The brief sections on other reserving formulas seem to require no comment.

With respect to methods for other lines of business, reservations had been expressed earlier as to the necessity of building the total reserve from the sum of the parts. Application of retrospective rating to other lines of business is generally a combination of several lines at a time, and entry into Table M is based upon total expected losses. It would seem appropriate to examine techniques which would produce the best reserve in the aggregate as a first step, with appropriate adjustments by line to recognize past experience and such other significant factors as might exist, but with a moderation that would avoid undue fluctuations and still balance to the total.

A separate formula has been developed to convert net reserves to a "returns only" basis, using essentially the same techniques as in the earlier formula. The data needed to develop the constants is of such detail as to be available probably to only a few carriers at the present time.

It is difficult to understand the rationale underlying the concept of reserves based on return only. It is the essence of retrospective rating that, risk by risk, loss ratios will vary around some expected loss ratio. On that basis, we balance charges against savings, and it is not clear why we should depart from that concept in reserving. Admittedly, we are balancing premiums not yet collected against estimated return premiums, but the practical effect is probably no worse than developing earned premium from premiums written, but not yet collected.

Finally, we agree with the concluding observations made by Mr. Fitzgibbon and extend our compliments to him for a job well done.

DISCUSSION BY D. R. UHTHOFF

I doubt if any of us are thoroughly satisfied with our own company methods for reserving against retrospective returns. Even though we may have taken pains with and given much thought to this problem, it's the kind of thing we can't be very sure of and it's likely to come up for intensive review at least once a year, certainly in preparation for annual statement time. It's good to be able to compare notes with Mr. Fitzgibbon as he describes and discusses an attractive-looking method used by his company, and also as he points briefly to other reserving methods, perhaps simply to demonstrate his open-mindedness to these other methods, even though enthusiastic about his own. I particularly like one sentence: "A reserve may always be created through use of 'judgment' alone." This shows he does have his feet on the ground.

The paper describes characteristics of a good reserving method, giving us helpful principles to have at hand, and then shows how a reserve established as a function of retrospective business loss ratio can substantially fit those principles. The author's presentation is interesting, quite understandable, and obviously consistent with an apparent purpose of helpful give and take on one of the several internal problems many of us would like to get together on, either in the *Proceedings* or through informal discussions.

I was disappointed in finding that my own company experiences did not have adequately useful correlation between restrospective returns and retrospective business loss ratios, policy year by policy year. I somewhat envied Mr. Fitzgibbon's own company experiences in that they did provide the correlation which made a good case for the method, although I would suggest the possibility that, one or two years later, circumstances might render a description written at that time more theoretically logical than factually justified. In other words, not only do I suspect possibility of chance variations, goodness knows why, but also we are in a changing era, increasing popularity of retrospective rating affecting the characteristics of the retrospective community, and offhand I wouldn't venture to say just what effect the new Table M may have upon returns and relations to loss ratios.

Of course, these changing things can affect the validity of any methods and must be coped with or left alone to be reflected eventually in actual experience. As the Chinaman says, "It's a wise man who knows what to leave to chance." Perhaps the only way we can be fairly sure of a proper over-all reserve is to proceed almost on a risk-by-risk basis according to the rating plan values applied to each risk's developed premiums. And here we get into a fundamental kind of question: Should we attempt to establish reserves precisely as of a statement date according to immature developed premiums, rating factors based upon premiums completed at statement date, and estimated losses, as though business were to cease as of statement date, or should we go the more practical route of estimating ultimate returns, a purpose more suitable for accuracy of operating statements. Probably the latter purpose will also give the more conservative reserve from a cessation of business standpoint.

As a matter of fact, Mr. Fitzgibbon's method, as he establishes loss ratio and reserve return relations from older and developed policy year experience, seems to follow the operating result purpose. Otherwise, he would have had to establish a series of equations corresponding to various stages of policy year development and this he could of course not do without a risk-by-risk process of estimating returns as of various moments. Inasmuch as he has not established equations according to development stages, one might question the validity of his application of one common equation to policy year groups of premiums as they develop, such as 12 months and later.

We have found serious development disturbance with retrospective return indications as these returns are calculated with second and third reportings. Our company has traditionally followed an over-all return percentage, on the conservative side, and in one attempt to obtain a more recent return percentage indication, we thought of applying development factors from first to second and to third reportings, but these did not seem dependable enough to count upon. We have been seeing these development factors change considerably from year to year. By staying a bit on the conservative side we are enabled to hold our return percentage somewhat constant from year to year, and thus we see a practical result that our current calendar year operating statement reflects substantially only the actual returns made in that current year, without being affected seriously by reserve changes. This would seem to have some merit, although it does mean that our timing is about a year off, inasmuch as we should have reserved for the returns at the end of the preceding year. Perhaps, though, we are more afraid of error in such reserving, that we then might have more fluctuations in our year-to-year statements because of reserve variations, perhaps with over-corrections, thereby accentuating effects.

In thinking about the method of relating returns to loss ratio, one might consider that returns, particularly if a company uses the stock company scale of expense gradations, are substantially a function of standard premium size, with the residuals being functions of loss ratio and rating values. I wonder if the method might not be improved in this way, a large piece of the return being rather dependably taken care of by working with standard premium expense gradation, and the balance of the job depending upon a cleaner affinity to loss ratio. Perhaps, too, if a company had enough volume to boast about, risks might be segregated into two or three broad groups according to some rating value characteristics. I wish someone in these crowded days would take a crack at something like that, presuming he might tell us how it all worked, somewhat as with the generous spirit with which Mr. Fitzgibbon has contributed something of very practical worth to our *Proceedings.*