MORTALITY ON POLICIES FOR LARGE AMOUNTS

A. How reliable are the indications of the 1954 Committee Report, in particular the rates under term policies and for ages below 40?
B. How much may the following have influenced the figures:
   a) Inflation?
   b) High levels of economic activity?
   c) Growing popularity of business insurance?
C. What changes in limits and underwriting policies for large amounts may be indicated?

MR. G. D. SHELLARD estimated the minimal probable error of the 1948–53 term plans experience to be 4%. However, this assumes that all lives in a given classification carry the same amount of insurance and an estimate based on the actual amounts per life in each classification might well double this probable error. The probable error in the 1934–41 and 1941–48 studies would be slightly larger, but all three studies showed a continued downward trend in the mortality ratios on large amount term plans, with the ratio in the current study being 90% of that experienced on policies of smaller amount.

For issue ages 30 to 39 under all large amount plans combined, the mortality ratios were nearly the same for each of the three periods 1941–46, 1946–48, and 1948–53, being 105% based on 501 deaths for the three periods combined. The 1948–53 experience showed a mortality ratio of over 140% for issue ages 10–29. However, the exposure was relatively small and if one death involving almost $1,000,000 were removed, the mortality ratio would be reduced 32 percentage points and would then approximate the 1941–46 and 1946–48 experiences. Over half the deaths in this age group were due to accidents.

It is well to remember that the 1948–53 experience covered a period of good economic conditions. In periods of bad times, deaths from suicide and accidents can increase alarmingly as evidenced in Mr. Marshall's paper in *TASA* XXXVII. That paper showed that Provident Mutual's mortality ratio from suicides in 1929–32 was over ten times as high as in 1924–28 and in 1933–35 was still over four times as high as in 1924–28. Similarly, accidental deaths during the periods 1929–32 and 1933–35 were four times as high as in 1924–28. As a result, the over-all mortality ratio for 1929–32 was three times as great as in 1924–28 and for 1933–35 was twice as great. Although the changes experienced by other companies were not all as marked as the above, and may have been affected by dif-

ferences in underwriting practices, it is still well to keep in mind that sharp mortality changes may be experienced with changing economic conditions.

MR. R. L. WHALEY said that it has never been conclusively demonstrated that there is a direct relationship between economic prosperity and mortality on policies for large amounts. He referred to Mr. Marshall's paper in *TASA* XXXVII and to Mr. Murphy's paper the following year to show that, although Mr. Marshall's company experienced much higher losses in the four years after 1929 than in the four years preceding, Mr. Murphy's company showed little difference in the experience of the same two periods. Thus differences in underwriting practices and other factors must be taken into account.

We must remember that the experience in the 1930's on large amounts resulted in many changes in our selection methods. The Recording Bureau was set up, electrocardiograms and X-rays were more often required and, in short, large risk underwriting became highly selective. The majority of the lives included in the Committee studies were probably selected by these high standards.

In order to have an experience on large amounts which will not be worse than that for all standard policies, averaged over all phases of the economic cycle, we should have a mortality ratio of less than 100% on large amounts in prosperous times if we anticipate excess losses in depressions. The Committee reports have shown this actually to be the case with a mortality ratio for large amounts of about 90% over the 19 years since 1934. However, it is interesting to note that the experience for this period was 106% for issue ages under 40 and 85% for issue ages 40 and over. This may be the result of less stringent electrocardiogram and X-ray requirements at younger ages and suggests that careful medical selection may have a much greater effect on the experience than the economic cycle has. On the other hand, the large amount experience showed higher than normal mortality from accidents and homicides even in prosperous times; we may accordingly expect the whole group to experience higher than 90% mortality in the event of a future depression.

Rather than relaxing our underwriting standards because of the overall ratio of 90%, the unsatisfactory results in prosperous times for policies issued below age 40 suggest the need for continued caution in selecting these risks. Even if we feel that the mortality on large risks could survive a depression without a material increase in relation to that on small policies, we would do well to continue cautious underwriting of such cases until we have more conclusive evidence of the effect of the economic cycle on our mortality.

MR. G. E. CANNON said that the characteristics of the mortality rate depend upon the economic cycle. In a period of depression, we have the elimination of many good risks when policies have to be considered for termination and we have excess claims arising from those who prefer to die to collect rather than to live. In prosperous times, the reverse is true. During recent years, we have had a period when insurance in large amounts was well justified because of key man needs and the protection of capital investments. We also have had better and more careful selection methods along with a higher degree of recognition of impairments. Also, underwriters have usually been persistent in rating these large policies, whenever necessary, whereas, 20 or 25 years ago, there were probably many cases taken without adequate rating in order to get the large amount of insurance.

Mr. Cannon pointed out that, although the mortality ratios were higher at the younger ages, only two percent of the total was in the 10–29 issue age group and all cases below age 40 represented only 17% of the total. So the bulk of the large amount study was issued above age 40 and has shown favorable mortality for the past 20 years. Based on 20 years mortality of 90%, we have had a mortality saving which would offset 50% excess mortality over a four year period in the event of a depression or it would cover double normal mortality for a two year period. It is true that the excess mortality during the big depression exceeded these amounts, but there are many reasons to believe that any future depression will not be as severe as that of the 30's. We now have better credit controls, an improved Federal Reserve System, and the Federal Deposit Insurance Corporation to help lessen any economic recession; and social security and unemployment insurance should also act to protect us against the depth of another depression.

Looking to the future, we can see tremendous developments in research and new products resulting from the Atomic Age. These new products will involve huge capital investments and require many key men who, in turn, will need adequate insurance protection. Certainly, it is a challenge to our industry to provide this life insurance and we should try to build up the necessary contingency reserves during favorable periods to cover any excess mortality arising during a depression.