I motor cycles
II motor cars
III motor trucks
IV tractors

The following extract from the calculated values might be of interest:

Attained age x in years	I	II	III	IV
Rate of withdrawal q_x in ‰				
0	1.5	3.7	1.5	0.5
5	30	29	30	5.0
10	160	82	189	26
15	294	168	290	60
20	390	300	394	138
25	430	384	446	236
Survival order l_x				
0	10000	10000	10000	10000
5	9651	9444	9679	9937
10	6278	7374	5783	9344
15	1917	3992	1562	7717
20	239	1215	210	4900
25	17	145	13	1822
Complete expectation of life e_x				
0	11.6	13.6	11.1	19.2
5	6.9	9.2	6.4	14.3
10	3.9	6.0	3.6	10.0
15	2.5	3.8	2.6	6.6
20	1.9	2.4	1.9	3.8
25	1.1	1.1	1.0	1.3

This life table is applied to find the number of required replacements and thus leads to the so-called renewal problem. The possibility of rating in motor insurance by means of a life table may not be excluded. H. A.

> *Das subjektive Risiko in der Motorfahrzeugversicherung*, by MAX GÜRTLER, Basle. *Zeitschrift für die gesamte Versicherungswissenschaft*, 49. Band, 1960, Heft 2).

The underlying risk in non-life insurance may be divided into two components: an objective part and a subjective (moral) part. Although up to now only the objective part is rated in insurance business, the subjective risk is of great importance for some branches of insurance, especially for motor insurance. The author enumerates the specific subjective risks as follows: age, sickness (bodily and mental), habits (alcohol, drugs), bodily injuries or handicaps, fatigue, lack of reaction, weather susceptibilities and other hardly

explainable psychological phenomena. Traffic experts think that almost
80% of all accidents are due to subjective reasons. Although it is not yet
possible to register and classify people's character, the difficulties of bringing
into account the subjective part of the risk involved are, in the opinion of
the author, considerably overestimated.

The only important thing to know about subjective risk is the different
tendency of people to cause accidents. Appropriate statistical information
on the real underlying subjective risk situation in motor insurance is still
lacking, but corresponding data are avalable in accident statistics. Since in
both cases people cause damage, certain conclusions may be drawn.

Among other writers, the author reports about the findings of Hofmann
derived from an analysis of accident rates for the tramway personal in Zurich
and based on observations in the years 1944-1948 and 1948-1952. For the
first period Hofmann divided the personnel into four groups: 0, 1, 2, 3 or
more accidents. These four groups were analysed separately during the second
four-year-period and it was found that a distinct progression in claim rates
existed as is shown by the following table:

Group	Number of claims in the 1st period	Average number of claims in the 2nd period	
		Professional	Not professional
1	no claims	0.25	0.33
2	1 claim	0.51	0.45
3	2 claims	0.68	0.66
4	3 or more	1.22	0.71

Investigations by Lejeune, a traffic expert in Germany, led to the con-
clusion that in the big cities in Northern Germany 4.4% of all riders caused
47% of all claims. Undoubtedly these 4.4% of riders must be considered as
"bad insurance risks". Assuming a portfolio consists of 80% "normal in-
surance risks" with a yearly claim rate of 0.09375 and 20% "bad insurance
risks" with a yearly claim rate of 1.125, the author constructs a model.
Although all investigations derived from this model are based on purely
theoretical assumptions, the author develops some useful results, e.g. the
compilation of the level premium in comparison with the true premiums
for both risk classes and the influence on the level premium when "bad
insurance risks" are progressively excluded.

In conclusion the author discusses the complex of questions arising from
the application of a no claim bonus-system.

M. D.