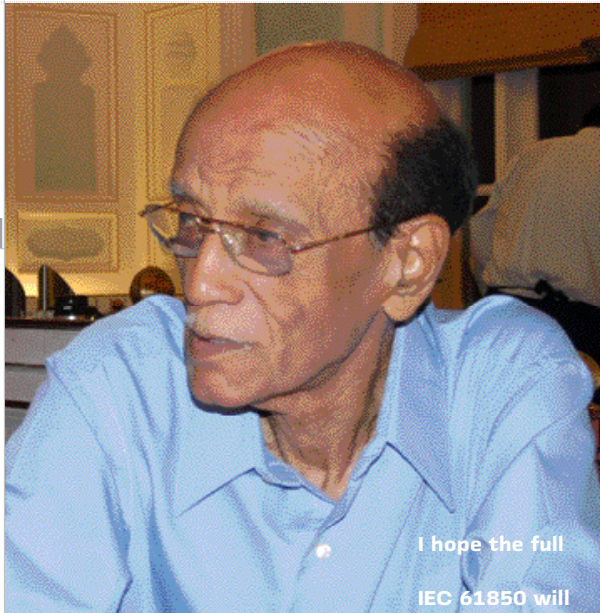
**PAC World: You received several awards for science and technology in your country. Would you describe some of them and why you did receive them?**

**MP:** God was very kind to me that I received the following prestigious awards:

- CBIP Golden Jubilee award in 1982 for my contribution for successful execution of field tests on 400 KV system
- NPSC Award in 1991 for Excellence in Power System Management
- "Distinguished Member" of CIGRE (France) Award in 1996 for my contribution in CIGRE Activities in India and abroad
- CIGRE Technical Committee Award in 1997 for Outstanding Contribution in SC 14 HVDC & Power Electronics
- Scroll of Honour from Institution Of Engineers (I) Calcutta in 1997 as Eminent Engineer
- Fellowship of Indian National Academy of Engineering in 1998
- CEA Silver Jubilee Celebrations Award for Excellence in Design and Engineering of Power Sector in 2000
- Life Time Achievement Award by IEEEEMA in 2008 for my contribution on Switchgear and Control Industry in India.

**PAC World: Which of your awards you consider the most important and why?**

**MP:** All of the awards are important to me but the following three awards are most precious to me: CBIP Golden Jubilee Award in 1983; Silver Jubilee Celebrations Award



I hope the full  
IEC 61850 will



of CEA in 2000; and the Life Time Achievement Award in 2008 from IEEMA.

**PAC World:** How did you feel when you received these awards?

**MP:** Oh! How do I express it? Very enjoyable, intoxicating and encouraging!

**PAC World:** What do you consider your greatest achievement?

**MP:** Optimizing the design of EHV Network and appreciation of impact of Reactive Power Compensation in Indian Power Network affecting the Security, Reliability and Efficiency of the network.

**PAC World:** And what do you consider your greatest personal achievement?

**MP:** Motivating and providing training to young engineers to enrich themselves with the latest technology and bring the country to a level even with any developed country.

**PAC World:** When and how did you get involved in CIGRE activities?

**MP:** My association with CIGRE started when I was with CEGB Bristol. Dr. John Rushton and Mr. L Annanin of Plant Design Department of CEGB had virtually indoctrinated me with CIGRE philosophy.

**PAC World:** How did you share your knowledge and experience? Did you write papers or books, or did you teach directly to your younger colleagues?

**MP:** I believe that technical knowledge acquired must be distributed to younger engineers in order to motivate and inspire them to rise further in their profession through the

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use of acquired technology. There is an old saying that every word is a Mantra, every plant and herb is a medicine and no man can be deemed as unfit. What is scarce is the teacher, with spirit and desire to teach and pass along knowledge.

I have not written any books on my preferred subjects but have contributed more than 115 technical papers to various national and international conferences in various countries: North and South Americas, Europe, Australia, China, etc. I have had extensive discussions with the delegates from utilities and private sector industries and I am satisfied that my papers have created interest.

**PAC World:** Do you still participate in conferences? Do you still present papers?

**MP:** Yes, I do, but my contributions have reduced and that is quite natural. I am also promoting and supporting the need for experienced young engineers to come forward and take part in international and national conferences.

**PAC World:** What do you think about the difference in the technology that we use for protection today and when you started?

**MP:** There is a marked difference due to the onset of solid-state electronics and now the digital techniques. However, the philosophy remains the same. The fantastic journey from four-pole induction cup relays with polarization from healthy or faulty phases to the use of replica impedance using phase or amplitude comparators has been quite rewarding to study and apply.

The complex multi-level digital electronics have made the protection relaying much more versatile with multiple benefits. The era of Computer relaying has now arrived; Phasor and wide-area measurements with GPS appear to be



We need to think  
more about what  
we can do with  
our abilities

quite complex and dynamic. The relays seem to transform into a universal type of protection and measurements fully fitting into SCADA and remote integration. "One Substation and One Computer" as a part of a complete SCADA and Substation Automation appears to be the real target.

**PAC World: What is the difference in the workplace between when you started work and today?**

**MP:** The difference is too great to describe. For some time now we have wondered how the whole protection application, testing and coordination were done in olden days completely on a manual basis; the application gave us very good insight. We are now required to handle the black-box with computer assisted testing. However, the present day technique is versatile and efficient.

**PAC World: What do you think of the impact of IEC 61850 on the future of protection?**

**MP:** How much did we struggle to coordinate the systems provided by different manufacturers for SCADA Load dispatch and integrating various control functions of various equipment? Now with one common platform the coordination becomes very smooth and rewarding. I hope within a couple of years the full IEC 61850 would be applicable and the design and testing engineers would be trained to handle all such applications.

**PAC World: What is your definition of retirement?**

**MP:** For me the word retirement does not exist. You may be working in one arena and stage and after exiting your role, you go to other areas. The superannuation at the age of 60 is just a milestone to be celebrated to take off to next stage of working with renewed spirit with new tires on the wheel. I cannot forget the spirit of Dr. Charles Concordia whom I had met several times during CIGRE Conferences in Paris where he used to come every two years. He had grown weak with a frail body but he still had a strong will to learn and teach. Now he is no more - at the ripe age of 93.

**PAC World: What do you think about the Internet?**

**MP:** Internet has revolutionized the entire world and equally well the Power System in all the fields. You can realize your dreams through integration of computer, power electronics and Internet. The Internet has become very addictive.

**PAC World: What books do you like to read?**

**MP:** I have an insatiable hunger for purchasing books of all kinds including English and Hindi covering Fiction, History and Region besides technical Handbooks and Classics and above all International Conference Publications. I am a very fast reader. I study different books and like to share with my colleagues in CEA, PGCIL and NTPC who show interests and believe in imparting and exchange of such knowledge.

**PAC World: What do you like to eat?**

**MP:** I am strictly vegetarian, as I believe our human body is designed for only such foods. I like spicy foods and mostly drink tea – for example Darjeeling tea mixed with some Tulsi leaves that I add to it.

**PAC World: What music do you usually listen to?**

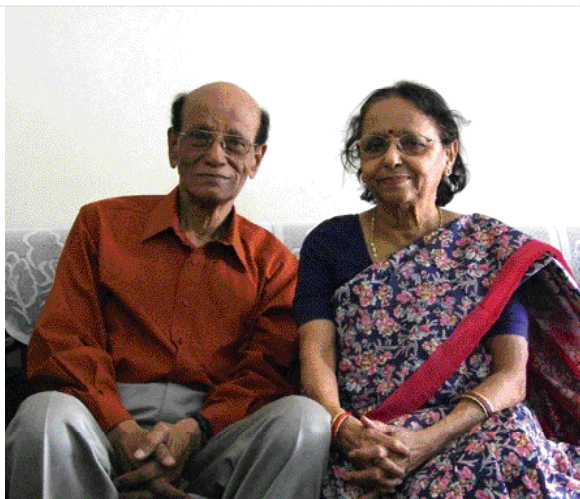
**MP:** I like to listen to instrumental classics from known maestros especially those who play sitar, flute shehnai and percussion instruments. My interest in light music, Gazals and good songs from films is always kept alive. When I was younger I was very fond of films - both English and Hindi - and I was a regular visitor to cinema halls. Of late, this has reduced and I prefer watching the good ones on my TV through a DVD player. I have my own collection of film and music CD's

**AC World: How do you spend your time when you are not working?**

**MP:** When I am not working, I remain at home. I like to read and think about all the questions that we have not answered – where do we come from, are there any other civilizations out there and many others. If we look at Stephen Hawkins and what he has achieved despite his disability – we need to think more about what we all can do with our abilities. I also visit friends for a chat. I wish to provide more time to my family as I had deprived them of the same when I was working full steam.

**PAC World: What do you think are the biggest challenges for our industry?**

**MP:** Technical innovation and new developments are taking place at a very fast pace and one must plan to with-



**The secret of being together is very simple - my wife loves me and believes in me and I do the same.**

stand the impact of such a fast pace through deployment, structured training and modernizing the course contents in degree and post degree classes to create more avenues in Power System Engineering education.

The way the young engineers of any discipline are being pushed blindly towards IT must be handled discreetly. Complete fusion of power electronics, information technology and computer application with special reference to Power System Engineering must be examined by the technical institutes.

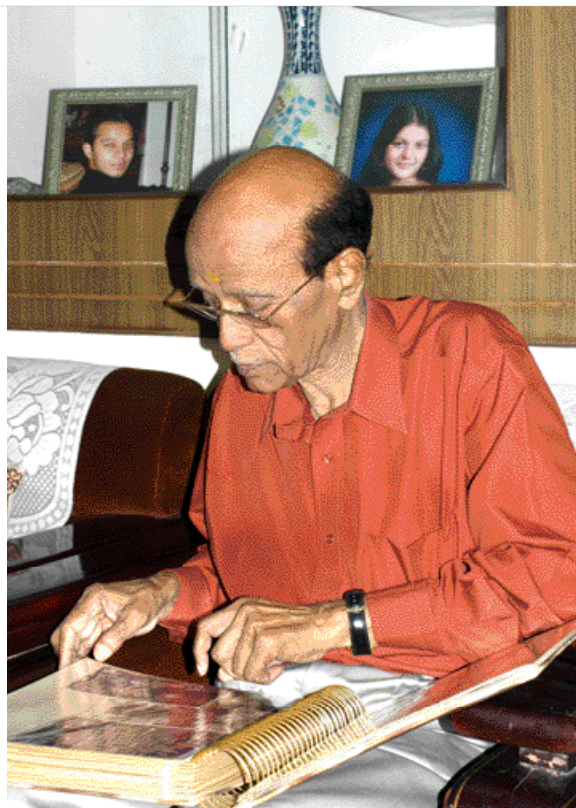
**PAC World: What do you think about the interest of young engineers in power systems protection?**

**MP:** Young engineers are like plastic clay and one can mold them into any shape. They are swayed by the winds of explosive development in electronics and feel that this is their final goal. This misty notion has to be intelligently clarified. These days young engineers feel that protection relaying is too complicated, forgetting however that in their own application and relaying, the algorithms are common and very easy to understand.

**PAC World: You were married in 1954. What is the secret of being together for so many years?**

**MP:** It is very simple. My wife loves me and believes in me and I do the same.

**PAC World: If you were standing in front of an audience of young engineers, what would you tell them?**



**MP:** The whole universe is based on electrons and neurons. Power system engineering is one discipline that throws the real challenge. It is a different path and power system engineers become rather introvert, just as they have to think and act. However, the challenges that come up in delivering the objectives of the system engineering and protection is really intoxicating and once you have fallen in love, you will remain faithful forever. I always give an example of doctors and lawyers who have to study on a daily basis, consult the latest developments in their profession and then they achieve their goal of eminence. This is true for power system engineers, as they will always have to keep themselves fully aware of the developments through regular study and interaction.

**PAC World: How do you think we can attract younger engineers to our field?**

**MP:** By providing a better working atmosphere with all the necessary tools, better training and prompting them to participate in interactive conferences for exposure to the latest technology.

■ Good technical documentation with immediate access for references, when required.

■ Recognition of their talent, experience and occasional pat on their back.

■ Better payment as specialists, corresponding to their expertise and contribution.