

to a Pareto optimal arrangement. This completely negative result which implies that there are no reinsurance transactions made in a perfectly competitive market is again confirmed to a certain extent in this paper by an illustrative numerical example.

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*Application of Mathematical Models in General Insurance* by PAUL JOHANSEN. Forsikringsaktieselskabet Nye Danske af 1864. Centenary 19th April 1964.

This slender publication, written on the occasion of the Centenary of the Nye Danske af 1864, presents an excellent survey of the current state of the mathematical foundation of non-life insurance in which there is currently rapid development. The book is purposely written in non-mathematical language and those acquainted with the subject will find that the fluent style and lucid arrangement make it delightful reading. Above all, actuaries whose interest have been mainly in life business, will find the book an agreeable and beneficial introduction to non-life insurance.

As there is no authoritative text book in English on the mathematics of non-life insurance, and the current rate of development would soon render such a text book out of date, the would-be student has to refer to papers scattered in various journals. With no systematic instruction it is a matter of considerable difficulty to become conversant with the subject. This lacuna is largely filled by the present work in which, in spite of the inherent difficulty of the subject matter, the significant fields of enquiry within the scope of non-life mathematics are succinctly examined in an easily comprehensible manner and in a clear, systematic form.

The paper begins with a consideration of mathematical models and, especially, of the methods employed in life insurance, and then proceeds to the fundamental questions of non-life insurance mathematics. In particular, not only the problems of tariff rating, but also the ascertainment of security reserves and the questions relating to reinsurance are expounded. Elements of the risk theory of non-life insurance mathematics, with special reference to the collective risk theory evolved in Scandinavia and its projected elaboration in recent years through generalised models, are then subjected to thorough scrutiny. Numerical examples contribute to a deeper perception of the matter.

Both the learned author as well as Nye Danske af 1864 are to be congratulated on the successful work. It represents, as it were, a record, accessible even to the public at large, of the latest state of the mathematics of non-life insurance.

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