Measurement theory and practice: The world through quantification

by David J. Hand

Measurement is a tricky business, and rarely leaves the thing measured unchanged, as Heisenberg's Uncertainty Principle states at the quantum level. But statistician David Hand has gone back to the foundations, examining measurement right across the various disciplines: psychology, medicine, physical sciences, economics, the social sciences and elsewhere. He must treat in a unified manner scales used to measure phenomena as different as pain, retail prices and magnetism.

"Measurement is the activity which produces the raw material which statistical methods analyse," says Hand. He seeks to present a broad view of this enormous field: the attempt to quantify in order to describe and understand.

Hand admits that there are those who criticise the ever–greater reach of measurement. He quotes business psychologist John Seddon, who said: "People do what you count, not what counts." He discusses particular
problems, such as grade inflation, which occur when what you measure are people, rather than unthinking objects – but he states firmly that, although there are justified criticisms, they simply mean that "more sophisticated measurement tools need to be identified."

The book contains a great deal of interesting historical material, and is not a heavy read considering its subject matter. It should be of interest to anyone who is at all interested in the foundations of science, or in the numbers used to maintain the trappings of a modern nation state – in short, in the relationship between numbers and things.

**Book details:**

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Prof. Hand does a masterful job introducing the topic of measurement from a variety of perspectives (e.g., physical sciences, psychology). The difficulties and controversies and limitations of measurement are also revealingly discussed; showing that the problems encountered measuring in software engineering are not unique, and many solutions have been found in other disciplines, but that work is required to overcome them. This book is densely written, with some maths and will require serious study, but for those committed to software measurement it is a compelling and illuminating read. The procedures through which numbers are assigned to objects are described, and measurement in psychology, medicine, the physical sciences, and the social sciences are examined in detail. The ideas of measurement are so ubiquitous that we often fail to notice them; they are concealed behind a veil of familiarity. Altogether, measurements are central to our modern world and our view of it. This book explores the nature of measurement, investigating its different kinds, how these kinds should be interpreted, and the legitimacy of their statistical manipulation. The procedures through which numbers are assigned to objects are described, and measurement in psychology, medicine, the physical sciences, and the social sciences are examined in detail.