DISCUSSION BY J. R. BERQUIST

Mr. Khury has made a positive contribution to the expanding effort by casualty actuaries to replace over-emphasis on "seasoned judgment" by scientific method, and for this effort, he must be congratulated! His paper sets forth an approach for documentation of the actuaries' assumptions as to frequency, severity, inflation, payout patterns and the time value of money in an explicit manner. Furthermore, he has introduced a notational system for these expressions so that they can be developed mathematically. We commend him for that effort.

On the other hand, there is a possibility that the notational model is too restrictive to be of help in all but the more stable lines, i.e., those lines without the *critical* need for actuarial approaches. For example, extensions of the model to lines requiring an "$n$" of 20, not 3 or 4, will complicate the model manipulation considerably, since the extension for this time frame may introduce not only the additional terms but also the need for more complex assumptions as well.

I also find myself a bit critical of the implication that the mathematical problem is simpler than it may in fact be. An example would be the analogy to life or pension reserving procedures. This reviewer, who is 100% sympathetic to the steps toward "formula" approaches to loss reserving, is still of the opinion that our best efforts will be less than successful for some years to come unless we continue to combine practical judgments with the best of mathematical techniques.

Another area where Mr. Khury seems to be years ahead of the "state of the art" is his implication that there is a one-to-one correspondence of ratemaking subsets and reserving subsets. While this reviewer has consistently stated full agreement with that theoretical viewpoint, it must be realized that with the exception of one line, one state companies, there is usually not a one-to-one correspondence between rate setting subsets and reserving subsets. Again, that is a practical problem now and one that may vanish over time.

But although there are practical conditions, such as the development of a statistically rigorous estimator of the author's "$G$" function, which will make the transition to formularized reserves much more difficult than the paper implies, it does contain a framework which can enhance the actuarial computation of reserves. Except for the implication that the confidence interval can be

determined more easily than most applications permit, the procedure outlined can be most helpful in understanding the theoretical implications of the process.

The actuarial gain/loss section sets forth a very useful process. For some time this reviewer has prepared exhibits for certain clients which define that component of the loss ratio which is due to effects of development on "old" claims and that component which is due to over or under reserving on "new" claims.

In summary, this reviewer would like to congratulate the author for clearly identifying the reserving process mathematically and for stating it so clearly. Even though it may be some time before we are equipped to handle all of the required mathematics so explicitly for all lines, the attempt to do so will be most helpful to understanding the underlying process. Finally, we find it encouraging to find an actuary who admits the close correspondence between ratemaking and reserve setting. It is a paper such as this one that can improve both.