

## Editorial\*

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*T N C Vidya, Associate Editor*

“Only when the last tree has been cut down, the last fish been caught, and the last stream poisoned, will we realise that we cannot eat money.”

This saying, attributed to Native Americans, remains important today. Many of us are yet to realise its truth, many do realise it, but are, unfortunately, not able to do much about it, and a small minority realise it and indefatigably fight against colossal odds to improve the state of our environment. Rachel Carson, the featured scientist of this issue, was one among this minority. She took note of the environment around her being polluted by factories during her college years, and, apart from her job as a government scientist in her later years, took her concerns to the public through her impactful writing. Harini Nagendra writes of the struggles and achievements of Rachel Carson in this issue. Carson is known for her books, especially *Silent Spring*, which highlighted the dangers that pesticide use posed for insects, birds, fish, and other wildlife. We have reprinted her article ‘Of Man and the Stream of Time’ in this issue and hope you will be inspired to read her books.

Rachel Carson wrote at a time when the reach of the impact of human activities on the environment was much smaller than it is today. In today’s globalised age, our activities can impact the environment, including humans, far away, making it much more difficult for us to see or assign responsibility for the environmental damage these activities cause. The raw materials for manufacturing a single mobile phone may originate from countries as far-flung as China, Democratic Republic of Congo, Australia, Belarus, Chile, and India. Even fruits may be grown in one country, packaged in another, and sold in a third. Thus, today, it is also



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\*Vol.25, No.11, DOI: <https://doi.org/10.1007/s12045-020-1068-x>

important to fight for clear labelling on products and for life cycle analyses to be carried out that assess the environmental costs, starting with the extraction of raw material and ending with disposal and decomposition of the product. There are also human costs involved in terms of labour practices and health. Moreover, even if individuals try to consume more responsibly, recycle, or live closer to the earth, the majority of emissions and effluents arise from industries. In the absence of stringent regulations at that level, it is not possible to clean up the air or water or soil. Unfortunately, several governments around the world are doing the opposite, becoming laxer about environmental clearances. Article 51-A (g) of the Indian Constitution says, “It shall be the duty of every citizen of India to protect and improve the natural environment including forests, lakes, rivers and wildlife and to have compassion for living creatures.” I hope we can draw inspiration from Rachel Carson and the exhortation of our Constitution to make better judgments about the environment and those making policies.

Carson also wrote about teaching children to wonder by exploring the natural world. Indeed, a child-like curiosity is required as a scientist as well. We feature a variety of General Articles in this issue that help us wonder about the world around us. Chandranshu Tiwari introduces us to the katydids (bush-crickets) and explains the mechanism and importance of acoustic communication in their lives. In the 15th article of his series on How to Design Experiments in Animal Behaviour, which describes simple, inexpensive experiments that have provided meaningful insights into animal behaviour, Raghavendra Gadagkar describes experiments carried out on stray dogs to understand parent-offspring conflict.

We have an interesting article by R V Lakshmi, S T Aruna, and Bharathibai J Basu on pressure-sensitive paint, which can be used to measure the surface pressure over various surfaces of model aircraft flown in wind tunnels for aerodynamic testing. This is a luminescent paint, whose intensity of emitted light drops upon quenching by oxygen, allowing surface pressures to be calculated by video-imaging. Subhashish Banerjee and Arun M Jayannavar



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introduce quantum optics and review recent developments in the field, such as atom-field interactions, quantum state engineering, and topological photonics, to name a few. Chandan Kumar describes quantum modelling of a molecular system with spherical symmetry.

Moving from the quantum to the celestial, Ram Sagar gives us an overview of telescopes used for astronomical observations, the details of some of the best telescopes set up at Devasthal in the Kumaon Himalayas, and their importance for optical and near-infrared observations.

We also have an article by Aniruddha Deshmukh on vector space axioms, explaining why all of the axioms are important and are not redundant, and a Classroom Article by Rajib Mukherjee and Manishita Chakraborty. Amitabh Virmani reviews the book *No Shadow of a Doubt: The 1919 Eclipse That Confirmed Einstein's Theory of Relativity* by Daniel Kennefick.

I hope you enjoy reading these articles, and wish for all readers, as Carson did for all children, “a sense of wonder so indestructible that it would last throughout life”.

