NOTES ON OTHER ACTUARIAL JOURNALS

BY H. L. SEAL, B.Sc., Ph.D., F.F.A., A.I.A., A.S.A.,
AND F. W. ESCHRICH, F.I.A.

FRANCE

*Bulletin Trimestriel de l'Institut des Actuaires Français, 80, 1969*


**MOREAU, L.** *Utilisation de la programmation linéaire dans la technique de l'assurance* (Application of linear programming in the technique of insurance), pp. 35–42. The problem studied, after the general discussion, is the control by an optimization programme of 15 non-life agents subjected to various criteria of satisfactory progress.

The June/September issue of the Bulletin (pp. 65–199) is devoted to a colloquium held in Tours in March 1969 to review ten years' developments of the répartition pension schemes. A previous colloquium held in 1958 covered the period from the signing of the National Collective Convention of 14 March 1947 which inaugurated a national pension system involving funds run on assessmentism lines. The 1958 colloquium was held in Trouville.

The contents of the reports are as follows:

**DUBOIS, C.** *De Trouville à Tours*, pp. 71–9. A general review of developments in the last 10 years.

**LESCURE, J.** *Rapport entre rendement et structure des salaires* (Correspondence between yield and salary structure) pp. 80–6. ‘. . . . the yield of such a system is the mean benefit obtained by a contractual contribution of 1 franc.’

**LOISEL, J.** *Les contraintes en matière de retraite par répartition* (The restrictions affecting retirement under répartition) pp. 87–97. Draws attention to the crisis which can face a dying scheme under assessmentism and discusses possible counter-measures.

**NETTER, F.** *Notes sur les retraites fonctionnant suivant un mécanisme de répartition*, pp. 98–103. Some actuarial formulae.

**PICOT, J.** *Sur l'aptitude de la répartition a constituer un régime de prévoyance* (On the suitability of répartition in constituting a savings scheme) pp. 104–12.

**PICOT, J.** *Recherche d'une structure cohérente dans un régime par points* (In search of a coherent structure in a points system) pp. 113–23.


**ARIBAUD, H.** *Régime des cadres*, pp. 127–9. The 'cadres' are the occupational groups which determine the particular scheme to which an individual belongs.

**GUINARD, L-M.** *Variation de taux de couverture des engagements d'un régime de retraite par répartition* (Variation of the rates of cover of liabilities under a répartition pension scheme) pp. 130–3.

**Conclusions des commissions**, pp. 177–82.
LE BORDAIS, G. Quelques réflexions élémentaires sur les modes de calcul et de répartition des droits dans un système de répartition généralisé (Some elementary reflections on the methods of calculation and the assessment of rights in a generalized répartition system) pp. 134–43.

LESCURE, J. Nombre de points et allocation de retraite d’un participant (Number of points and pension allocation for a participant) pp. 144–9.

MOALIC, M. Y. Remarques sur le choix du salaire de référence (Remarks on the base salary) pp. 150–1.

THOMAS, A. Stratégies de la valeur du point dans un régime de retraite par répartition: essai d’application de quelques méthodes de recherche opérationnelle et simulation au moyen d’un ordinateur (Strategies in evaluating the point in a répartition pension scheme: application of certain operational research methods and simulation by means of a computer) pp. 152–76.

GERMANY

Blätter der Deutschen Gesellschaft für Versicherungsmathematik 9, 1969

HOEM, J. M. Markov Chain Models in Life Insurance (pp. 91–107).

ENGEL, A. Propädeutische Wahrscheinlichkeitstheorie (pp. 109–21) Reprint of an article first published elsewhere, suggesting the inclusion in the mathematical syllabus of German secondary schools of the theory of probability from an early age.

REICHEL, G. Das äquivalente Versicherungsspiel (pp. 123–40) ‘Equivalent insurance games’ of the most general type are considered and their expected reserves introduced in conformity with the stochastic basis. In ‘equivalent’ games, expected values of payments equal those of receipts.

ISENBART, F. Altersrentensysteme und Kapitalisierungsgrad (pp. 141–55) A general examination of the relationship between degree of funding, premiums and reserves, using as an example a retirement benefit system for a stable population.

SCHRÖDER, G. Zu den Grundlagen der Versicherungsmathematik (pp. 157–79).

FIEGER, W. Links- und rechtsseitige Stieltjes–Schärf Unterteilungsintegrale (pp. 181–94) These two papers deal with related subjects. The first proves that a generalized form of the Stieltjes–Schärf Integral exists for an extended class of assurance functions (v’ functions) and demonstrates its usefulness in simplifying the treatment of actuarial problems. The second introduces Subdivision Integrals of the Stieltjes–Schärf Integral stating necessary and sufficient conditions for them. It also proves some relationships between the Stieltjes–Schärf Integrals, the Subdivision Integrals and the SS’-Integrals defined by the first author in an earlier paper.

SCANDINAVIA

Skandinavisk Aktuaridtskrift, 51, 1968

PHILIPSON, C. A Review of the collective theory of risk. II. List of literature on the theory of collective risk and related subjects, pp. 117–33. The list comprises 368 references, 35 to Philipson, 23 to Cramér, 21 to Ammeter and not more than 10 to any other author. A few of Borch’s papers are cited but, in general, the ‘related subjects’ are idiosyncratic.


Pesonen, E. *NP-approximation of risk processes*, pp. 158–64. Obtains an approximate upper bound to the error made in using the Fisher–Cornish series to order $t^{-1}$ in the convolution-mixed Poisson with mean $t$.


Gerber, H. *Abschätzung der Ruinwahrscheinlichkeit mit den Methoden der Fluktuationstheorie für Zufallswege*, pp. 171–3. If $P(\cdot)$, the distribution function of individual claim sizes, satisfies two specified inequalities on the negative axis an upper and lower bound can be found for $C$ in the asymptotic formula for eventual ruin from an initial risk reserve of $R$, namely $C e^{-\kappa x}$ where $\kappa$ is given by $\int_{-\infty}^{\infty} e^{\kappa y} dP(y) = 1$.

Bühlmann, H. *Note on the collective theory of risk*, pp. 174–7. Three theorems are proved which characterize the convolution-mixed Poisson process.


Kemp, A. W. *A limited risk cPp*, pp. 198–203. In the well-known Greenwood–Yule paper on accident proneness the distribution of individual proneness intensities was assumed to be gamma. The author puts an upper bound of $\bar{\theta}$ on this intensity and studies the resulting accident distribution.

Shantaram, R. *Further stronger gamma function inequalities*, pp. 204–6.

**SOUTH AFRICA**

*Transactions of the Actuarial Society of South Africa, 1, 1969*

We welcome this new journal.

Van der Linde, J. H. *The Distribution of Profits arising from Equity Investments*, pp. 11–34.

Stretton, A. N. J. (Opener) *Some Ethical Problems arising in connection with Equity-linked Contracts*, pp. 69–89. A discussion opened by Mr Stretton.

Marx, A. *A Method for the Approximate Calculation of Premiums which can be applied to any Pattern of Mortality*, pp. 90–123. This contribution by the late Dr Marx is followed by a Memoir.

**SWITZERLAND**

*Mitteilungen der Vereinigung schweizerischer Versicherungsmathematiker, 69, 1969*

Albrecht, E. *Rentenverlauf und Sterblichkeit bei den Invaliden der Schweizerischen Unfallversicherungsanstalt (SUVA)* (Development of disability pensions and mortality among disability pensioners of the Swiss National Accident Insurance Fund (SUVA)), pp. 31–48. The article examines first the changes in the relative importance of mortality and re-assessment of pensions as forces of decrement on the total amounts of disability pensions paid by SUVA. It then compares the mortality of the fund's disability pensioners, and in particular of those suffering from silicosis, with that of the Swiss population as a whole.

Latscha, R. *Ueber die Prämienbemessung in der obligatorischen Betriebsunfallversicherung*, pp. 49–62. The problems arising in the construction of premiums for compulsory occupational accident insurance are outlined and discussed on the basis of a short survey of this type of insurance in Switzerland.

Wunderlin, W. *Finanzierung und Prämienbemessung in der obligatorischen Unfallversicherung*, pp. 63–73. After explaining the system of equalization and reserve funds
Notes on other Actuarial Journals

by which SUVA has operated since its inception in 1918, the article describes the methods by which premium rates are assessed.

Straub, E. Zur Theorie der Prämienstufensysteme, pp. 75–85. This is a summary of the author's dissertation, published elsewhere, investigating, with the help of mathematical models, the effect of different strategies applied by the insurer and the policyholders within a scale of premium rates as in motor insurance.

Huelsen, Dr E. Entwicklung der Lebenserwartung, pp. 87–92. The article investigates changes in the expectation of life of the Swiss population between 1910/11 and 1958/63.

Kaiser, E. Two economic indicators measuring modification of expenditure in dynamic forecast of pension-schemes, pp. 93–103. The indicators referred to in the title are introduced into a mathematical model allowing only for demographic factors to derive two others reflecting in addition the effect of economic influences.

Hoem, J. M. Some Notes on the Qualifying Period in Disability Insurance, pp. 105–116. A disability model is described in terms of a three-state, age-dependent, time-continuous Markov chain. The effects of introducing a qualifying period are examined and certain actuarial values established.

Türlar, H. Modell eines Bestandessystems, pp. 169–83. Investigates temporal changes in the composition of a system of groups using linear differential equations and shows that the subject is subject to a multinominal distribution.

Gerber, H. U. Entscheidungskriterien für den zusammengesetzten Poisson-Prozess, pp. 185–228. Compound Poisson processes are applied to the estimation of the asymptotic probability of ruin and the investigation is extended to the problem of the maximization of dividend payments to shareholders as suggested by B. de Finetti.

Vaucher, Pierre. Remarques concernant la coordination entre les caisses de pensions et l'AVS, pp. 229–50. Deals with the co-ordination of benefits under private pension schemes with those from the Swiss state scheme in the light of repeated changes in the latter.

Tschanz, J-P. Fréquence, durée et coût des hospitalisations en chambre commune dans le canton de Neuchâtel, pp. 251–99. (Frequency, duration and cost of hospitalization in public wards in the canton of Neuchâtel).

Hoem, J. M. Some Notes on the Qualifying Periods in Disability Insurance, II. Problems of Maximum Likelihood Estimation, pp. 301–17. This is a continuation of a study the first part of which appeared on pp. 105–16 of Vol. 69 of the journal. It considers problems in connexion with the estimation of the forces of disability, recovery and mortality in a disability model with a qualifying period, establishing maximum likelihood estimators for a simplified case and giving formulae for estimation by numerical methods for the general one.

UNITED STATES AND CANADA

Proceedings of the Casualty Actuarial Society, 55, 1968

Hartman, G. R. and Lange, J. T. Rate regulation and the casualty actuary—revised, pp. 1–60. An updating of Carlson's 1951 (PCAS, 38) review of state laws concerning the regulation of casualty premium rates. 'Despite the trend toward greater flexibility widened by the changes in regulatory laws, it appears that price regulation is with us to stay.'

to 'measure trends in those economic factors which operate during the claims settlement procedure' and reviews its history since 1935.

**Goddard, R. P.** *Total earnings from insurance operations—the investor's viewpoint*, pp. 110–40. Proposes a formula for the rate of return which includes investment yields as well as underwriting profits. Illustrates its use on the aggregate of fire and casualty insurance figures.

**Schloss, H. W.** *The ecology of an actuary* (Presidential address), pp. 167–74.

**Mayerson, A. L., Jones, D. A., Bowers, N. L. Jr.** *On the credibility of the pure premium*, pp. 175–85. With a knowledge of the first three moments of the distributions of the number of claims and the claim size, respectively, the size of the average claim to give 'full credibility \((k,P)\)' can be approximated.

**Balcerek, R. J.** *The capital investment market and the insurance industry*, pp. 186–95. A review of the alternative uses for capital invested in an insurance business and their implications.


**McGuinness, J. S.** *Elements of time-series analysis in liability and property insurance ratemaking*, pp. 202–54. A number of charts illustrate this practical paper.

**McClure, R. D.** *A review of nuclear energy insurance*, pp. 255–94. A pool of stock companies (NELIA) handles liability insurance; another property insurance (NEPIA); and a pool of mutals (MAERP) handles both types. The author provides details of the operation of these pools since their formation in 1956.

**Ferrari, J. R.** *The relationship of underwriting, investment, leverage, and exposure to total return on owners' equity*, pp. 295–302. 'Once the actuary introduces investment returns into his [ratemaking] analysis, he must logically be concerned with the rather broad financial management objectives affecting total performance of the firm.'

**Hickman, J. C.** *Funding theories for social insurance*, pp. 303–11. A mathematical development of theorems concerned with social security benefits paid in a growing economy.