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Professor S. N. Chaturvedi and my Agra Connections

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Professor S. N. Chaturvedi
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It is over 64 years since I first came to know my revered teacher, Professor S.N. Chaturvedi. All through these years, we have had extremely warm and close relationship. His genuine concern for the welfare, progress and continued effort in advancing the frontiers of knowledge are widely recognized. Any student, who has been exposed to him, carries an inerasable image of his geniality and his extraordinary memory for detail and a goodwill that binds many generations of students he has taught.

On his completing 90 years of active, productive and benevolent life, it is thoughtful of Professor S.V.S Chauhan to bring out a Festschrift. I decided to write on recalling memories of my teachers who taught me while I was at Agra and especially Professor Chaturvedi's commitments and contribution to the development of plant sciences in India in general and Agra in particular.

I did my B.Sc. Degree with Chemistry, Botany and Zoology from St. Philomena's College, Mysore. My family could not afford to send me to Bangalore to do my M.Sc. My alma mater offered me a post of a Demonstrator in Botany, whose duties were to assist in the practical classes. The Professor of Botany was so confident that he also gave me lecture classes. These opportunities created in me a deep interest in this subject.

My teachers were keen that I should find some financial help in the form of scholarship to obtain a higher degree at any other University.

I discussed this matter with my close friend Nagaraja Rao whether I could get some help to support my M. Sc. course, as his brother Dr. N. K. Anant Rao who had obtained a D. Sc. degree from Banaras Hindu University and was teaching Agronomy in B.R. College, Agra. When Dr. Anant Rao came for summer vacation to Mysore, I met him and explained to him my interest. He said he would discuss it with Dr. R. K. Singh, the Principal of his College, who was a very progressive person, having done his Ph.D. from Harvard University, USA and let me know. To my surprise, when Dr. Rao returned to Agra, he informed me that the Principal was prepared to offer me a post of an Assistant Lecturer, with a remuneration of Rs. 50 per month and that I should arrange for the rest of my monthly expenditure on my own. I wrote to my eldest brother Sharada Prasad, who was a journalist in Bombay to provide me financial help. He very generously agreed to my request. Dalbir Singh, senior to me by one year at college and I were both appointed as Assistant Lecturers. I used to teach students of agriculture in practical classes between morning 7.00 and 10.00. From 10.00 to 5.00 pm I used to attend M. Sc classes and I would play cricket in the evening. I did my studies at night.

Balwant Rajput College which I joined (presently Raja Balwant Singh College) did not have the necessary infrastructure; our laboratory had a roof made of galvanized iron sheets. We had limited library facilities, furniture and equipment. However, the teachers were excellent. They had a liberal outlook, and a missionary zeal and abundant warmth towards the students.

Professor Bahadur Singh was formerly a student of P. Maheshwari at Agra, under whose guidance I carried out research on the embryology of blood flower (*Asclepias curassavica*) and *Cryptolepsis buchanani*, formerly included under the family Asclepiadaceae and currently transferred to the Apocynaceae. I understand from Dr. M. Sanjappa that, *C. buchanani* is a synonym of *Cryptolepsis dubia* (Burm.f.). It is from Professor Bahadur Singh that I learned academic rigour and total application of my mind for achieving a set goal. Professor Bahadur Singh was a highly cultured and dignified person. He had a sound knowledge of Botany. He used to make perceptible comments and give me useful suggestions. He regularly examined the stained slides I had prepared of my work. He guided me in the basics of embryological studies.

On one occasion, he accompanied the students and the teachers of the Department to the banks of river Yamuna near Dayalbagh on a plant collection trip. I have never seen so many shells of dead tortoises lying on the banks. I was dissuaded by my friends from collecting the shells as it is suppose to be a bad omen.

I had no idea of quick sands. For the first time I became a victim by landing on an apparently dry part of the sand along the river banks and started sinking suddenly. He shouted at me not to put my hands down lest I should sink faster. Luckily, for me, that day Professor Bahadur Singh had worn a long dhoti, which he immediately removed, put it around my neck, pulled me out, and saved my life.

We often went to Agra College (founded in 1823 and one of the oldest colleges in India) for consulting bound volumes of English Botanical Journals such as Annals of Botany. I also had a unique opportunity to be introduced to Professor N.M. Mukherjee, a botanist of St. John's College , who very generously gave his time and translated a good deal of literature from French to English of research publications needed for my M. Sc. dissertation.

Hailing from Mysore, known for its beauty and rich vegetation, Agra was distinctly hotter in summer and colder in winter. Being away from home and adjusting to unfamiliar surroundings, a harsher climate, compulsive need to work harder made me tougher and stronger.

The city was famous for dust, donkeys, dalmoth (Seeds of *Vigna aconitifolia* made into a traditional namkeen, or savory dry snack, made from fried nuts, spices, and oil. The plant is a highly drought resistant legume, typical of the dry regions of north India) and Dayalbagh! Nevertheless, Agra has been famous for the Taj Mahal (constructed between 1632 and 1653). Almost every foreigner who visits India wants to see this beautiful white marble monument built by Mughal Emperor Shah Jahan in memory of his third wife Mumtaz Mahal.

As far as my memory goes, what Dr. Chaturvedi taught us was bryophytes, pteridophytes and gymnosperms, emphasizing their role in the evolutionary significance of plant migration from water to land, vasculature, spore production, especially heterospory and seed development. He also conducted many practical classes in other subjects and was always a source of strength to the nervous students in the examination hall. Professor Chaturvedi had trained many scholars for Ph. D. but one among them who could easily be considered the best is Professor S.V.S. Chauhan, who completed his Ph. D. as well as D. Sc. degree under his guidance. I had the privilege of examining his D.Sc. thesis.

Dr. S. P. Singh, who invariably guided us in field trips, taught us taxonomy. Mycology and Plant Pathology were the subjects of specialization of Dr. Man Mohan Singh. Some students opted for the special paper on Plant Pathology offered by him. He later moved to the University in Jaipur. Mr. R.P. Singh (who was born in the same year as I was) taught phycology. He had studied at Banaras Hindu University under the able guidance of Professor Y. Bharadwaja and Dr. Ram Nagina Singh (who had his training in U. K. and had done a good deal of work on the role of heterocysts in nitrogen fixation). Mr. R. P. Singh introduced us to fascinating algae growing in and around Agra.

The name of one teacher, which stands out, is that of Dr. R. L. Paliwal, who had studied the embryology of Santalaceae for his Ph.D. thesis. Professor B.G.L. Swamy renowned plant morphologist, anatomist and embryologist who had worked with I.W. Bailey at Harvard University, came to conduct his viva voice

examination at Agra. Dr Paliwal was deeply interested in cytogenetics and plant breeding. He was a very fine teacher and taught us plant cytogenetics. He left Agra to join IARI, New Delhi, for a short while and then moved to G.B. Pant University. The latter was the first Land-Grant University started in India, which played a major role in the development of Agriculture in the Terrai region of Uttar Pradesh. He subsequently went to work at CIMMYT *(Centro Internacional de Mejoramiento de Maíz y Trigo),* the International Maize and Wheat Improvement Center in El Batan, Edo Mex (Mexico) and headed the Maize Programme, equivalent to that held by Norman Borlaug for wheat.

Professor Chaturvedi was not only kind and considerate to students but was equally affable with his colleagues. When Dr. Paliwal wanted to build his own house in Agra, Chaturvedi Sahib helped him to construct an exquisite bungalow across his own residence in Civil Lines. He even looked after the construction part. When Dr. Paliwal returned to India, he decided to settle in Gurgaon and sold his house at Agra.

Among Dr. Paliwal's students at R.B.S. College Agra, two names stand out. One is Dr. A.K. Koul who became Professor of Botany in the University of Jammu and a Fellow of National Academy of Sciences, India (NASI). Professor Koul has built an excellent School of Reproductive Biology, which has continued to function through his students Namrata Sharma and Veenu Koul. The other is Professor R.P. Sharma, who took his M.Sc from R.B.S. College, moved to IARI Delhi, and served as Project Director of National Research Centre on Plant Biotechnology, IARI, New Delhi.

Professor Bahadur Singh was appointed Assistant Director of the National Botanic Gardens (NBG)in 1959, when it was headed by Professor Kailas Nath Kaul (incidentally he was brother of Kamala Nehru, wife of Jawaharlal Nehru). Subsequently, Professor Singh rose to the position of Deputy Director. Professor Kaul originally conceptualized NBG on behalf of State Government of Uttar Pradesh. The Garden was taken over by the CSIR in 1953 and is presently known as the National Botanical Research Institute.

Dr. Shib Chandra Chakravarti (S.C. Chakravarti) taught us plant physiology. He was a student and later a researcher at the Vivekananda Laboratory in Almora. I had become intimately associated with his family. Plant Physiology influenced me markedly in my subsequent years as a botanist. After a few years, Dr. Chakravarti left B.R. College, joined the University of Jodhpur from where he moved to Vidisha (near Bhopal in Madhya Pradesh), and taught in a College for many years.

Agra University (presently renamed B.R. Ambedkar University) was established in 1927 as an affiliating body. It became a Teaching University with three subjects to begin with; Linguistics, Social Sciences and Home Science. Later, the Institute of basic sciences was started with Physics, Chemistry, Mathematics and Zoology (unfortunately, Botany was left out). However, the School of Life Sciences was founded in 1998. It included the Departments of Botany, Zoology, Environmental Studies, Environmental Toxicology, Microbiology, Biochemistry and Biotechnology. These Departments were temporarily accommodated in the Registrar's old bungalow at that time known as Khandelwal Kothi. Professor S.N. Chaturvedi was an elected member of Executive Council of the University. However, a new building with laboratory fittings was constructed for the School of Life Sciences, around the year 2000.

Professor S.V.S. Chauhan was appointed as the first Head of the Department of Botany and Dean of the Faculty. Professor Chaturvedi was made Emeritus Professor in the Department.

When Professor Chauhan retired from service in 2006, he could not avail any facilities to continue his work. By his own initiative, he started an independent Academy of Life Sciences in a building at 8/13, 1 Kaushalpur Bye Pass Road, Agra- 282005, owned by him with a small laboratory with essential equipment. One person who gave Professor Chauhan incessant support was his mentor Professor Chaturvedi, who had been designated appropriately Emeritus Professor. A shot in the arm for the Academy of Life Sciences was recognition by the Department of Scientific & Industrial Research, Ministry of Science and Technology, New Delhi, and sanctioning of grants to procure or replace necessary items required in present day research.

No matter where his former students are located, Professor Chaturvedi invariably keeps in touch with each of them. In the earlier days, he used to write letters

regularly. He now makes use of telephonic conversations. All his former students continue to look up to him as their well-wisher. He takes keen interest in the Indian Botanical Society and the Sectional Committee of Botany/ Plant Sciences of the Indian Science Congress Association.

Professor Chaturvedi is very closely associated with the promotion of education in R.B.S. College Agra and is presently President of the Rao Krishnapal Singh Students' Aid Society. It has a fund, which assists needy students to the tune of Rs. 2,00,000 every year. It also brings out an yearly Bulletin containing articles about the alumni of the college and news items including obituaries of the former teachers and students of the college.

Professor S. V. S. Chauhan and a few botanists from other parts of India realized that there is a need to start a Society devoted exclusively to Plant Reproductive Biology of all groups of plants—algae, fungi, bryophytes, pteridophytes, gymnosperms and angiosperms. After several rounds of discussion, the Society of Plant Reproductive Biologists was constituted in the year 2000.

The response has been overwhelming and more than 100 plant reproductive biologists have become life members, including many from different parts of the world. The official organ of the Society is: The International Journal of Plant Reproductive Biology, which is available in Print (ISSN Print: 0975-4296) and ISSN Online: 2249-7390.

The affairs of the Society are managed by the Executive Council of the Society and the obvious choice of the President was Professor S.N Chaturvedi, with three Vice-Presidents, the main functionary being the Secretary – Treasurer – Professor S.V.S Chauhan. Three additional Secretaries assist him, with 15 Councilors who are active researchers from various parts of India.

Professor Chaturvedi's home reputed for its hospitality. Our Guruji has remained as a raconteur *par excellence.* He has a farmhouse near Sikandra, with a few dairy cattle and several cereal and leguminous crops and a large collection of fruit trees. On several previous occasions, I have had the good fortune of visiting the farmhouse and having lavish lunches to which a large number family members, botanists, other scientists and doctors and eminent citizens of Agra used to be invited. Dr. Chaturvedi's son, Dr. Nikhil Chaturvedi is a noted pediatrician in Agra. He has inherited his father's large-hearted, unassuming, and happy demeanour. These values are rapidly disappearing in recent times in India.

As a botanist, I am tempted to compare Professor S. N. Chaturvedi to a large tree that provides abundant shade and protection to all those who want to work hard and repose under it. We, his beneficiaries, should emulate his qualities of head and heart. We wish him good health, happiness and tranquility. What he has gained from all that he has done to the younger generation is a sense of deep satisfaction.