Computers

puter system, but I concluded that we should not proceed immediately. We lacked people with experience in Association record-keeping, which differs materially from that in an insurance company, and I thought it prudent to wait while the cost of mini-computers was coming down, their capacity was expanding, and technology was making strides.

By 1977, these three conditions had sufficiently come to pass, and I had established friendships with other Association executives upon whom I could rely for guidance. Through these sources I came into touch with Michael M. Carollo of a firm named Computer Assistants Ltd., a most fortunate discovery of a man and a staff with the needed experience in Association computerization, and upon whose advisory services the Society continues to call more than five years later. With his help I developed a proposal, first for a feasibility study, then for implementation, which was promptly approved by the Executive Committee and the Board of Governors.

The three major candidates for prompt action were mailings, year book, and education and examination. Mailings, the most urgent, was tackled first. Our first computer was acquired in January 1978, and mailing records were on it by early spring of that year. It being well known that many computerization projects end up far behind schedule and incurring serious cost overruns, it is pleasant to remember that, largely through Mr. Carollo's expertise and energy and the hard and effective work of Bernard Bartels in the office, we came remarkably close to our targets in both these respects, and encountered few and easily correctable systems problems. The Society office was thus on the computer by the time I left at the end of 1978.

Bernard A. Bartels (at that time Administrative Officer):

The 1978 computer, to be with us for just one year, was an IBM System 32 with 9.1 million bytes of disk storage, 16K of memory, and 150 lines per minute of printing capacity. It was a self-contained machine. □

THE E. & E. CORNER

Ques.: Will Risk Theory on the next syllabus include Credibility Theory? If not, when?

Ans.: The latest risk theory material doesn't include credibility theory, and there are no plans to add it. (It does get brief coverage in group experience rating.)

We consider the credibility theory on CAS Part 4 too detailed for our students. But we'll review this topic for appropriateness, available material, and possible inclusion.

Ques.: New topics worthy of being examined upon continually arise, but to load students with more and more exams clearly isn't the answer. Why doesn't the Society adopt a system with more electives to accommodate these new subjects?

Ans.: We agree; in fact, new Parts 7, 9 and 10 have embraced this concept. Our continuing aim is to avoid more exams and too much course of reading material. □

SPEED AND MORTALITY

by David M. Lipkin

We all hear that crime doesn't pay—but does speeding? The question may allow an actuarial approach.

Let's analyze two 30-year old drivers—"Quicky", who drives an average 50 m.p.h. and "Legal", who averages a safer 40 m.p.h. Being average Americans, each drives 10,418 miles a year. Quicky spends 208.36 hours on the road each year, compared to 260.45 for Legal. Quicky's saving of 52.09 hours can optimistically be viewed as a "bonus" to Quicky's life. This oversimplified view treats Quicky's "speeding hazards" in the following manner:

1) The hazard of increased mortality due to higher probability of a fatal motor vehicle accident should be recognized as a "debit" to Quicky's 52.09 hour "credit".

2) Financial hazards of speeding are ignored.

3) "Secondary mortality debits", such as stress, possible poverty, jail, etc. are ignored.

4) Legal's extra time in the car is assumed to be totally unrewarding compared with the time Quicky has saved.

According to the Vital Statistics in *The Actuary* (Oct. 1982 and April 1979), the average decrease in overall motor vehicle mortality is 16.7% from the pre-1974 period to the post-1974 period. (1974 was when the speed limit was cut to 55 m.p.h.)

On the assumptions that (1) one-half of the recorded change in motor-vehicle mortality is indicative of a change in driving speed from 50 m.p.h. to 40 m.p.h., (2) the contribution to the overall age 30 mortality rate from motor-vehicle deaths is 34.07% (U.S. Dept. of Transportation Statistics), and (3) q_{30} for Quicky is .00156 (U.S. Life Table 1959-61, males), we find that q_{30} for Legal is as follows:

$$q_{30} \text{ (Legal)} = .00156 \div [1 + (.167 \times .5 \times .3407)] = .00152$$

This reduction from .00156 to .00152 translates into an average debit of:

$$.00004 \times (\tfrac{1}{2} \text{ year} + \overset{\circ}{e}_{31}) \quad \text{(assuming mid-year deaths)}$$
$$= .00004 \times 40.54 \text{ years}$$
$$= 14.21 \text{ hours}$$

The trade-off, then, is a mortality credit of 52.09 hours in exchange for a debit of 14.21 hours.

Different mortality decreases would result from different combinations of ages and speed reductions. Lack of information makes estimation difficult, but it's interesting to guess how fast one must go to get an even mortality trade-off. □