

Benjamin Peary Pal

An obituary by *M. S. Swaminathan*



Benjamin Peary Pal
(1906–1989)

The passing away of B. P. Pal on 14 September 1989, in New Delhi, marks the end of one of the brightest chapters in the history of Indian science in general and Indian agricultural science in particular. Pal was a scientist with an unusual combination of characteristics—depth in the discipline of genetics and plant breeding, width in his grasp of the critical issues in Indian agriculture, courtesy and compassion in his personal behaviour, a sense of beauty and harmony with nature, absence of any feeling of 'retrospective jealousy' in dealing with fellow scientists, and, above all, an inimitable store of wit and remarkable wisdom. His interests were wide and varied. He was a Sunday painter of rare distinction and a lover of classical music, both Indian and Western. In short, he was truly the 'Homi Bhabha' of Indian agriculture.

Pal was born on 26 May 1906 at Mukandpur in Punjab and had his early education in Rangoon. After obtaining an MSc in Botany in 1929, he proceeded to Cambridge, UK, where he obtained a PhD in 1933. His PhD thesis work, carried out under the guidance of Sir Roland Biffen and Sir Frank En-

gledow, is still a classic, since it was one of the earliest studies on the potential for exploitation of hybrid vigour in wheat, a self-pollinated crop. He joined the staff of the Indian (then Imperial) Agricultural Research Institute (IARI), in Pusa, Bihar, in 1933, and became Imperial Economic Botanist in 1937. He moved to New Delhi when the Institute was moved there in 1936 because of the damage to the original Institute buildings in Pusa during the severe Bihar earthquake of 1934.

Pal's contributions can be broadly classified into five major categories—research, education, extension, institution building and international cooperation. In each of these areas his work was marked by a tireless striving for relevance and excellence.

In the field of research, his well-known work relates to the breeding of wheat varieties with multiple resistance to diseases like stem, leaf and stripe rusts and loose smut. In later years, when he became a research administrator, he continued his personal breeding work in roses and bougainvilleas. Because he understood the significance of

biological diversity for the achievement of sustainable advances in biological productivity, he initiated a systematic search for new genes. This work led to the establishment of the Plant Introduction Division at IARI and subsequently to the organization of the National Bureau of Plant Genetic Resources by the Indian Council of Agricultural Research (ICAR). He also started well-planned breeding efforts in many crops, including potato, tomato and tobacco, introduced statistical methods in selection procedures, and developed symbiotic partnerships with eminent plant pathologists like the late K. C. Mehta of Agra University.

In education, Pal's signal service has been the establishment of the Postgraduate School at IARI in 1958. Realizing that India would need vast numbers of PhD scholars to provide well-trained staff for our agricultural universities, Pal organized the IARI Postgraduate School, which was conferred the status of a deemed university by the University Grants Commission in 1958. The IARI Postgraduate School has so far provided to the country about 4000 PhD and MSc scholars and

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has made going abroad for PhD work unnecessary.

Pal's conviction, that, without outstanding basic research, advances in applied research cannot be sustained for long, led to his establishing at IARI the School of Fundamental Genetics. At the same time he developed institutional structures such as the All-India Coordinated Research Projects for fostering multidisciplinary, multi-institutional and problem-solving applied research. His tenure as director of IARI was marked by a considerable strengthening of all the three major roles of the Institute—research, education and extension.

In 1965 he became the first director-general of the reorganized ICAR. The period 1965–72, when he was director-general of ICAR, marked a new era in Indian agriculture. High-yielding varieties of wheat, rice, maize, sorghum and pearl millet became available for widespread cultivation. Research in the areas of animal husbandry and fisheries was strengthened through the organization of several All-India Coordinated Research Projects. Agricultural universities were established in nearly all states. International cooperation was strengthened, particularly with the institutes working on maize and wheat research in Mexico and on rice in the Philippines. Above all, Pal helped to raise the status of Indian agricultural science both within and outside the country.

Pal will always be remembered for his contributions in achieving harmony between form and function in our research structures. The coordinated project was a device that helped overcome dividing walls created by administrative structures and scientific disciplines. He stressed that solving a field problem rather than worshipping a discipline should be the motto of applied research workers. While developing the IARI Postgraduate School, he introduced the course-credit and trimester system of curriculum organization, since he was convinced that it is

only this pattern that can help a young scholar overcome the handicaps arising from the rigidity in choice of subjects in his or her early educational background. Pal's interest in institution building extended to scientific societies. He was the founder of the Indian Society of Genetics and Plant Breeding and several other societies.

With the conviction that farmers are the ultimate judges of the value of applied research, he built systematic bridges between laboratory and field. He strengthened the social science departments at both IARI and ICAR and initiated a rural transformation project in Delhi. During his tenure as director-general of ICAR, the extension capacity of the research institutes in the fields of animal husbandry and fisheries was greatly strengthened. In fact, the reorganized ICAR developed by Pal became the model for similar organizations in many developing countries, such as Pakistan, Bangladesh, the Philippines and Nigeria.

After retirement from ICAR in 1972, Pal gave his time to the cause of environmental protection. He became the first chairperson of the National Committee on Environmental Protection and Coordination. He helped organize the Bougainvillaea and Rose Societies of India. Along with the late M. S. Randhawa he organized the Rose Garden of Chandigarh. His home was open to all and he became a friend, philosopher and guide to both young and old research workers.

In the international arena, Pal was a trustee of several international agricultural research institutes and gave his time to helping many developing countries strengthen their national research capability. The scientific respect he commanded is evident from his election not only as fellow of the Royal Society of London but also of the science academies of France, Japan and the USSR, and of the Third World Academy of Sciences.

Pal was elected fellow of all the science academies in India and served as president of the Indian National Science Academy during 1975–76. He was general president of the Indian Science Congress in 1970–71 and was honoured with most of the prestigious scientific and public awards made to scientists in India. The president of India conferred on him the Padma Vibhushan in 1987. None of these honours affected Pal the human being in any way. Throughout his life, he remained the same person I had first met in 1947 when I joined IARI as a postgraduate student—gentle, kind, encouraging and enormously knowledgeable.

His attachment to IARI was total. In later life, he would never refuse any invitation from the students or staff of IARI to attend functions in the institute and share his wit and wisdom. Till his dying day, he tended with love and care a rose garden in IARI, where he did his experiments in rose breeding. Many of the exquisite roses he bred he also named after well-known Indians, including Homi Bhabha and C. V. Raman. No wonder that in his will he donated all his worldly possessions to IARI. His philosophy seems to have been 'I got all my personal and professional happiness and fame from IARI and I must give back to the institute whatever I have'. He was a truly remarkable person, the like of whom we may not see again. His life is his message and the only tribute one can pay to such a great scientist and humanist is to try to emulate the fundamental message of his life—devotion to science, harnessing its tools for human happiness, harmony with nature, and helpfulness to fellow human beings.

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