

Panchanan Maheshwari

I met Panchanan Maheshwari for the first time along with S. B. Kaushik in the early 1940s when he visited Central College, Bangalore on his way back from Colombo, Sri Lanka. When he expressed a desire to visit J. C. Ghosh, Director, Indian Institute of Science (IISc), Bangalore, we offered to accompany him. In those days, we did not have the facility of a car and even the bus services were not well organized. I remember taking Maheshwari in a local horse-drawn covered wagon, the 'jutka', to IISc. When Ghosh asked Maheshwari how he had come, he mentioned our names. Ghosh immediately called us in. This was long before Ghosh wrote the famous Ghosh-Chandrakanth report in collaboration with L. S. Chandrakanth. This report paved the way for the establishment of the Indian Institute of Technology (IITs) first in Kharagpur, followed by the others in Kanpur, Bombay and Madras. Incidentally, Chandrakanth was my classmate in Central College, where we used to attend English classes taught by B. M. Srikantiah, pioneer of the literary renaissance in Kannada. Chandrakanth was the son of a famous Sanskrit scholar Lakshmipuram Srinivasachar, who used to often come to our house to have discussions on Sanskrit with my grandfather, M. Hiriyanna, Professor of Sanskrit and Indian Philosophy at the Maharaja's College, Mysore.

In 1946, B. G. L. Swamy, botanist and a good friend suggested to me that the embryology of the pea family, Leguminosae is a good subject for my Ph.D. degree. One day, as I was going to college, I saw a number of plants of *Cassia tora* growing alongside the road. I picked up a few fruits, took them to the college and opened them. I dissected the ripe seeds to see what the embryo looked like. When I examined the slide containing the embryo under a microscope, I found something wriggling. I first thought it was a worm, but on closer examination, I discovered that it was the tubular part of the cellular endosperm surrounding the embryo, with a vesicular tip containing a number of free nuclei in it. I quickly made a camera lucida sketch of my preparation and sent it to Maheshwari. He wrote to me immediately that it was an interesting find and offered to communicate my note to *Nature* for publication. It was published in *Nature*

in December 1950. I submitted a detailed paper on the endosperm in some species of *Cassia* to the Swedish botanical journal, *Svensk Botanisk Tidskrift*.

At the time Maheshwari was visiting Europe and in Stockholm, the editor of the journal told him about my paper. Maheshwari picked up a copy of the doctoral thesis of Leon Guignard on Leguminosae published in 1882 in Paris, and gifted it



to me on his return, in noble gesture. At all critical points in my career, Maheshwari's letters and such gestures of support and encouragement were most valuable. He also wrote a beneficial letter of recommendation to the Ohio State University, USA in support of my application for a scholarship in 1953. When I went to Paris to attend the VIII International Botanical Congress, he introduced me to all the well-known botanists of the world gathered there. I presented a paper on the embryology of some Leguminosae based on the work I had done in USA. I was privileged to have R. Souèges and Maheshwari in the distinguished audience. This paper was later published in *Phytomorphology*. When Maheshwari intended to start an International Society of Plant Morphologists (ISPM) and a *Journal of Plant Morphology*, he wrote a letter to all well-known botanists of the world, seeking their opinion and support. I was also privileged to receive this letter. Today

phytomorphology has completed fifty years and the recently published Golden Jubilee Volume is a fabulous production under the editorship of N. S. Rangaswamy.

When I met him at Paris in 1954, Maheshwari was on a visit as a delegate to the International Congress and I was returning from USA. He asked me what courses I had taken there. I mentioned that I had attended a course on Plant Tissue Culture by Bernard S. Meyer, the well-known plant physiologist. Maheshwari suggested that I apply for a Senior Fellowship of the National Institute of Sciences (presently the Indian National Science Academy) and start a new line of research in the country. I was awarded this fellowship and K. N. Narayan, the Head, Department of Botany at Central College, Bangalore, where I was working, had received a generous grant from the UGC for purchase of equipment. He asked me to buy whatever equipment I needed for my work. I procured an autoclave, a precision microtome and a research microscope. I am ever indebted to Narayan for this gesture. Narayan unfortunately passed away on 1 January 1983.

During the tenure of the National Institute Fellowship, I worked on the embryo culture of *Phlox drummondii*. Maheshwari was delighted and published my work in *Phytomorphology*. He also sent me a letter from Barbara Haccius, expressing her appreciation and interest in this paper.

Maheshwari was on the selection committee of the Union Public Service Commission, which had advertised for the post of Regional Botanists in the reorganized Botanical Survey of India. After the interview, Maheshwari asked me and K. Subramanyam to suggest the name of a good student from Bangalore as a research scholar to work in his department. Our choice was Rangaswamy, who subsequently joined the Department and rose to the position of a professor. He has recently retired after a brilliant career in teaching and research at the University of Delhi. When I joined the Botanical Survey of India and was posted to Dehra Dun, Maheshwari invariably used to call me to Delhi for delivering lectures, and this close association with the Delhi University department has continued even after his unfortunate demise. When the department became a UGC Centre for Advanced Study,

I was named a member of the Advisory Committee and received a letter from Professor B. M. Johri in 1970 in this regard.

The journal *Photomorphology* graciously asked me to write the obituary of Rene Souèges, who passed away at a ripe old age. When he was active in research, I had a good deal of correspondence with him. I used to send camera lucida drawings of my work on the embryogeny of some leguminous plants, and he would critically examine the drawings, write his comments in red ink and would return them to me. I have preserved all his letters.

When the American anatomist, Adriance S. Foster was visiting Delhi University and expressed a desire to meet me Maheshwari immediately invited me to Delhi. I was carrying a generous quantity of ripe

fruits of *Circaeaster agrestis* (the only representative of the family Circaeasteraceae in the world) for Foster. He was pleased as he was deeply interested to study this plant endemic to NW Himalaya to NW China. During this visit I gave an illustrated talk on Himalayan Flora at the University of Delhi and Professor and Mrs Foster were among the audience. I was honoured by their presence. Professor Foster grew these plants in Berkeley, California and the Director of the Royal Botanic Garden also introduced the plant at Kew in UK. Dr Hubbard, on behalf of the Director, Sir George Taylor, handsomely acknowledged this help. Professor Foster also thanked me in his papers on the open dichotonous venation of the leaves of *Circaeaster* published in the *Journal*

of the *Arnold Arboretum* and the *American Journal of Botany*.

Sometime in the early 1960s, a few years before his untimely demise, Maheshwari visited our home in Dehra Dun and spent a day with us. My wife and I thankfully remember this occasion.

I pay my profound respects and humble tribute to the memory of Panchanan Maheshwari, one of the greatest botanists of our times, especially on the occasion of his birth centenary. He was both my mentor and 'Guru'. May his soul rest in peace.

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N. K. Anant Rao (1915–2004)

Professor N. K. Anant Rao, who served as Head, Department of Agronomy and later as Deputy Director of the Rural Institute, Bichpuri attached to R.B.S. College (formerly B.R. College), Agra passed away on 8 January 2004 in Rochester, New York, USA. In his demise the country has lost a most dedicated agronomist and an educationist of great vision, who worked ceaselessly for the flowering of talents of students by example and encouragement.

Anant Rao was born in Harihar, Karnataka on 15 October 1915 to Krishnamurthy Rao, a veterinarian and Vishalakshi. Losing his mother when he was barely 15, Anant Rao was adopted by his aunt. After passing the intermediate and B Sc (Hons.) examinations in botany from Central College, Bangalore he proceeded to Banaras Hindu University (BHU) and studied in the Department of Agricultural Botany. He stood first in M Sc in 1937 and was awarded the Chancellor's Gold Medal. Appointed as a demonstrator against a leave vacancy, he was appreciated as a good scholar and an effective teacher. Working in collaboration with his research supervisor B. N. Singh, the young Rao published seven research papers (as junior author) in prestigious journals such as *Plant Physiology*, *Protoplasma* and *Current Science*. These papers dealt with quantitative estimation of chlorophyll, detection of carotenoids in chlorophyll samples, polaric estimation

of cane sugar and development of photometer, nephelometer and saccharimeter. His paper published in *Nature* (1937) reported the changes in chloroplast pigments in leaves during senescence. He received his Ph D degree in 1943 from BHU, but could not be appointed on the teaching



staff, in spite of the desire and efforts of S. Radhakrishnan, Vice-Chancellor, owing to university politics.

On the basis of strong recommendations by former students of BHU who were working as teachers in B.R. College, Agra, and who knew Anant Rao's academic brilliance and human qualities, he was appointed a lecturer in botany in 1943. Another happy event that coincided with

the procurement of the job was his marriage with Shantamma Bopardikar, a graceful young woman of his own choice.

Anant Rao was shifted to the Department of Agronomy in 1946 when M Sc (Ag.) course in agronomy was started. He headed this department from 1948 to 1956. R. K. Singh, the dynamic Principal of the college, was keen to develop it into an autonomous institution with its own curriculum and degrees. The resources were meagre, but the morale of the teachers was high. There was a golden opportunity to turn the disadvantages into challenges by application and effort.

A Rural Institute was being set up in Bichpuri by Singh, close to Agra in 1949. The area was semi-arid and facilities for living and teaching were inadequate. Everything had to be created from scratch. The challenge of making the best of what the faculty had, brought the finest out of them under the leadership of 'Rao Saheb', as he was fondly called. The Rao couple moved to Bichpuri with their four-year-old son, and the family led a simple life. A school was started by Rao for the children of the staff. Gradually, the Bichpuri campus developed into an institution of advanced learning that included the Rural Institute, the Bichpuri Farm, postgraduate studies in agriculture, farm management, extension education in the surrounding villages and liaison with the Block Organization