

## Leela Mulherkar-Golay (1915–2005)

Early in the 1920s, in Bordi village along Maharashtra coast, as the only girl in her class pursuing studies single-mindedly, Leela Mulherkar probably did not even know that the story would repeat at the Royal Institute of Science, Mumbai, where she was among only six other girls doing M Sc. As a lecturer in Zoology at Ruia College, Mumbai, and S.P. College, Pune, Mulherkar was seized by the need to overcome the difficulty in making students appreciate how living beings function. She just could not fathom how a mere description of animals can explain life processes. No wonder, this inspired her to study embryology. She jumped at the first chance of going to the United Kingdom for higher studies, with a scholarship from the Government of India. In Edinburgh, she joined the laboratory of C. H. Waddington at the Institute of Genetics and Embryology. The academic atmosphere in the laboratory of the silent and extremely good-natured Waddington, she once remarked, was conducive to hard work, sometimes 18–20 h a day, during the three years she took to complete her doctorate. Experimental embryology, a branch of embryology, pioneered by Hans Spemann, Hilde Mangold, Tuneso Yamada, Etienne Wolff, Albert Brachet and C. H. Waddington, required surgically manipulating living embryos and following the developmental processes as new morphological features unfold right in front of one's eyes as the final form sets in. It took hours of constant watching, drawing, describing, measuring, thinking and analysing before a synthesis of actual processes could be executed. Waddington was the first to culture chick embryo *in vitro* and with New's ring culture technique, Mulherkar conducted exceptionally original experiments to analyse the inducing capacity of the Hensen's node, the organizer in the bird embryo. Little did one realize that she was actually demonstrating how parts of embryo cell population exhibit subtle differences in their ability to influence their neighbours. Mulherkar's work has remained a masterpiece in chick experi-

mental embryology. As Gallera, a Swiss–Polish experimental embryologist once remarked, 'I didn't realize how she did these deft experiments and to find out if it was a fluke, I took up the chick model, and, my God, it is true!'



Mulherkar returned from UK and joined the faculty at the Department of Zoology, University of Pune. Right away, she designed theory and practical courses in experimental embryology, a fact not appreciated by the classical zoologists at that time. She always wanted to teach embryology with live material and succeeded in making her dream come true. Here was a lady scientist who inspired many young students. With Mulherkar at its helm, the department became a world-class training and research institution in developmental biology. She managed to introduce practical exercises using live material available in and around the university campus. This included sponges, hydra, embryos of the garden lizard and molluscs. But her experimental model of choice remained the cultured chick embryo. When there were no electric incubators available, she sat with her students for hours monitoring the temperature of incubators working on kerosene lamps and she published in the *Journal of Embryology and Experimental Morphology* (*JEEM*, now *Development*) and *Roux's Archives of Developmental Biology* (now *Development, Genes and Evolution*). After retirement, the specialization of developmental biology continued to be taught

and was strengthened with molecular biology of development. But, alas, the specialization has been dropped recently. Mulherkar was deeply committed to the understanding of developmental dynamics and, with late Suresh Goel, founded the Indian Society of Developmental Biologists.

Mulherkar was an inspiring teacher. She never dictated notes, but delivered her lectures using the latest books and the latest issues of *JEEM* and *Roux's Archives*. Her discourses on the recent developments in embryology were a real treat. Mulherkar was a strict disciplinarian, tolerated no nonsense in behaviour or expression, and maintained a peculiar soft corner for her students, especially those who survived her wrath in the laboratory. She loved the Pune University campus where in her leisure, armed with a powerful pair of binoculars, she watched and annotated birds. She was also fond of Marathi poetry.

In her days, the going was tough for female scientists in India. Her only honours include her students who formed the worldwide web of chick embryologists. Leela Mulherkar was instrumental in establishing her own school of developmental biology. The infamous thalidomide tragedy in the early sixties influenced her to concentrate on the teratogenic effects of a vast variety of anti-metabolites on chick embryo. She retired in 1977, was nominated as Professor Emeritus of Pune University in 1984 and continued to guide students till 1992. When asked to assess her own contributions, she quoted Saint Dnyaneshwar, 'A little sapling that I planted in my garden has today reached the sky'.

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