distribution and the calculation of convolutions thereof. This part contains useful numerical information regarding the reserves the insurer should maintain.

Een eenvoudige brandverzekeringsstatistiek, by P. D. PESTMAN, *Het Verzekerings-Archief*, 1958, pp. 178-195, 's Gravenhage.

The fire insurer needs statistics which give him insight into the structure of the portfolio. The author gives a description of an existing simple system, based on punched cards, which has been designed to meet special demands for information required in connection with questions of stability and net retentions. The quotients

$$\frac{(1 - W_0)\,\bar{s}}{(1 - W_0)\,\bar{s}^2 - (1 - W_0)^2(\bar{s})^2} \approx \frac{\bar{s}}{\bar{s}^2}$$

where $(1 - W_0)$ is the fire risk (probability) and s the observed individual damage percentage, are introduced as retention factors per risk group. Special importance is attached to the variance $(1 - W_0)\,\bar{s}^2 - (1 - W_0)^2\,(\bar{s})^2$ and the expression $\sqrt{\frac{1}{n}\,W_0\,(1 - W_0)\bar{s}^2}$ in judging stability.

On some simple stochastic processes of special use in actuarial statistics, by J. VAN KLINKEN, *Verzekerings-Archief* 1958, Actuariëel Bijvoegsel 1958, pp. 107*-117*, 's Gravenhage.

Random processes where the intensities depend on time are particularly suited to describe in detail the developments in time of certain groups of insured persons or objects. An important case is that where two groups are involved with transitions in both directions. As an example may be considered disability insurance which involves groups of active and disabled insured and in which the transitions arise from falling ill and recovery. It is argued that in the general case in which all four intensities have positive values dependent on time, only numerical solutions are practicable. Some suggestions are made as regards calculation and attention is drawn to certain convenient approximations.

De kennis van de verzekeraar op het gebied van de kernenergie, by P. D. PESTMAN, *Het Verzekerings-Archief*, April 1959, 's Gravenhage.

Now that in the Netherlands a pool has been formed for the insurance of atomic risks, the participating insurers need information regarding the technical aspects of insuring these special risks. In this context a coordinated information service guided by Euratom will be very helpful. An extensive discussion is given on the proceedings of the Nuclear Energy Training Course for Insurance Personnel, sponsored by Nuclear Energy Reinsurance Pool and Nuclear Energy Property Insurance Association.

Steekproefmethoden en Verzekeringsbedrijf, by L. J. SMID. *Het Verzekerings-Archief*, April 1961, 's Gravenhage.

After introducing some statistical concepts and clarifying them for the general reader, the author discusses a number of applications of random sample theory in the field of insurance technique. Random sample technique was included in the subjects of the actuarial congresses held at Scheveningen

(1951) and in Brussels (1960). The applications can be divided into three groups:

(a) Samples drawn from existing finite populations. Methods of estimating premium reserves by means of samples, methods of sampling inspection and quality control in relation to administrative work are discussed.
(b) Random samples drawn from theoretical populations. This means statistical inference by means of e.g. significance tests and interval estimation.
(c) Monte Carlo and similar techniques based on simulation.

Enige aspecten met betrekking tot het solvabiliteitsvraagstuk in het schadeverzekeringsbedrijf, by C. CAMPAGNE, *Het Verzekerings-Archief.* January 1959. 's Gravenhage.

Considerations derived from collective risk theory may be used to derive a minimum solvency standard to be maintained by the insured; this minimal standard depends on the form of the risk distribution. Two probability schemes, namely the Poisson and the Beta distribution are introduced and compared. It is proved that the Beta distribution is a somewhat safer approach to adopt. Furthermore, the author argues that the insurer is practically safe as regards the danger of insolvency when the extra reserves amount to 25 % of the total annual premiums.

Winstgevendheid en Winsthansen bij Valuta-arbitrage, by C. VAN DE PANNE and A. STRANDERS. *Statistica Neerlandica,* 1960, p. 187-204, 's Gravenhage.

By systematic analysis of the matrices of buying and selling prices the authors are able to construct the chains of transactions which yield the highest profit. The method is applied to the figures of five countries at three different points of time.

The probability that there is a profit and its mathematical expectation may be calculated as soon as certain suppositions are made about the distribution of the changes of buying and selling prices. These quantities have been computed for two points of time on the assumption that the logarithms of these changes are distributed normally with mean zero and known constant variance.

The authors justify the probabilistic approach by stressing the "decision" character of the problem for which not all relevant factors are known.

Finally the simple model of normally distributed price changes with no time lagged correlations is criticised as being rather unrealistic but nevertheless of some use as it gives indications of those chains which are probably profitable.

J. van K.

The safety loading of reinsurance premiums by Karl Borch, Bergen, *Skandinavisk Aktuarietidskrift* 1960

In a previous paper the author has studied the case of two insurance companies negotiating with the purpose of concluding a reciprocal reinsurance treaty. These results are generalized in the first part of the present paper to an arbitrary number of companies.

By denoting the risk distribution by $F_i(x_i)$ and the available fund by S_i,