Editorial

N Mukunda, Chief Editor

Everyone is familiar with the gag grading falsehoods as 'lies, damned lies and statistics'. Actually the teasing out of the truth from vast amounts of data – winning knowledge from information – is no easy matter. As Erwin Schrödinger once characterised it, "... the essential feature of statistics is the *prudent and systematic ignoring of details*". But of course no science can be exclusively based on negative attributes – just as quantum mechanics cannot be based on the uncertainty principles alone! – and the one who did the most to establish the field of statistics is Ronald Aylmer Fisher. We feature Fisher in this issue. His range and depth of interests, and the mastery of the many areas of application through which he built up the whole subject, were truly vast. In fact he is regarded as the founding father of both statistics and quantitative genetics. In his article on Fisher and genetics, Amitabh Joshi recalls the situation at the beginning of this century when a great debate raged in biology on the mechanism of adaptive evolution. Darwin's original theory of evolution by natural selection had left open the material mechanism of inheritance from generation to generation. After the rediscovery of Mendel's laws in the early 1900's the debate hinged on the question – is the mechanism of inheritance discrete and particulate, or continuously variable, in nature? It was Fisher's fundamental 1918 contribution that cleared up this debate and reconciled particulate units of inheritance with continuous variations in realised traits. T Krishnan's article on Fisher's contributions to statistics per se surveys the many key concepts and methods introduced by him. This piece will come as sweet music to readers who have some familiarity with statistical jargon and technical terms. Anil Gore's review of the biography of Fisher written by his daughter Joan Fisher Box gives us insight into his life and character; and through all the three pieces combined we have a good guide to his many books as well.

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At the end it is reassuring (at least to some of us!) to learn that most of statistics grew in Fisher's hands out of its applications in various fields – evolutionary biology, genetics, agriculture, design of experiments... – and on occasion Fisher had the right idea though initially expressed in nonrigorous terms.

In many popular and even semi-technical discussions in this country, one often meets with the question – why did the scientific revolution take place in Europe and not elsewhere? Of course this event – like life, history and even the universe itself – is given to us just once, so comparisons are difficult and much wisdom is through hindsight. Nevertheless it is important to get some understanding of this problem and Virendra Singh's two-part essay in our Reflections section is devoted to just that. Singh reviews the characteristics of ancient science in the high civilizations of the world – India, China, Greece, Rome, the Middle East – and looks at some early theories of the origins of the scientific revolution. He reminds us of William Whewell's analysis from the first half of the 19th century, and discusses the roles of geniuses and the inhibiting effects of theology on the rise of modern science. His quotation from Whitehead is well worth absorbing: "...the essential discovery of modern science was the scientific method itself."

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In our Classroom section, Vilas Gohad from Pune describes simple experiments with readily available materials to display the properties of polarization of light. Recall that Newton referred to this by saying that "light has sides"; while Louis de Broglie, belonging to the French tradition which over the centuries did so much to elucidate the nature of light, called polarization "an element of symmetry of light".