

REVIEWS

CASUALTY ACTUARIAL SOCIETY

The 1961 Proceedings contain a Presidential Address by William Leslie, Jr., ten technical papers, the reports on eight seminar discussions, a number of reviews, discussion of papers, two addresses, and two reports.

Reserves for Reopened Claims on Workmen's Compensation by RAFAL J. BALCAREK.

The author makes a detailed study of the experience of a company over the years 1936-58 involving in excess of 1,000,000 closed claims; from this study he concludes that reasonably accurate reserves for reopened claims on Workmen's Compensation can be established by basing the estimate on a ratio to past closed claims and their average payment. The paper is important in that it shows that unemployment (at least in a moderate range) does not affect noticeably the rate of reopenings, thus materially assisting the actuary in establishing appropriate reserves.

A Study of the Size of An Assigned Risk Plan by FRANK HARWAYNE.

An assigned risk plan is a means of distributing fairly between companies, automobile business which, because of its loss experience or for some other reason, cannot be placed voluntarily with any company. The study analyzes New York data to determine how large an assigned risk plan may be considered normal in relation to the total private passenger business in a territory

Cost of Hospital Benefits for Retired Employees by MURRAY W. LATIMER.

With proposals for the provision of medical care for the aged as a part of Social Security much under discussion, this timely paper provides a useful case study in the field of hospitalization benefit cost estimating.

Fitting Negative Binomial Distributions by the Method of Maximum Likelihood by LEROY J. SIMON.

This is a worked example for fitting a negative binomial distribution to actual data together with a development of the basis for fitting such distributions using the method of maximum likelihood. The method of moments is also discussed and applied to the data. Finally, there is a discussion of fitting this distribution when the number of observations in the zero case (claim-free insureds) is censored and when it is truncated. It is concluded that the method of moments can be satisfactorily used in practice except when the data is censored or truncated, and in that event the method of maximum likelihood is far superior.

Experience Rating Reassessed by ROBERT A. BAILEY.

With the development of "package policies" combining in a single insurance contract insurance against all the property (first party) and liability (third party) perils usually involved in a commercial venture, the problem arises of how to reconcile the experience rating practices of liability insurance with their almost complete non-use for property coverages. Because property insurance has lower claim frequencies and higher catastrophe hazards the experience rating plans developed for liability coverages cannot be taken over into the field of combined coverages. The author analyzes the problem of experience rating anew from first principles and develops a plan suitable for use for the package policies. The plan is like an excess of loss reinsurance plan in that the premium for the excess losses is not influenced by the actual losses and the premium for the first layer of losses is based entirely on the actual losses incurred in the past in that layer. The size of the first layer is proportional to the total premium.

Recent Trends and Innovations in Individual Hospital Insurance
by M. EUGENE BLUMENFELD.

This paper provides a valuable summary of recent developments: Major Medical Coverage, Hospital Coverage with a Deductible, Comprehensive Scheduled Plans, Guaranteed Renewable Hospital Coverage, Paid-Up Hospital Plans, Substandard Coverage and Over-age Plans.

Observations on the Latest Reported Stock Insurance Company Expenses for 1960 by FRANK HARWAYNE.

An expense study by line of business and size of Company.

Patterns of Serious Illness Insurance by MARK KORMES.

A statistical study of a prolonged illness insurance plan and a major medical insurance plan.

Mathematical Limits to the Judgment Factor in Fire Schedule Rating
by KENNETH L. MCINTOSH.

This is probably the earliest attempt to apply mathematical theory to schedule rating of fire insurance. The paper will be of particular interest to those who feel that we rely too much on engineering considerations and too little on statistical inference for loss data in fire schedule rate making. This is one of the least explored areas of actuarial endeavor and offers plenty of opportunity for further development.

An Actuarial Analysis of a Prospective Experience Rating Approach for Group Hospital-Surgical-Medical Coverage by GEORGE E. McLEAN.

A large amount of Group Hospital-Surgical-Medical coverage in the United States is written through the Blue Cross—Blue Shield organizations which provide such coverage on a non-profit basis. These organizations are local in character and enter into special agreements with hospitals which, in general, involve rather lower fees to the organizations than those charged

to the general public. Many Blue Cross—Blue Shield plans are issued to the employees of individual organizations and this study is concerned with modifying the rates charged to the employees of an individual organization to reflect the experience of such employees.

Addresses and Reports

This volume of the Proceedings contains the following addresses and reports:

Accreditation of Actuaries	Reinhard A. Hohaus
A Casualty Actuary in Europe	Paul Johansen
ASTIN Colloquium at Rättvik	Norton E. Masterson
Committee to Cooperate with the International Cooperation Adminis- tration	Frank Harwayne

L. H. Longley-Cook

The Causation of Bus Driver Accidents by W. L. CRESSWELL and P. FROGGATT, Oxford University Press, 1963.

Ever since Greenwood and Woods presented their paper on the incidence of industrial accidents (ref. 1) the interpretation of accident statistics has been a topic of controversy amongst those concerned with the interpretation of the data and those concerned with administration of the environment in which the accidents arose. In particular the pattern of accidents among drivers of motor vehicles has been an ever growing topic of argument, whether from those concerned with the determination of premiums and management of portfolios of motor insurance or from legislators concerned with road safety and the welfare of the population.

Much of this argument has been developed from the fact that one model which gives rise to the commonly occurring negative binomial distribution for the distribution of accidents is a combination of a gamma distribution (for the distribution of "accident proneness" in the population) and a Poisson distribution (for the distribution of accidents). The finding of a negative binomial has been accepted as evidence of accident proneness and it has been all too readily assumed that the population can be divided according to such a characteristic.

Unfortunately, despite many efforts, most careful investigators have failed in their search to find features which correlate with the so-called accident proneness. In recent years the study by Hakkinen (ref. 2) on public service vehicle drivers in Helsinki provides one of the best reviews of the problems involved, the results of which can be broadly (and perhaps a little unfairly) summarised by observing that correlations of accident experience with experimental tests only become significant when the tests become as complex as the environment of the accident!

Nevertheless the question is important for motor insurers, and some of the discussions on the principles of no claim bonus have involved the assumption of a proneness concept when heterogeneity was a sufficient concept