

A PANORAMA OF STATISTICS

Perspectives, puzzles and paradoxes in statistics

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This book is a stimulating panoramic tour – quite different from a textbook journey – of the world of statistics in both its theory and practice, for teachers, students and practitioners.

At each stop on the tour, the authors investigate unusual and quirky aspects of statistics, highlighting historical, biographical and philosophical dimensions of this field of knowledge. Each chapter opens with perspectives on its theme, often from several points of view. Five original and thought-provoking questions follow. These aim at widening readers' knowledge and deepening their insight. Scattered among the questions are entertaining puzzles to solve and tantalising paradoxes to explain. Readers can compare their own statistical discoveries with the authors' detailed answers to all the questions.

The writing is lively and inviting, the ideas are rewarding, and the material is extensively cross-referenced.

A Panorama of Statistics:

- leads readers to discover the fascinations of statistics.
- is an enjoyable companion to an undergraduate statistics textbook.
- is an enriching source of knowledge for statistics teachers and practitioners.
- is unique among statistics books today for its memorable content and engaging style.

Lending itself equally to reading through and to dipping into, *A Panorama of Statistics* will surprise readers by the variety of ways in which statistics can capture and hold their interest.

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*Perspectives, puzzles
and paradoxes in statistics*



Eric Sowe & Peter Petocz



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We wrote *A Panorama of Statistics* for a wide readership among people involved with and interested in statistical ideas, whether as learners, teachers or practitioners. And it's not only for people who call themselves 'statisticians'.

As you may know, statistical ideas and methods are in use in an astonishing array of fields – for example, in the physical, biological and social sciences, in architecture and engineering, in medicine and law, in finance and marketing, and in history and politics.

That means that *this is a book for anyone who already knows something of statistics* and would like the company of a lively and engaging guide to discover much more.

As its subtitle indicates, the book is strong on perspectives. We offer you a bird's eye view of activities on the *highways* of statistical practice – what people generally think of as the 'day job' of statisticians and their counterparts in many other fields. That job routinely involves data analysis (sometimes called 'data analytics') and statistical inference (sometimes called 'data-based decision making').

Along the way, we frequently swoop down to explore at close hand many of the quirky *byways* – the historical, biographical and philosophical subtleties, puzzles and paradoxes – of the discipline. This is not what you find in textbooks!

Here, among the byways, you'll find answers to such intriguing questions as:

- How does statistics differ from mathematics?
- How might persuaders misuse data to achieve their goals?
- How can you decide which published figures you can actually trust?
- What makes probability theory so challenging - even for statisticians?
- Why is 'randomness' so tricky to define?
- Why are gamblers who keep on gambling almost sure to lose all their money?
- When is the well-known 'bell curve' invalid for describing real-world data?
- What principles and techniques of statistics were created when?

Even if you have only a slight familiarity with statistical ideas, there is still much in this book for you.

Eric Sowe and Peter Petocz

A reviewer says " ...The glimpses and insights given into this enormous and far-reaching discipline succeed in being bewitching, entertaining and inviting" and concludes "Read it, enjoy it and learn from it."

Neil Sheldon, *Teaching Statistics*, vol. 39, no. 2, 2017