

NOTES ON FOREIGN ACTUARIAL JOURNALS

BY SIR WILLIAM ELDERTON, K.B.E., PH.D. (OSLO), F.I.A., F.F.A.,
AND H. L. SEAL, PH.D., B.SC., F.F.A.

FRANCE

Bulletin Trimestriel de l'Institut des Actuaire Français,

No. 193, December 1950

R. RISSER. *À propos de l'application de la loi de Gauss*, pp. 367-376. Expository paper on testing the normality of a series of observations.

V. LANOIX. *Note sur l'ajustement d'une table de mortalité d'après la loi de Makeham*, pp. 377-404. Theory and application of moments and least squares in fitting Makeham and the double geometric to $\log p_x$ without weighting for the exposed to risk. Considers the preference for least squares illusory and sees no advantages in 'weights'.

J. POUDÉVIGNE. *Note sur les rentes réversibles et la méthode de dédoublement*, pp. 405-411. When r_2 is the annuity payable as long as two lives survive and r_1 is that payable when only one survives, the total annuity to (x) and (y) is

$$r_1(a_x + a_y) + (r_2 - 2r_1)a_{xy}.$$

This can be generalized with an obvious notation to n lives as

$$\sum_{j=1}^n (r-1)^j \sum a_{xyz\dots(j)}$$

This formula is neatly extended to the asymmetrical case where r_j varies according to which of the j lives survive.

B. NOLDE. *Quelques remarques au sujet de la garantie du risque de guerre en Assurance-Vie*, pp. 413-438. A valuable summary of the history of government reinsurance of war risk in France between 1940 and 1950 when the institution was liquidated. Expenses of administration were heavy (60 million francs in paying 158 million of claims), due partly to the necessity of deciding between deaths due wholly and partly to enemy action. This latter distinction, in the author's opinion, is quite impractical under conditions of modern warfare.

SCANDINAVIA

Skandinavisk Aktuarietidskrift, 1950, Parts 3-4

M. WEIBULL, *The Distribution of the t and z Variables in the Case of Stratified Sample with Individuals taken from Normal Parent Populations with Varying Means*, pp. 137-167. A useful theoretical contribution to the study of changes in the t and z distributions when the samples of n are not drawn from a single normal universe. It is assumed that a different normal universe applies to each sample member, but that the variances of each of these universes have the same value.

- A. HALD, and S. A. SINKBAEK. *A Table of Percentage Points of the χ^2 -Distribution*, pp. 168-175. The two standard tables of percentage points of the χ^2 -distribution, Fisher's and Thompson's, distinguish 14 and 13 points, respectively, and only the second is tabulated for degrees of freedom between 30 and 100 at intervals of 10. The new table provides 21 percentage points for every degree of freedom from 1 to 100.
- K.-G. HAGSTROEM. *Risk Theory and Group Insurance*, pp. 176-183. An appeal to the Society of Actuaries to collect 'group life' mortality data in a form suitable for testing whether deviations from expectation are due to chance.
- L. DAHLGREN. *A Theorem on Translations by Hille, and its Interpretation from the Point of View of the Theory of Probability*, pp. 184-192. Two theorems of pure mathematics are interpreted in probability terms which suggest simplifications in their proofs.
- J. F. STEFFENSEN. *More about Invalidity Functions*, pp. 193-202. Continuation of an earlier paper (cf. *J.I.A.* LXXVI, 170). The force of mortality for 'actives' is here generalized from $k\mu_x$ to $k\mu_x + h$, and the corresponding formula for μ_x^i derived and illustrated numerically.
- T. DALENIUS. *The Problem of Optimum Stratification*, pp. 203-213. Assuming that the heterogeneity of a population can be represented by a known continuous distribution law it is shown how to choose $k-1$ points of partition such that the variance in estimating the mean by sampling n individuals from the resulting k strata is a minimum whether (i) proportional or (ii) 'optimum' sampling is used (Johnson and Tetley, Vol. II, Chap. 15).
- S. MALMQUIST. *On a Property of Order Statistics from a Rectangular Distribution*, pp. 214-222. If n independent sample variates are arranged in order the 3rd, 7th and 12th largest values, say, are not independent but simple functions of these values are. A number of illustrations are provided based on a rectangular universe.

Nordisk Försäkringstidskrift

Vol. XXXI, No. 1, January 1951, includes a lecture by O. A. Åkesson on the proposal for a general pension assurance submitted by a Swedish government committee. The committee recommended a compulsory scheme comprising everyone. The premiums should be based on the assessed net income subject to income tax but excluding the first Kr. 2000 and any excess over Kr. 30,000. The premiums should start at age 18 and continue to 65 for men and 61 for women, but the pensionable ages should be 67 and 63 respectively. The scheme should be contributory. The scheme implies that (1) premiums plus contributions during a certain year correspond to the cost of all pension payments during the same year; (2) the pension of each individual is determined with regard to the premiums paid by him during his active time; (3) the pensions are adapted to the changes in the standard of living of the active population. As regards (2) the individual case is not determined by the actual premiums paid but on a system of points fixed by the relation that his income bears to the average income of all the insured. The scheme also comprises invalidity and family pensions.