

Sverdrup, Erling (1917–1994)

ØRNULF BORGAN

Volume 3, pp. 1665–1666

In

Encyclopedia Of Actuarial Science
(ISBN 0-470-84676-3)

Edited by

Jozef L. Teugels and Bjørn Sundt

© John Wiley & Sons, Ltd, Chichester, 2004

Sverdrup, Erling (1917–1994)

Erling Sverdrup was a founding father of mathematical statistics and modern actuarial science in Norway. For three decades his efforts were decisive in establishing and cultivating a Norwegian tradition in statistics and actuarial mathematics, a tradition that has made important contributions to the scientific advances in the fields.

Like many of his generation, Sverdrup's academic career was interrupted by the Second World War. He was an actuarial student when Norway was attacked by German forces in April 1940. During the war, he served as an intelligence officer in the Free Norwegian Forces. When the Norwegian king and government went into exile in London in June 1940, Sverdrup was sent to Helsinki, Stockholm, Moscow, and Tokyo to organize the cipher service at the Norwegian legations there. Then he was posted in Washington, DC, and, in 1942 he moved to London where he was in charge of a special military cipher service.

Sverdrup completed his degree in actuarial mathematics at the University of Oslo in the fall of 1945. He then served for about a year as head of the central cipher office for the Norwegian defense, before he became part of the econometric milieu around the later Nobel laureate Ragnar Frisch in 1946. This was decisive for his interest in mathematical statistics. In 1948, Sverdrup became assistant professor in insurance mathematics at the University of Oslo. He was a Rockefeller Foundation fellow at the University of California, Berkeley, University of Chicago, and Columbia University, 1949–1950, and got his PhD at the University of Oslo in 1952. In 1953, he was appointed professor in actuarial mathematics and mathematical statistics at the same university, a position he held until he retired in 1984. Sverdrup was a fellow of the Institute of Mathematical Statistics, a member of the Norwegian Academy of Science and Letters, and an honorary member of The Norwegian Actuarial Association and of the Norwegian Statistical Association. He was Norwegian editor of the Scandinavian Actuarial Journal (former *Skandinavisk Aktuarietidskrift*) in 1968–82.

When Sverdrup became professor, he immediately and energetically began to revise the study program.

It was clear to him that an education in actuarial science should be solidly founded on probability theory and mathematical statistics. At that time, however, mathematical statistics was not established as a subject of its own in any Norwegian university. Therefore, Sverdrup first established a modern study program in mathematical statistics for actuarial students and other students in science and mathematics. When bachelor and master programs in mathematical statistics were in place, Sverdrup reorganized the study program in actuarial science by designing courses in insurance mathematics based on probability theory and mathematical statistics. As an integral part of this, he developed teaching material both in mathematical statistics and actuarial mathematics. The Norwegian edition of his statistics textbook *Laws and chance variations* [7] had a great impact on a generation of Norwegian actuaries and statisticians, and his lecture notes in actuarial mathematics were decades ahead of contemporary textbooks. Unfortunately, these lecture notes were never translated and widely publicized.

In his teaching and writing, Sverdrup had the ability to focus on the fundamental sides of a problem without getting absorbed in mathematical details. He insisted on the importance of conceptual clarity and the unifying role of science, and he had strong opinions on the philosophical basis of mathematical statistics. It is therefore natural that the focus of his research was statistical decision theory and the principles for construction of statistical methods (e.g. [3, 6, 8]). He has, however, also made important contributions to **life-insurance mathematics** (e.g. [2, 4]) and to **survival analysis** and event history analysis, where he, at an early stage, advocated the use of **Markov chain** models for studying disability (e.g. [5]). Sverdrup was reticent in publishing his results in the traditional form of journal papers, and a number of important contributions have only appeared in lecture notes or technical reports. However, both his published and unpublished research inspired others, and were crucial in establishing a strong Norwegian tradition in actuarial science, survival and event history analysis, and other fields of statistics; some notable scholars from this tradition with relevance to actuarial science are Jan Hoem, Odd Aalen, and Ragnar Norberg.

A detailed account of Erling Sverdrup's life and academic achievements is given in [1].

References

- [1] Norberg, R. (1989). Erling Sverdrup – portrait of a pioneer in actuarial and statistical science in Norway. Pp. 1–7, in *Twelve Contributions to a Tradition in Statistical and Actuarial Science. Festschrift to Erling Sverdrup*, R. Norberg, ed., Almqvist & Wiksell International, Stockholm.
- [2] Sverdrup, E. (1952). Basic concepts in life insurance, *Skandinavisk Aktuarietidskrift* **35**, 115–131.
- [3] Sverdrup, E. (1953). Similarity, unbiasedness, minimaxibility and admissibility of statistical test procedures, *Skandinavisk Aktuarietidskrift* **36**, 64–86.
- [4] Sverdrup, E. (1962). Actuarial concepts in the theory of financing life insurance activities, *Skandinavisk Aktuarietidskrift* **45**, 190–204.
- [5] Sverdrup, E. (1965). Estimates and test procedures in connection with stochastic models for deaths, recoveries and transfers between different states of health, *Skandinavisk Aktuarietidskrift* **48**, 184–211.
- [6] Sverdrup, E. (1967). The present state of the decision theory and Neyman-Pearson theory, *Review of the International Statistical Institute* **34**, 309–333.
- [7] Sverdrup, E. (1967). *Laws and Chance Variations*, Vols. I–II, North Holland Publishing, Amsterdam.
- [8] Sverdrup, E. (1977). The logic of statistical inference: significance testing and decision theory, *Bulletin of the International Statistical Institute* **XLVII**(1), 573–606.

ØRNULF BORGAN