

Title: Conditional and Marginal Probability Models and their Role in Statistical Science

Noel Cressie
National Institute for Applied Statistics Research Australia
University of Wollongong

Abstract:

In his 1995 book, "River out of Eden," Richard Dawkins described R.A. Fisher as "the greatest of Darwin's successors." Fisher was a statistician whose work in agricultural science 75 years ago arguably led to the planet's ability to feed itself. He contributed in many fundamental ways to biometry and statistical inference through marginal probability models. Two hundred years before Fisher, Thomas Bayes' work on conditional probabilities was published, and that has led to statistical inference of a type that Fisher was never able to accept. Now we are faced with a Twenty-first Century with huge questions in Energy, Climate, Environment, Finance, Water, and (still) Food. Uncertainty abounds, and society's approach has been to collect more data. The challenge is to find the nuggets of knowledge in these increasingly massive datasets. In this talk, I shall show how Fisher and Bayes both contributed to Statistical Science's role in helping to answer these and many other questions.

Noel Cressie, Director, Centre for Environmental Informatics
National Institute for Applied Statistics Research Australia (NIASRA)
School of Mathematics and Applied Statistics
University of Wollongong NSW 2522, Australia