

Editorial

V Rajaraman, Associate Editor

In this issue we feature the Bernoullis, an immortal family of intellectuals who lived in the 17th and 18th centuries. They are best known for their work on what they called 'conjectures' and what we now call probability theory. Besides this, they were one of the first to appreciate the power of the infinitesimal calculus proposed by Leibniz in 1684 and its applicability in solving problems of fluid flow. Wolfgang Polasek who works in Basel, Switzerland, where the Bernoullis also worked, has written a fascinating story of this family, their background, collaboration and also rivalry, with emphasis on their work in probability theory. Bernoulli's equation, one of the foundations of fluid dynamics, was first stated by Daniel Bernoulli in 1738. In Polasek's article we find that he published his main work in the book *Hydrodynamica* in 1738. His father Johann I, also wrote in 1742, a book *Hydraulica*, which had a lot of overlap with Daniel's book but he predated it to 1732 to ensure priority! Jaywant Arakeri's article explains in detail the various facets of this powerful equation and its versatility in designing fluid flow systems.



The series on butterflies by Peter Smetacek continues with a fascinating description on how they fly and obtain the energy to fly. Wine and tea tasters take note that butterflies' taste buds for sweets are roughly 2000 times more sensitive than theirs! The series on photodynamic therapy concludes by describing some new approaches for the detection and treatment of certain cancers. The article by Sivakumar Swamy describes how speechless, legless plants fight their predators by a variety of means – by causing indigestion when they are eaten and by inviting predators of pests to feast on them using attractive perfumes! Indira Dey describes an enchanting story of how a star is born. Students of physics would find it challenging to read and understand the solution of a problem in electromagnetics posed at the Physics Olympiad 99. In another Classroom article Joshipura conveys his excitement of understanding fullerenes using geometry. In a book review, Rene Borges explains her concept of ecological sciences and why in her opinion Ernest Callenbach's book on ecology does not measure up.

Bernoullis were best known for their work on what they called 'Conjectures' and what we now call probability theory. They were also first to appreciate the power of infinitesimal calculus proposed by Leibniz.

