

Editorial

Harini Nagendra, Editor

Science is now accustomed to using a wide variety of advanced technological tools to further our understanding of the structure and function of physical and natural systems. Yet in many ways the basic motivation that drives fundamental research continues to be substantially unchanged: a deep appreciation for the structure and function of natural systems, whether physical and ecological, as well as a quest to understand why and how things function as they do. This requires observation, which is as much an art as a science, requiring practice, patience, and great attention to detail.



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This issue of *Resonance* contains a number of articles that describe how the art of simple observation, using fairly basic equipment (or even without equipment), can be used to understand a great deal about physical and biological systems. Jyotirmoy Sarkar and Bikas K Sinha explain how a standard two-pan weighing balance, such as may be found in any local vendor shop, can be used to detect a single counterfeit coin mixed among a number of genuine coins, Suchandra Chakraborty and Chandan Saha describe a classic principle of chemical kinetics, the Curtin–Hammett principle, relating this to practical applications in the laboratory.

The story of Maria Sibylla Merian – the pioneering 17th century naturalist whose life and work is described in this issue – provides another striking illustration of the potential of simple observation. Merian’s skilful illustrations, reproduced in the Classics section, are testament to a past era: when natural history was pre-eminent, and when careful observation and illustration was used to derive fundamental principles of natural science. Ayan Guha creatively illustrates Maria Sibylla Merian’s own metamorphosis as an illustrator, visualising her transformation into a butterfly who enters the enchanting world that she brought to life through her paintings. The article on the mangrove forests of the Sundarbans by Dipanjan Ghosh and Ayan Mondal vividly illustrates the beauty of a unique marine ecosystem, with its charismatic plant and animal species, and challenges of human dependence.

As always, the articles in this issue of *Resonance* aim to answer questions of how and why. The answers lead to more questions, opening the door to new areas of interest. Enjoy the journey.

