

MEDICO-ACTUARIAL INVESTIGATION OF MORTALITY OF AMERICAN AND CANADIAN LIFE ASSURANCE COMPANIES.

(Mr. Arthur Hunter, in *Journal of Institute of Actuaries*.)

Volume IV of the report on the Medico-Actuarial Mortality Investigation deals with the effect on mortality of: 1. Defects in physical condition, which were found to exist at date of application for insurance; 2. Defects in personal history; 3. Defects in family history.

The term "Medical Impairment" or "Impairment" is used in the report to cover all of these.

The classes dealt with in the volume consist solely of policies issued on the lives of men.

One of the main points to be kept in mind in reading the report is that all cases which by reason of physical condition or of personal history had been treated as sub-standard, were excluded from the investigation; but policies were included under which the insured were treated as sub-standard on account of family history alone. Cases were considered as sub-standard if the policies were issued with an extra premium, or with a lien, or were placed in a special dividend class; but those which were simply limited to Endowment insurance were not considered as sub-standard.

If any of the "Required" or "Optional" occupations were recorded on the mortality card, the case was excluded from the classes on which a report is now made, as such occupations were generally expected to show a higher mortality than the normal. It may therefore be assumed that in the impairment cases there was no hazard from occupation. Again, on a small proportion of the cards there were two or more impairments recorded, but these were of minor importance, as otherwise the risks would have been treated as sub-standard. Such cases were excluded.

Furthermore, in most of the impairment classes a mortality heavier than the normal was expected among lives which in other respects were "standard." In order to offset the effect of any given medical impairment and so maintain an approximately normal mortality, standards of fitness in other respects higher than the average must have been maintained.

For these reasons the mortality ratios in the classes recorded in Volume IV cannot be regarded as measuring the effect or the absence of effect of the medical impairment upon the mortality. In some groups the mortality ratio is less than 100 per cent., but the causes of death indicate that the impairment was prejudicial to longevity.

HIGHER STANDARD OF SELECTION.

In many of the classes a higher standard of selection was maintained by the Companies on account of the impairment, and this had an important effect on the mortality. It should therefore be remembered that Volume IV records the mortality experience of classes which are generally superselect except for the impairment in question. Thus, the vast majority of persons with a history of blood-spitting within five years of application were un-

doubtedly refused acceptance as standard risks; among the comparatively few cases accepted the mortality was 151 per cent. of the normal, but it would be wrong to assume that an extra premium or a lien to cover this excess mortality would justify the free acceptance of such lives in the future.

It is advisable to read the comments of the Committee before drawing deductions from the data, otherwise errors may be made. For example, it is stated in the comments that the class of those with irregular pulse consisted largely of insured having this impairment at the first, but not on subsequent examinations, and the low mortality was undoubtedly due to this cause. Another illustration is that of albumen in the urine. In this impairment the condition was apparently temporary, as in the majority of cases it was only found in one of several tests.

The expected deaths were calculated by the M. A. Table, which represents the average mortality of the forty-three companies in the investigation. This table was based on policies issued on "standard" lives during the years 1885 to 1908 inclusive—the same period as was covered by the investigation of medical impairments.

The standard or normal death rates for the various causes of death were based upon the records of 17,792 policies terminated by death. The death rate from each cause to 10,000 exposed to risk is used, and not the proportion of deaths from each cause to the total deaths.

(To be continued.)

ROYAL ARCANUM'S POOR RECORD.

The Royal Arcanum seems to be progressing backwards. In each of the last four years the assessments made have been insufficient to meet the incurred death claims. The figures are stated by an exchange as follows:—

	Assessments.	Incurred. Death Claims.	
1910.....	\$8,083,963.32	\$8,393,450.60	*\$309,487.28
1911.....	7,959,767.54	8,014,283.21	*54,515.67
1912.....	7,859,236.59	8,048,203.62	*188,967.03
1913.....	7,751,202.58	8,233,670.61	*482,468.03

*Deficit.

Year after year there has been a steady decrease in assessments, while there has been a gradual increase in the death claims. A comparison of the figures for 1913 with those of 1904 shows that while there was a decrease in assessments of \$117,000, the death claims incurred were in the latter year greater by nearly \$33,000. In itself this latter figure does not appear large, but when it is remembered that the Royal Arcanum had \$200,000,000 more insurance in force in 1904 than in 1913, it will be seen that the ratio of death claims incurred to business in force has jumped up enormously.

In 1905 the assessments of the members were increased, and since that year there has been a steady falling off in the monthly receipts from assessments, the total income continuing to fall in spite of the addition of new members from time to time.

The business in force of the Royal Arcanum is now about \$480,000,000, and of this over \$360,000,000 is on the lives of members over 40 years of age. It is obvious that in the years to come the death claims will increase very rapidly.

The moral is plain, and life agents should have no difficulty in driving it home to the public.