

Bimal Kumar Bachhawat.

(6 August 1925-23 September 1996)

President, Neurological Society of India. 1973.

Dr. Bachhawat did his M. Sc. from Calcutta University in 1948 and obtained his doctoral degree from the University of Illinois, USA in 1953 under the supervision of a well-known enzymologist, Professor Vestling. Dr. Bachhawat returned to India in 1957 and joined the Christian Medical College and Hospital, Vellore where he established the first neurochemistry laboratory in the country. In 1976, he assumed the directorship of the Indian Institute of Chemical Biology, Calcutta and continued to lead this institute till 1985. He then moved to the University of Delhi South Campus (UDSC) as Professor and Head of the Department of Biochemistry and played a crucial role in the development of the Life Sciences departments. After his retirement in 1990 he continued at the Department of Biochemistry as the Bhatnagar Fellow of the Council of Scientific and Industrial Research (CSIR) till 1995 and then took over the coordinatorship of the D. S. Kothari Centre for Science and Ethics at UDSC. His pioneering research contributions in the area of biochemical basis of genetic disorders, liposomes as model membranes and development of targeted drug delivery systems brought him widespread recognition. A Fellow of the Indian Academy of Sciences, National Academy of Sciences and Indian National Science Academy (INSA), he served as President of the Society of Biological Chemists (India), the first Indian President of the Federation of Asian and Oceanian Biochemistry and President of the National Organizing Committee of the International Union of Biochemistry and Molecular Biology, 1994. He received a large number of awards and honours in his illustrious career including the Shanti Swarup Bhatnagar Prize in 1962, the Amrut Mody Research Award in 1974, the J. C. Bose Award in 1980, the Padma Bhushan in 1990, Bhatnagar Fellow in 1990 and Shanti Swarup Bhatnagar Medal, INSA in 1991.

'In 1930, at the age of five I fell victim to and survived through a traumatic experience inflicted by an earthquake at Rangpur (now in Bangladesh). I was seriously injured as a roof collapsed over me and was in fact written off as dead. Although I recovered in due course I suffered from complete loss of memory. It took me about 10 years to return to near normalcy. Initially, I planned to be a medical doctor but disappointed everybody as I failed in biology. I continued my studies and had a truly chequered career and repeated my earlier performance by failing in B. Sc. as well. This led to a tremendous gloom in my family and they were very much perturbed.' This was not a normal beginning for an illustrious and successful academic career that was to follow, but then, Dr. Bachhawat was not an ordinary person. As he said: 'This probably had its effect in my subconscious and marked the turning point as I took to studies single-mindedly and never looked back again.'

On his return to the Christian Medical College and Hospital, Vellore from the United States in 1957, he realized that it would take time to create the infrastructure necessary for executing his research plans. He undertook the study of complex carbohydrates-the 'ugly duckling' in biological research at that time. His group chose to work on sulphated glycoconjugates such as glycosaminoglycan and glycolipids. During this time, James H. Austin, a well-known neurologist from the USA, visited Vellore. Austin was studying metachromatic leukodystrophy in which there is an accumulation of a sulphated glycolipid, cerebroside-3 sulphate, in the brain. Dr. Bachhawat's group shared their experiences on sulphate metabolism with Austin and initiated a collaboration. On returning to the USA, Austin shipped a number of human autopsy samples including diseased brains. To their surprise, Bachhawat's team found that a well-known lysosomal enzyme arylsulphatase-A was absent in the diseased tissue. After their discovery of the aetiology of metachromatic leukodystrophy, several experts from all over the world visited the laboratories at Vellore. However, it took almost two years for the international scientific community to accept this finding. Later, in collaboration with Austin, Bachhawat's group developed a simple diagnostic system for the disease, based on the measurement of urinary arylsulphatase-A.

During the same period, Bachhawat's group made important contributions on the biosynthesis of cerebroside-3 sulphate and showed that 'active sulphate' is transferred to the endogenous cerebroside without direct involvement of vitamin A in the enzymatic activation of sulphate. A similar observation was almost simultaneously reported by an English scientist. However, this was contrary to the claim by a large number of scientists that vitamin A in vitro has an effect on the enzymes involved in the formation of 'active sulphate'. It was much later that other groups fully substantiated the findings.

His research work always had a thoughtful component of human welfare. Dr. Bachhawat and his colleagues developed the 'liposome' as a model delivery system to introduce drugs or deficient enzymes into a cell. His group developed a liposomal-amphotericin B formulation to reduce the nephrotoxicity and pulmonary abnormalities caused by fungizone (a commercial deoxycholate preparation of amphotericin B). This formulation has been cleared by the Drug Controller and the phase I and II clinical trials have already been successfully completed.

I had known Dr. Bachhawat from the early 1970s as a Ph. D. student at the V. P. Chest Institute, Delhi but I really came to understand him during my close association with him at the UDSC for 11 years. When he joined UDSC he had already earned the reputation of being an 'institution builder' owing to his brilliant scientific and managerial skills. He was always on the move and never sat back to wait for everything to be optimal before starting work. When he joined UDSC, the department had no building. In fact, the course was run as a guest course at the V. P. Chest Institute. He was concerned about starting a department which had neither a building nor much funding. One day he told me that the new session of M. Sc. would start at UDSC. In the summer that year, I joined him as a Reader. He had by that time managed to get two rooms for the department. He had also appointed a few research students. He once told one of his students to isolate concanavalin A from Jackbean seeds by the next week. I pointed out to him that the laboratory was not ready for any experiment. He looked at me for a second and told me 'nothing will start unless we start doing things right away'. He saw to it that I brought some Jackbean seeds from the Pusa Institute. Seeing his determination, I got some equipment and reagents from my old laboratory and his student arranged for a small blender. Concanavalin A was isolated by the 'next week'.

He was a strong advocate of the role of young scientists and had a firm conviction that they must be nurtured carefully to ensure a better future for both science and scientists. His prescription for achieving this was simple: 'identify a young scientist who has good potential and leave him alone after briefing him about the areas of interest to the organization, give him all the facilities required for his research work, and provide a free and frank environment. This is all that I believe is needed to get the best out of an individual. I think the best way to manage science is not to manage scientists but only to provide them the support they need.' This practical formula is worth emulating. For Dr. Bachhawat, it was natural to associate with younger people, talk to them, listen and understand their problems and affection flowed so effortlessly that a personal bond was created instantly. He held the view that much of modern biology was interdisciplinary and, therefore, required the involvement of a number of people. He always told young students and scientists that 'it is important for you to have conviction that what you are doing is an important and significant research'.

He had a unique talent of making people work. It was just not possible to say 'no' to him. He would insist, resist and prevail, at the same time conveying the feeling to being cared for. It was a pleasure to work with him. To argue with him and win was very difficult but you could argue with him unhesitatingly. In fact, he loved to argue about issues. I often used to have heated arguments with him, without having to worry about his taking offence. He loved his students and they reciprocated his affection which lasted even 30 years after they had left his laboratory.

Dr. Bachhawat had a remarkable style of managing things. In spite of being in full control, he kept himself in the background and gave importance to everybody else making them feel that things were going right only because of them. His method of teaching involved asking students to give seminars on different topics. He would sit with them for very informal but incisive discussions. I personally feel that this may partly have been so because he was not at his best while delivering didactic lectures. Not every student might have enjoyed his style of teaching but those who participated, received what scientific education has to provide in the true sense.

All of us at UDSC owe a great deal to him for his untiring efforts towards the rapid development of the Life Sciences departments. He moved to Chandigarh in July this year to stay with his son but his love for UDSC and its people brought him frequently to Delhi. His last visit to Delhi was on 20 September. He spent all of the twenty-second (Sunday) at UDSC and asked me to meet him the following morning at the National Institute of Immunology (NII) guest house where he was staying. That was not to be. I reached NII only to find that he passed away the same morning due to a massive cardiac arrest.

In his death, the scientific community has lost a great leader and a still greater human being whose noble deeds shall remain imprinted in our hearts and minds for ever and will continue to inspire us in the years to come.

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Editor's note :

It is really sad that no one wrote an obituary of Prof. Bachhawat in any of the neurologic journals, though undoubtedly he was the father of neurochemistry in India. Hence I have to reproduce the well written article by Prof. Tyagi in National Medical Journal of India (NMJI. 1996; 9: 28-5-61 . I thank Dr. Tyagi and the editors of NMJI for the same.) For reasons better left without explaining, Dr'. Bachhawat's name was present in the membership directory of NSI in 1984 but not in that of 1990. Indeed it was quite unusual. Perhaps in the far end of his career he became far too important a person in the biochemistry circle than in neuro-sciences.

He was a loner and aloof person and many colleagues felt that he was totally unapproachable. But I had a very warm friendship with this great scientist. though I never worked in CMC Vellore. He helped me investigating some of our difficult cases with metabolic errors when I was in Calicut Medical College. Though he was quite senior by the time I came into contact with him, he was always pleasant towards me. In fact the fame of CMS Vellore was partly due to the excellent work of Prof. Bachhawat.

K. R. Nair
The South Indian Neuroscientists.

It was Dr. Ram Guinde who initially classified the development of Neurosciences in the different regions of India. It was not a bad idea then. But he totally neglected the development of medical neurology in his paper read at the inauguration of the Institute of Neurology, Madras. (Guinde R. In "Neuro-sciences in India: Retrospect and Prospect: Ed. Sunil Pandya. 1989. The Neurological Society of India and the Council of Scientific & Industrial Research, New Delhi.)

In the past. for most of the people in the other regions of India anyone hailing from beyond the Vindhyas was a "Madrassi "- I thought that this concept faded long back till I received the manuscript from one of the authors of the present volume. Trivandrum according to him belonged to the Madras State. (Incidentally the fanatics of language have changed the well established names like Trivandrum, Madras, Bombay etc. to Thiruvananthapuram (even for us it is quite a feat to spell it correctly), Chennai and Mumbai.

Though we consider that it was Prof. Jacob Chandy who started this subject in India initially, Prof. BRM makes a rejoinder that the credit should be given to Dr. S. T. Narasimhan who started neurosurgery in Madras nearly an year earlier than Prof. Chandy. There was a healthy competition between CMC, Vellore and Institute of Neurology, Madras for the quality and quantity of neurosurgical output. Both Chandy and BRN'I were quite accessible for the poor and the rich. They knew how to . move with the kings and revel in the company of even the hapless humble human beings. They made no distinction as far as medical treatment went from the Presidents of our country to poor coolies at the Railway stations. People in turn worshipped them as demigods in Tamil Nadu.

(As an aside, I should make a passing mention about Kerala. Here even film stars can walk around without much fan fare. One of my neighbors is an international celebrity in film circles. He and I go to the same shops for our purchases and no one cares two pence for either of us. one of our great film stars had an ambition to enter politics. He died hoping that some one would help him out before his death).

After Prof. chandy and prof. BRM there were many great neuroscientists in both Madras and vellore. prof. Taori, prof. Bachhawat, prof. Jacob Abraham, Prof. K. v. Mathai in christian Medical college, vellore, Prof. S. Kalyanaraman, Prof. Balasubramonium, prof. Arjundas, prof. K' Jagannathan and others of Institute of Neurology, Madras, prof. R. Marthanda varma, Prof. K. S. Mani, prof. G. N. N. Reddy of Bangalore, Prof. Dayananda Rao, prof. Balaparameswara Rao, prof Raja Reddy, have earned national reputation. credit goes to my colleague prof. Sambasivan to have started the first Neurosurgery unit in Kerala. The neurology-neurosurgery departments in different Medical colleges in Kerala and in Sree chitra Thirunal Institute of Medical Sciences and Technology have brought out dozens of well trained doctors in these subjects.

Though for the rest of India everything beyond Vidhyas appears as Madras, the differences are more than the similarities. so also is the development of science in this region.